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Eric Dolphy's and Yusef Lateef's Synthetic Formations*

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ABSTRACT: This article focuses on a "synthetic scale" reproduced in Yusef Lateef's *Repository of Scales and Melodic Patterns* and attributed to Eric Dolphy. Linking music theory, jazz studies, and Black performance theory, I deploy archival research and meta-theoretical analysis to discuss the various music-theoretical, creative, social, and political resonances of this entry. The article positions Dolphy's scale and Lateef's engagement with it as a testament to the communal "Black study" of 1960s jazz, implicates music theory in contemporaneous issues regarding racial politics, and explores how music theory informs creative practice in these musicians' work.

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Introduction

[0.1] Yusef Lateef's *Repository of Scales and Melodic Patterns* is a collection of pitch-based musical ideas collected or created by its author. Its scales, melodic patterns, and harmonies represent "bold assertions and refined ornaments, thematic suggestions, and developmental materials that refuse to be indentured by a severe conventional plan" (1981, Author's Introduction). Accordingly, the book's ideas unfold non-linearly and without elucidation; the book does not progress from simple to complex, nor does it present a set of basic music-theoretical tenets upon which later sections elaborate.(1) Each "Exercise" comprises two elements: one or more pitch collections followed by a series of melodies and/or harmonies derived from that collection. Lateef offers minimal or no explanation of these materials and the ensuing elaborative techniques, beckoning analysis and creative engagement on the part of the reader. The 23rd exercise in Lateef's book serves as the point of departure for this article.

[0.2] Exercise 23 presents and elaborates an eleven-pitch, two-octave synthetic scale that Lateef (1920–2013) attributes to the lauded and iconoclastic multi-instrumentalist and composer Eric Dolphy (1928–1964) (Lateef 1981, 15).(2) Thirteen measures of ascending arpeggios conclude the entry. Exercise 24 presents "Yusef's Interpolations of Eric Dolphy's Synthetic Formations" followed

by seven-and-a-half pages of melodic patterns. These entries, I argue, emblematize Lateef and Dolphy's close musical relationship and their interest in music theory, which embeds this scale in the social and collaborative "Black study" of the burgeoning jazz experimentalism of 1960s New York City.(3)

[0.3] In this article, I study Dolphy's scale in structural terms and analyze Lateef's use of the scale in Exercises 23 and 24, as well as the fourth of his *Ten Short Contemporary Piano Pieces*. I then examine the scale's role in two recordings from Dolphy's legendary 1964 album *Out to Lunch*: "Gazzelloni" and the title track "Out to Lunch." I draw on Dolphy's and Lateef's archives to suggest that this synthetic scale is emblematic of a more general theory of scale creation. The article also contextualizes the discussion in terms of Dolphy and Lateef's meeting in early 1960s New York City, as well as Lateef's theory of "Autophysiopsychic" music.

[0.4] My exegesis is a concerted effort to articulate music theory and analysis in relation to the Black radical (musical) tradition. Following Fred Moten, I aim to deliberately blur the distinction between theories of Black performance and Black music. "Blur" in this context refers to "the constant refusal and disestablishment of separation . . . [as] part of a radical entanglement" (Moten 2015). A liminal third space emerges from sources' constructive interference, defamiliarizing or deterritorializing disciplinary sovereignty in the process. In this sense, my article attempts to "unhinge" what we take to be constitutive of music theory, orienting the "shared and collaborative intellectual praxis" at the heart of my analysis toward "information and stories and resources to build the capacity for social change" (McKittrick 2021, 15). This impulse complements some of my other recent work (Hannaford 2021, 2023a, 2023b) and joins other contemporary scholarship that implicates music theory and/or analysis in socio-political discussions of Black music.(4) The insurgent current of this article positions Lateef's and Dolphy's music-theoretical practices as part of broader efforts to resist parochial conceptions of music theory and undermine primitivist conceptions of Black musical practice.(5)

[0.5] Music theory, in this view, opens up and articulates multifarious lines of escape from anti-Black sociopolitical and aesthetic assemblages that evacuate Blackness of depth and capacity for critical inquiry, as well as insist on its separateness from modernist thought. Moten famously highlights this bifurcation in relation to canons: "the idea of a black avant-garde exists, as it were, oxymoronically—as if black, on the one hand, and avant-garde, on the other hand, each depends for its coherence upon the exclusion of the other" (2003, 32).(6) Blackness, he indicates, is always already regarded as separate, as "other." This disjunction is certainly the case in music theory; Black music is almost always rendered as an object to be studied, rather than a source of knowledge that challenges academic conceptions of study and theory-making. Attending to this Black music-theoretical genealogy means refusing so-called distinctions between the so-called "musical" and "extra-musical" spheres.(7) I mobilize music theory's conventional focus on musical structure to suggest how music theory productively participates in Dolphy's and Lateef's creative practice. My historical, textual, and metatheoretical analyses offer glimpses into these musicians' processes, positioning music theory as a generative component of the musical innovations of the long 1960s in the United States. The relation between theory and practice is not causal, however; in practice, musicians often creatively deploy and manipulate given music-theoretical structures. In the article's final section, I address this relationship, recentering expansive and ineffable musical creativity.

1. Contextualizing Dolphy's "Synthetic" Scale

[1.1] Lateef and Dolphy first met when Dolphy visited Detroit, MI (Lateef's adopted hometown) on a 1958 tour with Chico Hamilton's quintet (Lateef and Boyd 2010, 87). Hamilton's group disbanded in New York City later that year and Dolphy played with bassist George Tucker and others before joining Charles Mingus's "Jazz Workshop" band. Dolphy and Mingus knew each other from their time in Los Angeles, and Mingus had already written pieces with Dolphy in mind (Simosko and Tepperman [1971] 1996, 14).(8) Dolphy complemented Mingus's group in terms of both his empathetic personality and distinctive musical voice. Scott Saul (2001) notes that Mingus's system of cueing during performance, method of teaching his music orally, means of extracting the best of

his band members, and ability to balance supportive and antagonistic musical approaches link notions of freedom with collective empowerment, turbulent public struggle, and discipline. Many of these innovations also grew out of bebop's by-then-familiar conventions, marrying socio-political interventions with formal musical ones.

[1.2] Dolphy's earnest devotion to musical exploration helped make him a valuable member of Mingus's band and broader musical community. Reflecting on his experience, Dolphy writes,

> There's so much to learn, and so much to try and get out. I keep hearing something else beyond what I've done. There's always been something else to strive for. The more I grow in my music, the more possibilities of new things I hear. It's like I'll never stop finding sounds I hadn't thought existed. (quoted in Simosko and Tepperman [1971] 1996, 24)

Dolphy also joined John Coltrane's famous quartet in 1961, and the two horn players studied and practiced together (Horricks 1989, 28). Dolphy's, Mingus's, and Coltrane's shared interest in exploring new musical possibilities furnishes important context for Dolphy's published scale: it is an outcome of this climate and work.

[1.3] Lateef and his family settled in New York City—moving into a brownstone in Brooklyn's Bushwick neighborhood—in January 1960 (Lateef and Boyd 2010, 83). Friends and colleagues from Detroit who had already made this eastward move, such as Donald Byrd; Barry Harris; Hank, Elvin, and Thad Jones; and Kenny Burrell, created a small but crucial support system. Lateef, after a short period visiting clubs and seeing gigs, sat in with Mingus's Jazz Workshop at the Show Place in Greenwich Village before joining the band (Lateef and Boyd 2010, 85). Lateef subsequently made just one album with Mingus, which, importantly, also features Dolphy: *Pre-Bird* (1961).

[1.4] Lateef's experience with Mingus involved "a storehouse of innovations" (Lateef and Boyd 2010, 85), but "one of the most valuable things I gathered from my experience with Mingus was spending time with Eric . . . He was always offering musical advice as he experimented with different sounds and modes" (87). Lateef *also* met Coltrane at this time, creating a trio of horn players who were experimenting with novel theoretical, aesthetic, and metaphysical musical ideas in service of freedom. As Michael Veal notes, the pitch explorations of this time helped "players work their ways definitely out of the vestiges of the bebop system" (Veal 2024, 156). Dolphy notes that "I found that I could play a lot of notes against a common chord progression that some people would call wrong. To my hearing it's right. You can play any note you like. It's based on freedom of sound" (quoted in Horricks 1989, 20). Similarly, Lateef writes,

> People walked out on Stravinsky's "[Rite] of Spring." Even when John Coltrane continued his development, he left a lot of people behind when he got to *Stellar Regions*. Eric Dolphy, Ornette Coleman, Thelonious Monk, all have had people flee from their music as though it was the plague. It's to be expected. If you move ahead, you leave some people behind. (Lateef and Boyd 2010, 97)

Lateef foregrounds "moving ahead," which he equates with musical modernism more broadly. His primary touchstone for "moving ahead," however, is the Black musical tradition. In this sense, he and Dolphy's musical explorations intertwine with the conceptions of "freedom" that operated during this period of Black musical experimentation.

Freedom and Music Theory

[1.5] The 1960s saw innovative new forms of jazz catapult to the cultural foreground—variously referred to as "free jazz," "avant-garde," or "the new thing." This musical movement often thematizes freedom. Primary to these conversations are the Civil Rights, Black Power, and Black Feminist movements in the United States as well as decolonial movements in Africa and South America. Ingrid Monson highlights Afro-modernist musicians' demand for "full citizenship and inclusion in modernity's promise of equality and justice for all" (2007, 70). Robin D.G. Kelley (2012, 10) also links freedom with diasporic exchange and its resulting new modes of expression. Eric Porter notes that Lateef is among a cadre of musicians whose published texts combine "spiritual,

aesthetic, and political aspects of improvised music" as part of his efforts to theorize his creative process, attest to music's communal and diasporic possibilities, challenge Eurocentric aesthetic framings, and inspire others (Porter 2002, 244–46). Recordings document some of these important new musical forms, but music-theoretical explorations are part of their background.

[1.6] Influential texts, such as Valerie Wilmer's *As Serious as Your Life* ([1977] 2018), Art Taylor's *Notes and Tones* ([1977] 1982), Ekkehard Jost's *Free Jazz* (1981), John Litweiler's *The Freedom Principle* (1984), and Graham Lock's *Forces in Motion* (2018), dedicate significant space to discussing musical "freedom." These authors usually theorize freedom in avant-garde jazz in terms of abandonment of conventional musical structures.(9) Freedom thus often positively correlates with an absence of explicit, pre-considered musical structures. Wilmer accordingly writes that John Coltrane, Cecil Taylor, and Ornette Coleman "gave other musicians who were tired of the restrictions placed on their playing by earlier forms the opportunity for greater freedom . . . the player no longer needed to confine himself to a single key or use a set of patterns of chords as a base for his improvisation, nor did he have to stick to a given time-signature or even, with the absence of a regular pulse, to bar-lines" (Wilmer [1977] 2018, 2–3). Dolphy echoes this trend when he writes about his original recording of "Gazzelloni," "everybody holds to the construction for the first 13 bars, then freedom!" (1989, 48).

[1.7] As I detail below, the solo form of "Gazzelloni"—where "freedom" begins according to Dolphy—actually comprises a predetermined formal arrangement as well as collection of harmonies and scales.(10) This arrangement pairs musical structure and freedom. In this light, freedom manifests as an outgrowth of study, research, and skill. It suffuses new ideas about musical structure, which connects to notions of Black aesthetics and, invariably, conceptualizations of Black life. I argue that this link between (Black) study, aesthetics, and politics positions music theory as a productive contributor to these musical "freedom dreams."

[1.8] Similar examples of freedom's grounding in structure and theoretical knowledge appear in jazz scholarship. George E. Lewis recognizes this interplay between freedom and structure when he notes that "freedom in Afrological improvisation is perceived [by musicians] as being possible only through discipline, defined as *technical knowledge of music theory* and of one's instrument as well as thorough attention to the background, history, and culture of one's music" (Lewis [1996] 2004, 238, emphasis mine). Paul Berliner (1994, 68 and 161) states that musicians often develop personalized musical theories. James Gordon Williams notes that Andrew Hill and other African-American improvisers developed "their own theories of harmony" as a way of countering Western music theory's disconnect from the creative realities of Black American music (2021, 143). This recalibrated view recognizes how freedom might variously relate to musical structure: Rashid Ali states that "you say . . . 'let's play free, but let's play like in a blues—let's get into some kind of structure with it'" (quoted in Taylor [1977] 1982, 228); Anthony Braxton notes that "structure gives one the possibility of defining the space in a way where it can be evolutionary" (quoted in Lock [1988] 2018, 51); and Elvin Jones argues that "there's no such thing as freedom without some kind of control, at least self-control or self-discipline" (quoted in Wilmer [1977] 2018, 192).

[1.9] These perspectives recognize that music theory can play a generative role for musicians looking to create and develop new musical ideas in service of freedom. Theory can inform creative practice by extending musicians' instrumental and aural abilities—what I call "purposive disembodiment" in other work (Hannaford 2023a, 46)—as well as suggesting new compositional structures for improvisation. The ramifications for these contributions are not only musical, however; they help make space for Black life. I propose that these new musical structures help "imagine a Black world," which Kevin Quashie describes as a place "where blackness is totality" (Quashie 2021, 1–2). By inserting music theory into this conversation on Black world-making, I highlight the way Black musicians have used it as part of a "philosophical audacity, as an embracing generative quality of indisputable aliveness" (2021, 2). Like Quashie and other writers on Black aesthetics, I note that Black being must always face the non-being, terror, unfreedom, negation, abjection, and death wielded by global anti-Blackness, a point elucidated via Afropessimist thought.(11) Like Quashie, I also attend to Black *life* and the important role of Black aesthetics in its enactment and articulation.(12) It is in this orientation toward life that I

conceptualize Black study and music theory as a component of creative world-making. Quashie joins a growing cast of scholars whose contributions engage with Afropessimist thought but amplify its animative and generative powers, linking affect and politics (Brown 2021; Moten 2017, 26; Muyumba 2009; Quashie 2021, 58; Williams 2021). Afropessimist thought highlights the impossibility of reconciling Black ontology with Western, Enlightenment conceptions of being. Yet both Quashie and Philip Brian Harper highlight that Black aesthetics might sidestep binaries structured by anti-Black racist discourse and oppositive resistance (Harper 2015, 62; Quashie 2021, 5). Similarly to how Muyumba places jazz within African American intellectual practice (Muyumba 2009, x), I situate Black American musicians' theories of music within a discourse on Black aesthetics and ontology. This pairing requires attention to the novel ways these theories conceptualize musical structure without dismissing the link between Black aesthetics and politics. In other words, this space of Black aliveness—expressed in both musical theorizing and performance—is at once intellectual and onto-epistemological.

[1.10] Dolphy's and Lateef's music-theoretical work articulates an experimental aesthetic rooted in Black aliveness, in which novel musical structures operate as points of departure for musical creation. Lateef's theory of Autophysiopsychic music also articulates this nexus, situating it within a holistic view of musical being.

Lateef's Theory of Autophysiopsychic Music

[1.11] Autophysiopsychic music refers to "music which comes from one's physical, mental, and spiritual self" (Lateef 1979, 2). The front matter of *Repository of Scales and Melodic Patterns*—a preface by music theorist Roland Wiggins (one of Lateef's collaborators and mentors) and an author's introduction—provides a basic outline of Autophysiopsychic music.(13) Wiggins theorizes musical activity in terms of three areas: the kinesthetic, semantic, and syntactical. The kinesthetic refers to "musical skills which imply a physical relationship to an instrument" (Lateef 1981, Preface).(14) The semantic refers to "the emotional content, meaning personal convictions, or cultural context within or surrounding" musical creation (1981, Preface). Finally, the syntactical refers to "the search for musically acceptable ways to order, analyze, or synthesize the melodic, harmonic, and other formalizing aspects of music creation" (1981, Preface).

[1.12] Lateef's introduction renders Wiggins's three-pronged approach into less technical language, emphasizing the synthesis of physical, mental, and spiritual components. He states that "[t]he various melodic patterns and harmonic devices [in the *Repository*] do not, in themselves, account for creative writing and improvisation. Only when theory and technique are combined with mind and spiritual feeling do works of important aesthetic substance result" (Lateef 1981, Author's Introduction). Lateef's "mind and spiritual feeling" stand in for Wiggins's "semantic" element, while the components of theory and instrumental technique remain. Both authors emphasize the importance of synthesizing "musical symbols" with "musical thought and feeling" into an Autophysiopsychic fusion that serves creative expression. Monson notes that Lateef's Autophysiopsychic theory escapes the negative social connotations and market-oriented containment of "jazz" as a genre category (Monson 2019). She further observes that this philosophy crystalizes "a deep aesthetic, psychological, and ethical philosophy that lay at the center of his life as a musician, composer, Muslim, writer, visual artist, and professor" (105). In this sense, Lateef's theoretical conception resembles what Brit Rusert (2017, 57–58) calls "fugitive science": insurgent Black scientific work that marries scientific positivism with experimental and speculative forms of reflection in service of freedom. My analyses in this article operate similarly. My structural analyses dialogue with sociocultural ("semantic") meanings: Dolphy and Lateef's relationship, jazz/Autophysiopsychic music during the long 1960s, and sociality embedded in Dolphy's *Out to Lunch*. My initial point of entry, however, is auto-kinesthetic.

2. Dolphy's Synthetic Scale Formations

[2.1] Seated at the piano in my living room, I use my right hand to play Dolphy's scale as Lateef notates it (**Example 1** shows scale degrees and my fingering).(15) I immediately notice that the

ascending scale forces my right thumb onto a black key; it must tuck under my palm and reach for the F♯$_4$ that constitutes the scale's fourth scale degree ($\hat{4}$). I continue ascending, my thumb landing on B$_4$ as an anchor for the D$_5$ that my second finger plays. My thumb returns (a notably quick turnaround) for F$_5$, which comfortably readies my other four fingers for the remaining members of the scale. My fingers proceed in reverse order as I descend, re-tracking its uncanny kinesthetics.

[2.2] The scale's structure creates a sense of physical strangeness. The scale extends over two octaves and contains multiple intervals larger than a major second, rebelling against conventional scale structure. It reflects Lateef's note that the materials in the *Repository* avoid definitive tonal associations (Lateef 1981, Author's Introduction). Its sequence of semitone spans is 1, 2, 3, 2, 2, 1, 3, 3, 2, 2, 3, a nonrepeating series. Consequently, the scale's structure also does not recall Messiaen's modes of limited transposition or other symmetrical scale structures that my hand knows. I improvise with the scale at the piano to get to know it a little better.(16)

[2.3] The cluster of five black keys at the bottom of the scale ($\hat{2}$, $\hat{3}$, $\hat{4}$, $\hat{5}$, $\hat{6}$) constitute a pentatonic fragment, and I recall practicing these kinds of rapid pentatonic runs when studying some of Art Tatum's and Jaki Byard's recordings. Two white keys—C$_4$ ($\hat{1}$) and B$_4$ ($\hat{7}$)—bookend these five black keys, which each generate diatonic fragments. $\hat{1}$–$\hat{6}$ is a C♯ major fragment, while $\hat{2}$–$\hat{7}$ is a B major fragment (Lateef treats enharmonic pitches as equivalent throughout the *Repository*). I conclude my exploration of the scale's lower octave by improvising three- and four-note patterns. I discover an F♯ major triad, an E♭ minor triad and minor seventh, A♭ major and minor triads, A♭ minor seventh and dominant seventh chords, and a set of fourths (C♯$_4$, F♯$_4$, B$_4$).

[2.4] The upper half of the scale is all white keys, which similarly generates familiar pentatonic and diatonic feelings. This familiarity within the upper half also allows me to easily incorporate the lower half's B$_4$, creating one large group of white keys. Within this collection I discover additional triads (F major, B diminished, D minor, G major), sevenths (B^{ø7}, Dm^7, G^7), and another set of fourths (D$_5$, G$_5$, C$_6$). I realize that it would be easy (but a mistake) to start playing all the piano's white keys in this octave. This temptation leads me to realize that Dolphy's scale excludes E but contains every other pitch class.

[2.5] Given that the scale affords division into two relatively conventional halves ($\hat{1}$–$\hat{6}$ and $\hat{7}$–$\hat{12}$ in Example 1), I conclude my improvised experiments by lingering over the "break" in the middle of the two octaves ($\hat{6}$–$\hat{7}$–$\hat{8}$). This exploration uses B♭$_4$ and B$_4$ as physical anchors as I play melodic fragments that leap above and below them. I gradually converge around a series of sevenths and ninths surrounding this threshold: C$_4$ to B$_4$, C♯$_4$ to B$_4$ or D$_5$, E♭$_4$ to D$_5$ or F$_5$, F♯$_4$ to F$_5$ or G$_5$, A♭$_4$ to G$_5$ or A$_5$, B♭$_4$ to A$_5$ or C$_6$, and B$_4$ to C$_6$. Thus, my improvised exploration began by highlighting scalar uncanniness before progressing to diatonic-type structures and ending with intervallic, angular formations. Lateef notes that the scale offers "some very challenging intervallic leaps," reinforcing this connection between syntactical and kinesthetic musical elements (Lateef and Boyd 2010, 128). The diversity of sounds within this scale suggests that it affords many possibilities for elaboration. My overall impression of the scale, however, is one of bewilderment: what is its basis?

[2.6] Dolphy's sketchbooks detail a method of generating new scalar, chordal, and melodic patterns by combining pairs of conventional structures. Many pages show Dolphy forming new scales using pairs of major scales. (To clarify, Dolphy synthesized many scales using this method, although only one appears in Lateef's book, "Dolphy's synthetic scale" in this article). Dolphy uses major triads to represent major scales in these sketches. Two examples appear in **Example 2**. The first scale combines pitches from C and F major scales, resulting in an eight-tone scale equivalent to C major with an additional ♭$\hat{7}$, and the second combines C and B♭ major scales to form a nine-tone scale equivalent to a C major scale with an additional ♭$\hat{3}$ and ♭$\hat{7}$. Dolphy's scale degrees suggest that he conceived of the resulting formations as scales as such, as theoretical structures to help generate melodic and harmonic materials (Gelbart 2020).

[2.7] The next page, reproduced in **Example 3**, combines C major and almost every other major scale (Dolphy omits the C and G major pairing). It contains the rationale for the scale published in the *Repository*. The final two scales in this list—synthesized from C and A♭ major as well as C and E major—are the only scales that contain precisely eleven out of the twelve members of the chromatic scale, just like Dolphy's published scale. The two major scales' tonics in both examples are four semitones apart and the excluded pitch is a whole step below the "lower" tonic; Dolphy's scale formed out of the A♭ and C major scales omits G♭, and the one formed from C and E major omits B♭.[(17)]

[2.8] Lateef abstracts this approach in undated lecture notes on John Coltrane, probably from his time teaching at Hampshire College (beginning in 1987).[(18)] Nestled among notes that guide students through Coltrane's discography, Lateef's note (reproduced in **Example 4**) shows him tabulating the number of distinct tones that result when combining two major scales separated by interval classes (although he does not label them as such); Dolphy, in contrast, separately notates C major with A♭ major and C major with E major. Lateef arranges his list from most to fewest distinct pitches in the synthetic scale: major scales with tonics one or six semitone(s) apart cover all twelve tones; those four semitones apart produce eleven distinct pitches; three semitones between tonics provides ten distinct pitches; two semitones between tonics provides nine distinct pitches; and five semitones provides eight distinct pitches. This compact list covers all eleven possible combinations of two major scales (the tritone constitutes one, while the remaining ten relations come from ascending and descending arrangements of Lateef's five other intervals).

[2.9] These illustrations suggest that Dolphy's scale in the *Repository*, which omits E, synthesizes F♯ and B♭ major scales. **Example 5** demonstrates this process. The wide middle staff contains Dolphy's scale, the staff above contains the B♭ major scale, and the staff below contains the F♯ major scale. Arrows connect pitch classes from the two major scales to those in Dolphy's: every pitch in Dolphy's scale derives from one or two pitch classes from these major scales.

[2.10] My additional analysis in **Example 6** shows how the synthetic scale distributes these two scales' scale degrees over its two octaves. Dolphy's scale appears in the lowest staff. The bracketed staves show the constitutive scales: the upper staff shows members from the F♯ major collection, and the middle staff shows members from the B♭ major collection. This illustration shows that each major scale contributes four distinct pitches to Dolphy's original, indicated with circled noteheads, and that three pitches from the two major scales overlap, represented with diamond noteheads.

[2.11] Dolphy's scale begins on C—a pitch solely contributed by the B♭ major collection. Beginning the B♭ major collection on C creates the C Dorian scale, suggesting a form of C minor. Example 6's middle staff also shows that C minor's third and lowered seventh degrees are registerally close to this tonic, with additional extensions from the C Dorian scale above. The upper staff of Example 6 shows that C♯ anchors the F♯ major collection, which suggests C Mixolydian. This staff also shows that the natural $\hat{4}$ (F♯) is closer to the tonic than the third (E♯/F), so this collection expresses $C♯^{13sus4,\ add\ 10}$. Conceiving these two collections thusly suggests that Dolphy's scale synthesizes C minor's i and sub V^{7sus}/V chords, a tonic-dominant functional relationship.

[2.12] Dolphy's and Lateef's materials suggest multiple possible sources of inspiration for these musical explorations, reflecting what Geri Allen notes as Dolphy's transcendence of any particular musical genre (Allen 2020, 37). Writers foreground the signed copy of Edgar Varèse's *Density 21.5* in Dolphy's archive, noting that Dolphy performed the piece at the 1962 Ojai Music Festival (Simosko and Tepperman [1971] 1996, 12). The archive also includes a handwritten excerpt of Hale Smith's *Three Brevities*,[(19)] which contains passages reminiscent of Dolphy's and Lateef's intervallic explorations (discussed below). Givan notes that Sonny Rollins may have derived new ideas from Vincent Persichetti's *Twentieth-Century Harmony*, which contains a section titled "Synthetic Scales" (Givan 2023, 15; Persichetti 1961). Rollins and Dolphy played together, and Rollins fondly remembers Dolphy's musical and creative spirit in his liner notes for *Musical Prophet*, a 2019 release of Dolphy's 1963 studio recordings. Persichetti's text, then, may have also inspired some of Dolphy's (and Lateef's) theoretical explorations.

[2.13] Persichetti notes that "the material generated by thematic ideas may then be gathered up and placed into scale formation" and both Dolphy's sketchbook and Lateef's *Repository* adopt this approach to excerpts from canonic works of twentieth-century Western art music (Persichetti 1961, 43). This approach casts the Western musical tradition as a storehouse of innovations which are redeployable in service of a Black avant-garde that imagines new musical futures (Reed 2021, 42). Using this method, Dolphy reduces part of the second Tableaux of Stravinsky's *Petrushka*, which combines major triads a tritone apart, onto a grand staff.(20) Exercise 91 of Lateef's *Repository* parallels this reduction. It combines two polychordal examples from Stravinsky's music—the same *Petrushka* chord and the famous harmony from *The Rite of Spring* that layers E♭^{7} on top of an E major triad (or F♭, as Lateef notates it) (Lateef 1981, 145). Lateef constructs a new scale using these four harmonies (F, C, and E major triads and E♭^{7}), which structures the melodic writing and a chorale that constitutes the rest of Exercise 91 and all of Exercise 92.(21)

[2.14] Newly synthesized scales, notes Persichetti, contain "indigenous" harmonies and intervallic patterns; that is, those made up of pitches from the scale (1961, 45). An entry in one of Dolphy's sketchbooks similarly demonstrates how he created sequential melodies using newly derived scales.(22) **Example 7** shows two instances. The first line (labeled "4") combines C^9 and B^9 chords (in brackets), and the pairs of melodic seconds that follow use one pitch from each chord: both roots (C to B), then both thirds (E to D♯), then both fifths (G to F♯), sevenths (B♭ to A), and ninths (D to C♯). The second set of brackets (labeled "5") combines C^7 and Bm^7 chords. The ensuing melodic patterns are more convoluted than the preceding one. They combine pitches from two scales, one for each of these chords—C Mixolydian and B Dorian.(23) The remaining lines show Dolphy using minor, major, and augmented seconds to explore the resulting eleven-tone synthetic scale (C, C♯, D, E, F, F♯, G, G♯, A, B♭, B).

[2.15] Lateef's melodic elaborations based on Dolphy's scale in the *Repository* thus represent only the most visible example of a broader theoretical practice shared by these two theorists and multi-instrumentalists. Further, my description of these music-theoretical explorations as a shared concern undermines individualistic conceptions of Black being and practice, instead foregrounding exchange, dialogue, and relationality.(24) This process comprises synthesizing new scales out of conventional music-theoretical structures and using the resulting scales to generate novel melodic and harmonic patterns and exercises. The resulting musical materials challenge instrumental and aural ability as well as inspire new approaches to composition and improvisation.

3. *Lateef's Creative Elaborations of Dolphy's Scale*

[3.1] Lateef's elaborations in Exercises 23 and 24 of the *Repository* engage with Dolphy's scale in ways that range from clear to opaque. My analyses suggest that Dolphy's scale operates, following Jonathan De Souza, "not [as] an end in itself, but [as] a set of techniques that help to cultivate a musical orientation, a certain improvisational attitude" (2022, 227–28). This improvisational attitude makes space for indirect formal relationships between the scale and Lateef's exercises and fourth Piano Piece, animating Black creativity's "intellectual, physiological, and neurological labor" (McKittrick 2021, 50) in this space of creative aliveness. Finally, this improvisational attitude also operates in selections from Dolphy's recorded and collectively improvised performances on *Out to Lunch*.

Lateef's Exercises

[3.2] The 11 four-note ascending arpeggios that immediately follow Dolphy's scale mirror Persichetti's suggestion to generate "indigenous" chords. Lateef's first arpeggio comprises $\hat{1}$, $\hat{3}$, $\hat{5}$, and $\hat{7}$ of Dolphy's scale, the next arpeggio comprises $\hat{2}$, $\hat{4}$, $\hat{6}$, $\hat{8}$, the third arpeggio comprises $\hat{3}$, $\hat{5}$, $\hat{7}$, $\hat{9}$, and so on.(25) **Example 8** shows Lateef's arpeggios and adds my harmonic interpretations for each measure. This example shows that Lateef's harmonies range from relatively conventional to cryptic, offering new colors for creative elaboration.

[3.3] Two five-note cells constitute the final two measures of Lateef's first group of exercises (Lateef 1981, 15). These cells are related by transposition (the second measure is eight semitones above the former). Each cell's set of ascending intervals, measured in semitones, is 5–3–5–3. As a set, each cell is also equivalent to a major seventh chord with an additional minor third (with roots of B and G, respectively). **Example 9** shows these two measures.

[3.4] This collection results from synthesizing the first and tenth chords from Example 8. **Example 10** shows this process. Its first two measures present the tenth and first chords from Example 8, respectively. Measure 3 of Example 10 synthesizes these two structures to form the aforementioned five-note pattern (in transposed form). The dashed boxes in Example 10 indicate the three pitches shared between the two four-note sets and measure 3 (an A♭ major triad in first inversion). Beams show that the first pitch in m. 1 (G_3) corresponds to the first pitch in m. 3 and that the last pitch in m. 2 (B_4) corresponds to the last pitch in m. 3. The first five-note chord from the *Repository* is three semitones higher than the final chord in Example 10, and the second chord is eleven semitones higher. These chords are thus a transposed synthesis of the first and tenth four-note chords that begin this initial set of patterns derived from Dolphy's scale.

[3.5] Lateef's two five-note cells (Example 9) also preserve some pitches from Dolphy's scale (i.e. their specific octave placement). Both retain its $F♯_4$, B_4, and D_5. Lateef's first cell adds two pitches below this triad, B♭3 and $D♯_4$; the second measure adds two above, G_5 and $A♯_5$. Both A♯/B♭s are one octave away from the one in Dolphy's scale: the first measure's $B♭_3$ is one octave lower, and the second measure's $A♯_5$ is an octave higher. Thus, both measures contain the same three pitches from Dolphy's original scale ($F♯_4$, B_4, and D_5), one additional pitch from Dolphy's scale ($D♯_4$ or G_5), plus an A♯/B♭ that is an octave displacement of the original.

[3.6] These five-note cells can also be regarded as a sequence of overlapping major and minor triads. Adjacent triads share two pitches and the third shifts by a semitone each time, an LP cycle in transformational theory (there is, however, no evidence that Lateef thought of these triads in transformational terms). **Example 11** shows these triads for both of Lateef's measures. Combining them using the shared $F♯_4$, B_4, and D_5 elongates this pattern (**Example 12**). The resulting six-note group forms the hexatonic collection (B♭, B, D, E♭, F♯, G), a collection that Lateef singles out in a later interview: "There are various kinds of harmonies that I use. For example, I may use . . . hexatonic harmonies" (Lateef 2000).[(26)]

[3.7] Both Lateef's archival papers and the *Repository* demonstrate his broader interest in chains of overlapping triads. Exercise 101 calls the same four pitches that begin Example 8 a "dichotomous progression," C_4–$E♭_4$–$A♭_4$–B_4–C_5 (1981, 154). Lateef's "Explanation of Terms" defines "dichotomous progression" as "a progression divided into two parts." He also identifies this series as an "unequal division of one Octave into Four parts," implying that this series derives from the maximally-even C_4–$E♭_4$–$G♭_4$–A_4–C_5 series. Lateef's *Repository* also deploys a large tertian chord in Exercise 42, which (as he notes) alternates between major and minor thirds. This pattern creates overlapping major and minor triads in root position (an LR cycle) (Lateef 1981, 63).

[3.8] Lateef's archive contains a sketch based on the same theoretical proposition of overlapping triads (shown in **Example 13**).[(27)] Like many of his music-theoretical sketches, "Bismilah" appears at the top as a tribute to Allah, reflecting the intertwinement of Lateef's faith, research, and creative practice. The top row shows eight pitches that form alternating major and minor triads when read left to right, each with two pitches in common: F, Dm, D, Bm, B, and A♭m (an RP transformational progression). The row immediately below contains the four pitches that do not appear in the top row and complete the chromatic aggregate. Lateef positions each of these pitches between two in the upper row: E between C and F, C♯ between A and D, B♭ between F♯ and B, and G between E♭ and A♭. This lower row's pitches also border two of the overlapping triads in the upper row, which adds a major seventh to each of them, forming the progression FM^7–$Dm^{(Maj7)}$–DM^7–$Bm^{(Maj7)}$–BM^7–$Am^{(Maj7)}$. Two additional transpositions of this pattern appear at the bottom of Lateef's diagram, each a half step above the preceding one. These examples richly illustrate Lateef's interest

in overlapping triadic progressions and thus suggest why he highlights these five-note cells from Dolphy's scale.

[3.9] Returning to the *Repository*, the page following these initial engagements with Dolphy's scale begins Exercise 24, which spans seven-and-a-half pages. It opens with "Yusef's Interpolations of Eric Dolphy's Synthetic Formations," a beguiling original construction that embellishes selected pitches of Dolphy's original. Whole notes in Lateef's entry indicate pitches taken from Dolphy's original, which correspond to $\hat{1}$, $\hat{3}$, $\hat{4}$, $\hat{6}$, $\hat{8}$, $\hat{11}$, and $\hat{12}$ (C_4, $D\sharp_4$, $F\sharp_4$, $A\sharp_4$, D_5, A_5, and C_6).[(28)] Lateef interpolates pitches between all of Dolphy's pitches except the second and third. I offer two analyses of these interpolations: one that connects interpolated pitches to the *subsequent* pitch from Dolphy's scale, and other that connects interpolated pitches to the *preceding* pitch from Dolphy's scale. **Example 14**'s slurs and integers indicate intervals from interpolated pitches (indicated with solid noteheads) to the primary ones that follow (indicated with hollow noteheads). This analysis shows that Lateef's interpolations are always one, two, or three semitones above the upcoming pitch, excepting the final one, which is five semitones above.

[3.10] Lateef's first three interpolations exhaust the possible combinations of the unordered pairs of these three intervals (namely 2 and 3, 1 and 3, and 1 and 2). The fourth set of interpolations, the only four-note group, deploys all three intervals (distributed above *or* below the subsequent pitch). The final two-note interpolation comprises pitches two and five semitones above the concluding C_6. Reasoning for this five-semitone span emerges from my second analysis of Lateef's interpolated scale, which relates additional pitches in relation to the *preceding* pitches from Dolphy's scale.

[3.11] **Example 15** shows that the first pitch of each interpolated group is five semitones above the preceding primary pitch. Fourth-based (what Lateef calls "quartal") structures appear regularly in the *Repository*, which suggests that these interpolations reflect Lateef's strong interest in this sound.[(29)] This quartal structure intensifies in the fourth interpolated group, which includes a second five-semitone span (between G_4 and C_6). Other interpolated pitches are 6, 7, 8, or 10 semitones above each of Dolphy's principal tones.

[3.12] Exercise 24 continues with manifold melodic patterns with no explanation of how they relate to Dolphy's original scale, the four- and five-note arpeggios that immediately follow it, or Lateef's interpolated version, leaving these resonances as avenues of exploration for the reader, player, or analyst. Some passages are clearly sequential and based on excerpts of the original scale; two lines of eighth notes on his third page, for example, begin with the first four-note cell that follows Dolphy's original scale (Example 8's first measure) (Lateef 1981, 18). This elaboration's next four-note cell begins on C_6 and inverts the direction of the original pattern's intervals: the original's (+3, +5, +3) semitone structure becomes (–3, –5, –3), creating C_5–A_4–E_4–$D\flat_4$. Lateef then repeats this eight-note pattern in descending whole steps until the pattern reaches C_4.

[3.13] I focus on the pattern that immediately follows Lateef's interpolated version of Dolphy's scale, lines 1–3. This pattern's relation to the preceding materials is less clear. It comprises nine four-note phrases. **Example 16** presents my analysis of these nine phrases. This table comprises ten rows. The top row numbers each four-note phrase, and the second row shows pitches in order of occurrence. Rows 3, 4, and 5 identify each pitch as part of Dolphy's original scale (indicating scale degree in those cases), one of the interpolations in Lateef's version, and/or an interpolation not included in Lateef's version.[(30)] Rows 6 and 7 provide the three ordered intervals and interval classes (ic) for each four-note cell, respectively. Row 8 indicates relationships between phrases according to transposition, superset/subset, or rotation. The final two rows render each phrase as a pitch class set and set class.

[3.14] Lateef's entire pattern begins and ends with the same pitches that bookend Dolphy's scale, C_4 and C_6, suggesting a fundamental alignment between this creative elaboration and its source material. Rows 6 and 7 show that the first two and last two pitches of every phrase span eleven semitones, or interval-class 1 (ic1). Interval-class 6 (ic6) or ic2 separate most phrases' ic1 dyads; Phrase 7 interpolates ic3 and Phrase 9 interpolates ic4. This intervallic pattern indicates that Lateef

treats Dolphy's scale, and his elaboration of it, largely as a study of pairs of major sevenths separated by two or six semitones. This intervallic focus derives from the intervallic makeup of Dolphy's original scale; five of the six pitches in the lower octave of Dolphy's original scale form the equivalent of a major seventh with a pitch in the scale's upper octave—intervallic formations that concluded my earlier kinesthetic exploration.

[3.15] Phrases 1–4 contain pitches from Dolphy's original scale and/or Lateef's interpolated version (Rows 3, 4, and 5). Phrases 3 and 4 are exact transpositions of Phrases 1 and 2, respectively, which marks the first two phrases as germinal. The first novel interpolation arrives with Phrase 5's E_4. This phrase begins with two pitches from Dolphy's original and concludes with two that are not, a pattern that also appears in Phrase 7. This arrangement suggests that the second half of each phrase is a transposition of the first half; by one and two ascending semitones, respectively. The pitch class subset/superset relation between these two phrases reinforces this pairing; Phrase 5 is a chromatic trichord (012), while Phrase 7 is a chromatic tetrachord (0123).

[3.16] Phrases 6 and 8 do not use any of the pitches from Dolphy's original, but both are transpositions of Phrase 1. Phrase 6 is two semitones above Phrase 1. Phrase 8 is nine semitones above Phrase 1, with the caveat that the final dyad is lowered by an octave. These relationships further reinforce the primacy of the opening two phrases for this passage. Finally, Phrase 9 begins with two pitches from Lateef's interpolated scale, transposing this seventh down four semitones for its second half. This phrase is not a transposition of any other phrase in this melodic pattern, but I suggest that the C_5–B_5 major seventh in the second half of this phrase functions as an elegant concluding gesture aimed at the final C_6. Lateef's penultimate B_5, therefore, functions as a leading tone, and the intervallic conceit of exercise requires the preceding C_5 to continue the pattern of major sevenths. Hence, the four-semitone transposition that distinguishes the final phrase derives from a combination of Lateef's interpolations for its first half and the cadential gesture that constitutes its second half. This conclusion suggests that Lateef's melodic elaborations operate as both an intervallic study and as a structured set of phrases.

Ten Short Contemporary Piano Pieces, No. 4

[3.17] The fourth of Lateef's *Ten Short Contemporary Piano Pieces*, a collection that constitutes the final entry in the *Repository*, uses Dolphy's synthetic scale as its basis (Lateef 1981, 266). I analyze and discuss the piece in terms of scale-degree fragments, harmony, and voice leading. As I demonstrate, this piece provides a snapshot of some of the ways that Lateef deployed Dolphy's novel theoretical contribution for composition.[(31)]

[3.18] Almost every pitch in this eight-measure piece forms a fragment of Dolphy's synthetic scale beginning on C. Lateef skillfully arranges these fragments to create various ascending or descending patterns, parallel-motion gestures, new scales, and quasi-tonal harmonies that often reference the blues. The pianist's hands operate in rhythmic unison, and each hand plays one note at a time. The piece comprises eight phrases, one per measure. Each phrase begins with sixteenth-note septuplets and concludes with a quarter note. Phrases 1, 3, and 5–8 begin with seven 16^{th}-note septuplets, while Phrases 2 and 4 begin with fourteen 16^{th}-note septuplets.

[3.19] My analysis deploys the scale degrees assigned in Example 1 with two caveats. The first distinguishes between linear sequences of scale degree numbers and pitch, and the second concerns the scale as a modular series. My analysis proposes that Lateef's piece plays with the distinction between scale degree and pitch. Its parallel motion gestures unfold by disambiguating ascent and descent in these terms. "Ascending" and "descending" could refer to sequences of ascending/descending pitches, successive rising/falling scale degrees such as $\hat{1}$–$\hat{2}$–$\hat{3}$, $\hat{10}$–$\hat{9}$–$\hat{8}$–$\hat{7}$, or both. For example, the left-hand fragment in m. 1 that appears in **Example 17** comprises two discontinuous ascending scale-degree segments, $\hat{5}$–$\hat{6}$–$\hat{7}$ and $\hat{1}$–$\hat{2}$–$\hat{3}$–$\hat{4}$–$\hat{5}$. By treating scale degrees as pitch classes, Lateef positions $\hat{7}$ next to $\hat{1}$ in pitch space (B_2–C_3) to create a uniformly ascending scale. This distinction between ascending/descending scale degrees and pitches is particularly

salient in the piece's left-hand part, which often creates new scales by rearranging fragments of Dolphy's original in this way.

[3.20] Lateef's piece also treats Dolphy's scale in modular terms, meaning that the pitch class C could refer to either $\hat{1}$ or $\hat{12}$. The piece often passes through this threshold during a continuous ascent or descent. I label the pitch C as $\hat{12}/\hat{1}$ when it appears in ascending fragments and $\hat{1}/\hat{12}$ when it appears in descending fragments. **Examples 18 and 19** demonstrate these occurrences using excerpts from the right-hand part in m. 2 and left-hand part in m. 4, respectively.

[3.21] **Example 20** presents my analysis of Lateef's piece. The top row numbers each phrase. Rows 2 and 5 provide the pitches in each hand. Wedged between these rows are the scale degrees for each hand. The final two rows pertain to the harmonic analysis that I provide later. Colors delineate continuous scale-degree segments; color changes denote a break in scale-degree continuity. Shades in the blue/green spectrum denote ascending scale degrees, while shades in the red/yellow spectrum denote descending scale degrees. Duplicate colors do not indicate any connection between segments beyond these facets. This analysis shows that the right-hand part uses large segments of continuous scale degrees, which generally last for two phrases. Phrase 1 consists of $\hat{1}$–$\hat{8}$, C_4–D_5. Phrase 2 continues this series of scale degrees, although its opening $\hat{9}$ appears as F_4, an octave lower than it would if Lateef continued the scale in terms of both pitch and scale degree. The right hand continues, arriving back at $\hat{11}$ followed by a very high B_6. This B_6 is not part of a scale-degree fragment (I highlight it in purple); it is $\hat{7}$ in Dolphy's scale, but neither $\hat{6}$ nor $\hat{8}$ follows it in the right hand. I interpret this B_6 in terms of the piece's harmony, which I discuss below.

[3.22] The third phrase begins a long, scale-degree descent that lasts until the end of Phrase 4. This descent begins with $\hat{11}$, which is also Phrase 2's penultimate scale degree, passing through $\hat{1}/\hat{12}$ twice to conclude on this same scale degree. The only break in this passage's otherwise continuous pitch descent occurs between Phrases 3 and 4, where $\hat{3}$ appears as $D\sharp_6$ instead of $D\sharp_4$. The scale degree ascent in Phrases 5 and 6 begins with the next-lowest scale degree ($\hat{10}$), a minor seventh above the preceding $\hat{11}$ (as G_4) and concludes on $\hat{3}$. The break between these phrases again creates discontinuous pitches as the scale degrees ascend successively. Phrases 7 and 8 conclude the piece with another long, continuous scale degree descent that begins on $\hat{2}$ and ends on $\hat{9}$, wrapping around $\hat{12}/\hat{1}$ twice. These phrases mostly descend in terms of pitch but also contain an ascending minor seventh between the end of Phrase 6 and the beginning of Phrase 7, as well as an ascending major sixth in the middle of Phrase 8, C_4–A_4.

[3.23] Discontinuous scale-degree fragments permeate the piece's left-hand part. This part nonetheless largely continuously ascends or descends in terms of pitch, like the passages shown in Examples 17, 18, and 19. In this way, Lateef's piece proposes a creative extension of Dolphy's two-octave scale; by spreading eleven of the twelve chromatic pitches over two octaves and eleven scale degrees, Dolphy's scale affords synthesizing new scales out of discontinuous scale degree fragments. These resulting scales could serve as bases for additional melodic and harmonic explorations, articulating a recursive generative cycle that positions this piece as both a creative outcome and a potential beginning. This generative aspect aligns with what Moten calls "recursive predication" (2018a, x), articulated in a form akin to Quashie's subjunctive tense (2021, 42), which indexes possibility and becoming.

[3.24] Example 17 (above) shows Phrase 1's new scale, which begins and ends on $G\sharp$ using ascending $\hat{5}$–$\hat{7}$ and $\hat{1}$–$\hat{5}$ scale degree fragments. This scale outlines a $G\sharp^7$ sonority and includes an additional lowered third that infuses it with bluesy overtones. Phrase 2's first seven septuplets ascend from $\hat{2}$–$\hat{8}$. This segment's final D_4 becomes D_3 to begin the next segment, an ascending $\hat{8}$–$\hat{11}$ fragment. Phrase 2 concludes with another four-degree fragment, $\hat{7}$–$\hat{10}$, ending on a G_4 that consonantly harmonizes the right hand's B_6 apex. Phrase 3 contains a continuous pitch descent. Unlike the right-hand part, which descends continuously in terms of both pitch and scale degrees,

the left-hand part combines two scale degree fragments. The passage begins with $\hat{8}$–$\hat{5}$. This fragment's concluding A$\flat_3$ connects smoothly to the G3 that begins the following $\hat{10}$–$\hat{7}$ fragment. The resulting scale is a subset of the diminished scale that contains E and F. Phrase 4's long descent begins on $\hat{11}$ and concludes on $\hat{8}$, wrapping around the scale's beginning and ending points once, at a different moment from the right hand's two "wraparounds." This left-hand phrase also descends continuously in terms of pitch with the exception of the A$\flat_3$–F$\sharp_4$ in the middle.

[3.25] Phrases 5 and 6 each ascend pitchwise by combining two distinct ascending scale-degree fragments. Phrase 5 begins with $\hat{2}$–$\hat{4}$ and concludes with $\hat{11}$–$\hat{4}$. This scale's D$\sharp$ "tonic" anchors a kind of blues scale; it contains the typical blues markers of $\flat\hat{3}$, $\flat\hat{5}$, and $\flat\hat{7}$, but adds a natural sixth and omits a natural fifth. Phrase 6 forms its ascending scale by combining $\hat{10}$–$\hat{2}$ and $\hat{8}$–$\hat{11}$ scale degree ascents. The septuplet fragment of this gesture spans G_2–G_3 and is symmetrical; its intervals, measured in semitones, are 2–3–1–1–1–3–2. This scale also omits any third in relation to its G tonic, suggesting G^{7sus4}, but also includes the $\hat{4}$–$\sharp\hat{4}$–$\hat{5}$ complex that recalls the blues. Phrase 7 reverses direction across this G_2/G_3 span with a new scale formed by two descending scale fragments, $\hat{10}$–$\hat{6}$ and $\hat{11}$–$\hat{10}$. This scale outlines G^9 (G, B, D, F, A) but also includes a lowered third degree (B$\flat$), again referencing the blues.

[3.26] The final pitch in this phrase, G$\flat_2$, is $\hat{4}$ and does not couple with the preceding or subsequent scale degree fragments. My discussion of voice leading and harmonic implications in the next section offers another way of interpreting this moment. Phrase 8 also divides into two descending scale fragments, $\hat{12}$–$\hat{9}$ and $\hat{3}$–$\hat{11}$. Both hands include an ascending major sixth between their fifth and sixth sixteenth-note septuplets in an otherwise descending (in terms of pitch) line. This melodic break thus does not align with the break in scale degrees; the right hand's ascending sixth corresponds to $\hat{1}$/$\hat{12}$–$\hat{11}$, and the left hand's sixth corresponds to $\hat{3}$–$\hat{2}$.

[3.27] I interpret the two pitches in the piece that do not operate as part of continuous scale fragments—the B_6 in m. 2 and the G$\flat_2$ in m. 7—in terms of the piece's implied harmonic structure. This interpretation mobilizes Autophysiopsychic theory's "semantic" component; it embraces the interpretative nature of analysis, drawing together both the musical structures "given" by the piece and the "fictions" of the analyst.[(32)] My harmonic interpretation hinges on the opening and closing dyads of each measure, which arrive on the first beat of each measure as the first of a series of sixteenth note septuplets and the final beat of each measure as a quarter note. Measure 1's dyads—G$\sharp$/C and G$\sharp$/D imply a $G\sharp M^{(add\sharp11)}$. Measure 2's dyads—C$\sharp$/F and G/B—form $C\sharp^{7(\sharp11)}$, or the IV chord in relation to the opening G$\sharp$ chord. This interpretation casts m. 2's high B as part of an opening blues progression and as the lowered third of the hypothetical G$\sharp$ tonic. These harmonic implications also reflect Lateef's point that the blues is an ideal medium for learning Autophysiopsychic music and emphasizes the primacy of the blues for Black American music more generally.[(33)]

[3.28] The low G$\flat$ in m. 7 operates as part of a series of parallel tenths that undergird the piece. **Example 21** highlights these tenths with a beam, forming interim harmonies using the initial and concluding dyads from each phrase. Measure 1's $G\sharp_2$–C_4 enharmonic tenth descends by a semitone to become the G_2–B_3 tenth that begins m. 6. This dyad descends again to G$\flat_2$–A$\sharp_3$ for the concluding quarter note in m. 7 (I respell this A$\sharp$ as B$\flat$ in Example 21 for notational legibility). The concluding A_3–F_4 is an inverted tenth, creating a chromatic descent (A$\flat$–G–G$\flat$–F) over the course of the piece. This progression casts the final measure as a resolution; F appears in Lateef's melodic voice, but the sense of harmonic resolution at this moment is palpable given the G–G$\flat$–F motion that dominates the second half of the piece.

4. Dolphy's "Gazzelloni" and "Out to Lunch"

[4.1] How does Dolphy's scale operate beyond these relatively didactic contexts? I follow two threads from Dolphy's archive to explore this question and discuss how the "improvisational

attitude" operates in the space between theory and creative practice.[34]

[4.2] Archival documents demonstrate that Dolphy deployed his scale for two pieces from his influential *Out to Lunch*: "Gazzelloni" and "Out to Lunch." The bass part for "Gazzelloni" (**Example 22**) shows that two transpositions of the scale structure the piece's 13-measure ABA form (divided as 8+3+2 measures).[35] The scale beginning on F♯ undergirds both A sections, while the scale beginning on F appears in the B section. Richard Davis largely adheres to Dolphy's notated bass part during the opening moments of the recording, 0:00–0:32.[36]

[4.3] The melody for "Gazzelloni" exhibits an ambivalent relationship to these two transpositions of the scale: analysis neither wholly confirms nor denies that its basis is Dolphy's scale. **Example 23** recreates Dolphy's melody from his archived handwritten part. The double barlines indicate the ABA form denoted in the bass part.

[4.4] No transposition of the synthetic scale that preserves the distinctive opening minor ninth of the melody (C_4–$D♭_5$.) convincingly accounts for the rest of the melody. **Example 24** aligns the pitches in the first A section (mm. 1–8) of Dolphy's melody with the scale beginning on C and those four other transpositions. Ticks in the chart indicate that a melodic pitch aligns with that pitch's position in the corresponding transposition of the scale, while a gray box denotes a mismatch between octave placements. A black box indicate that this pitch does not appear in the scale at all. The final two columns tally the number of matching pitches between the melody and the scale and calculate these matches as a percentage of the eight measures' 13 distinct pitches.

[4.5] This analysis shows that none of these transpositions of the synthetic scale account for the other pitches in its first eight measures. Each transposition accounts for portions of the melody, but all contain octave mismatches and/or include the scale's excluded major third. Expanding this analysis to include transpositions of the synthetic scale with tonics between C_4 and $D♭_3$ does not produce more compelling matches (an A_3 tonic produces the most matches: eight). My point here is that, although Dolphy explicitly structures the bass part for "Gazzelloni" around his synthetic scale, the composition's melody adheres to a different logic, whether pitch-based or otherwise. The scale is thus important for the composition but not a comprehensive influence. Its tempered theoretical stature for "Gazzelloni" reflects Dolphy's multi-layered creative approach, or what Muhal Richard Abrams calls the "*right* to *connotate*": creative musicians' inherent practice of adapting resources to their creative needs (Abrams and Iyer 2021, 194, emphasis in original).

[4.6] The transposed trumpet part for Dolphy's "Out to Lunch" includes the synthetic scale beginning on $C♯_4$ (concert pitch B_3). Dolphy notates the piece's melody on a single staff and without chord symbols, so he presumably offers the scale as a guide for improvisation. Dan DiPiero productively highlights how Dolphy's written parts only loosely structure the improvisation for "Out to Lunch" (DiPiero 2022, 36–37). Indeed, trying to use Dolphy's scale as a guide for Hubbard's trumpet solo perhaps misses the point; his joyful entry at 3:11 introduces an entirely new set of sounds into the sonic landscape. Hubbard begins with a D♭–E♭–F whole-tone fragment before adding A and B. He subsequently utilizes an A major pentatonic fragment and a F–E–E♭–D–D♭ chromatic fragment. These pitch collections do not seem to derive from Dolphy's scale, but this observation hardly reduces Hubbard's brilliance. I want to be careful not to cast Hubbard's solo simply as a negation of Dolphy's music-theoretical suggestion. Rather, I encourage us to hear this passage on the recording as an encounter between sound and text—a version of what Michael Heller calls "textual interference" (2024, 86–87)—where Hubbard's explosive entrance subsists on both Dolphy's music-theoretical suggestion and the striking sonic environment established by the ensemble prior to his entry, negatively in the first case and positively in the second.[37]

[4.7] Archival papers also show that Davis's bass part for "Out to Lunch" also includes the synthetic scale beginning on B2 (**Example 25)**. Dolphy writes, "No E♭ or D♯, play scale on Freddie's solo."[38] Davis's improvised bass part during Hubbard's solo adopts some aspects of the scale and ignores others. **Example 26** correlates Davis's pitches in this passage with the version of

Dolphy's scale beginning on B_2. I transpose Davis's sounding pitches up an octave to align with Dolphy's notation in Example 25. Row 1 identifies Davis's pitches and row 2 provides time stamps. Time stamps spanning two pitches indicate that Davis includes both during this period. Row 3 identifies scale degree and row 4 indicates whether Davis's pitch matches the octave in Dolphy's scale (with a tick mark), is one octave too high (up arrow and light gray box) or low (down arrow and light gray box) or does not appear in the scale at all ("X" and dark gray box).

[4.8] This analysis demonstrates that although Davis often uses the precise pitches from Dolphy's scale, he also regularly displaces them by an octave. He also briefly touches on E♭, the pitch excluded from this transposition of the scale. The pairs of pitches with a common timestamp also indicate that Davis emphasizes ic2, either as a major second or minor seventh, but the performance only once uses one of the scale's five "indigenous" major seconds (E4–F♯4). These differences suggest that Davis only loosely attends to the scale that Dolphy provides for this section.

[4.9] These analyses suggest that Dolphy's scale operates as a generative but contingent influence on these collective improvised performances. The link between creative practice and music-theoretical exploration in this musical community—Lateef, Dolphy, and Dolphy's *Out to Lunch* ensemble—involves exploring the novel sounds and feelings that Dolphy's scale affords. These creative manipulations are not simply ends in themselves; they serve as points of departure for creative exploration, individually and collectively, congruously and incongruously, in composition and performance.

[4.10] The difficulty of detecting the scale in these performances extends from the scale's convoluted structure and the ensemble aesthetic. Thus, although Dolphy's scale represents a formal extension of the pitch materials inherited from bebop and modernist Western art music, its application in performance overlaps with Michael Gallope's (2024) notion of "second order modernism."(39) Ineffability is a central component of second order modernism, such that musicians "rendered unclear a basic matrix of musical materials: the notes on the page, the tones comprising themes that are developed, the chords and keys structuring a composition, and even the skilled execution of any of the above" (29). The ensemble's skill is clear on these recordings, but its ambivalent and improvisatory deployment of Dolphy's synthetic scale renders some of the performance's formal components opaque.(40)

Conclusion

[5.1] This last point serves as a reminder that "syntactical" elements form only one branch of Autophysiopsychic music. Conventional ideas about musical structure—which I align with what Lateef calls "thoughts" in the following passage—operate within and alongside music's soulful and metaphysical components:

> Thoughts . . . are important in that they are as alive as physical [gestures]. They work for one's advantage or disadvantage according to their nature, the sensitive musician creates, fashions, and controls them for he/she realizes that the effect of personal expression upon the listener depends upon the thoughts that are imbedded in his/her sound . . . The earnest feelings of one heart can pierce the heart of another; They even speak in the silence, spreading out into the sphere, so that the very atmosphere of a person's presence proclaims his/her thoughts and emotions. (Lateef 1979, 5)

These remarks anchor discussions of musical structure to notions of communication, audience, soul, and expression. This passage underlines that Lateef and Dolphy are music theorists in the sense that they offer considered ideas about musical structure, but their work simultaneously rejects academic distinctions between "musical" and "extra-musical" elements.(41) Their "Black study" testifies to this music's rich intellectuality, as well as its social, political, and spiritual aspects.

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Footnotes

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1. This logic of opacity, to borrow from Édouard Glissant, represents a fugitive streak in Lateef's work that undermines the notion of a single, authoritative author. Glissant proposes a "poetics of relation," which foregrounds shared knowledge, encounter, exchange without collapsing difference ([1990] 2010). For other engagements with Glissant's work in jazz studies, see Coleman 2021 and Hannaford 2023a.
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2. Dmitri Tymoczko's (1997) and Matthew Gelbart's (2020) discussions of scales' general theoretical properties attest to some of this scale's unique structural make-up. Although one could debate whether or not Dolphy's arrangement constitutes a scale in strict terms, I continue to use this term here to align with how Lateef and Dolphy conceptualized it.
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3. "Black study" as it is used here comes from Stefano Harney and Fred Moten's *The Undercommons: Fugitive Planning & Black Study* (2013). I also draw on Moten's notion of "a radicalization of singularity," which refers to a bivalent co-constitutive relationship between an analytical point of entry and the broader network of sociality that enmeshes it (Moten 2015).
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4. See Coleman 2021; DiPiero 2022; Doktor 2020, 2021; Hisama 2015; Lordi 2020; Micchelli 2022; Monson 1996; Ramsey 2001a, 2001b, 2003, 2004, 2007, 2013; Steinbeck 2017, 2018, 2022, Stover 2021, 2023; Veal 2024; Wilf 2014; and Williams 2021.
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5. For similar ideas in areas outside of music, see Jarvis Givens's notion of "fugitive pedagogy" (2021) and Britt Rusert's "fugitive science" (2017).
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6. I capitalize "Black" throughout my prose but maintain authors' original capitalizations when in quotations. "Lines of escape" here also draws on Gilles Deleuze and Félix Guattari's (1986) notion of "minor literature." A minor literature, they state, is "that which a minority constructs within a major language" (16). It is a literature that is highly deterritorialized, meaning that its contents are defamiliarized, destabilized, and altered. In this sense a minor literature undermines the hegemonic "major literature," and the "impossibility of not writing, the impossibility of writing otherwise" (16).
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7. Indeed, Georgina Born (2010) and Guthrie P. Ramsey Jr. (2001a, 2001b, 2004) lament music theory's difficulty reconciling close reading with music's social and political meanings.
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8. Mingus wrote "So Long Eric (Don't Stay Over There Too Long)" as a tribute to Dolphy after he decided to leave the group and move to Europe. Dolphy's passing soon after in 1964 lends the piece additional melancholy resonances.
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9. Other discussions of freedom in jazz and improvised music that influence my work here include Banerji 2023, Charry 1997, Floyd 1995, Kelley 2002, Lewis 2019, and Monson 1998 and 2007. Theorizations of freedom in the broader sociopolitical landscape related to Blackness include Brooks 2006 and 2021; Brown 2021; Hartman 1997 and 2019; hooks 1991 and 1994; Moten 2003, 2004, 2008, 2015, 2017, 2018a, and 2018b; and Stovall 2021.
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10. This schism between discourse and creative practice mirrors Benjamin Givan's recent work on Sonny Rollins (2023). Givans shows that Rollins's archive demonstrates a long-running, conscientious, and detailed method of combining scales and intervals, saxophone technique,

physiology, and spirituality, despite the saxophonist regularly downplaying his music-theoretical practice.
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11. Outlining intricacies of Afropessimism are well beyond the scope of this article. Formative texts include Fanon [1952] 2008 and [1963] 2004; Hartman 2019; Mbembe 2017 and 2019; Moten 2003, 2017, 2018a, and 2018b; Sharpe 2016; Sexton 2011; Wilderson III 2020; and Quashie 2021.
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12. Ramsey (2001b) calls for white scholars of Black music to situate themselves in relation to the music they study. Echoing his primary question, "who hears here?," I suggest that music theorists must also ask, "who theorizes here?" Yet Ramsey also indicates that these explications should appear "in tandem with the theoretical experiences of a critical mass of black scholars" (40–41). Otherwise, they risk reinforcing white hegemony in music studies. I recognize that my engagement reflects my white, middle-class upbringing in Australia and academic education at an Ivy League university. At the same time, it emerges from decades of creative practice in this musical sphere, playing with and learning from some of the masters of this musical tradition. I aim to deploy my music-theoretical knowledge to creatively amplify aspects of Dolphy's and Lateef's practices that I feel deserve deeper and wider engagement. I offer this snippet of personal biography to show where this love comes from; it is genuine and is tied to creative practice but is also complicated by its embeddedness in whiteness. I hold off on further exegesis because music theory clearly has a long way to go before reaching the "critical mass" that Ramsey speaks of.
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13. Further elaboration occurs in Lateef's *Method on How to Perform Autophysiopsychic Music* (1979) and an unpublished essay titled "Autophysiopsychic voice," (undated) but discussion of these texts is beyond the purview of the current work.
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14. Kelley (1999) notes that avant-garde improvisers such as Cecil Taylor developed a "kinetic philosophy of performance," a point Micchelli (2022) also deploys for his analysis of Taylor's work. Lateef's theory thus connects to earlier lines of thought in Black musical practice, contextualizing it as part of a longer tradition of theorizing the body in performance. Other music-theoretical scholarship that takes this embodied approach to theorizing and analyzing musical performance includes Duguay 2019, Cusick 1994, Fisher, George and Lochhead 1993 and 2002, and Le Guin 2006.
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15. My kinesthetic outline here is also informed by Eve Kosofsky Sedgwick's (2003) use of touch as a concept for understanding performative implications of an object of study.
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16. Here, I invoke Patricia Shehan Campbell's (2009) notion of "improvising to learn" to outline an improvisatory practice of learning about this scale's structure.
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17. Dolphy also uses this process to synthesize other scales and harmonies. A series of entries begin with a conventional example: diminished-seventh chords built on G and F combine to form the F whole-half diminished scale. The second, third, and fourth staves on this page form less conventional scales. Staff 2 combines $G^{\circ 7}$ and Fm^{7} chords to form an F-minor scale with both lowered and raised sevenths (F, G, A♭, B♭, C, D♭, E♭, E, F). Staff 3 combines $G^{\circ 7}$ and A^{7} to form a G scale whose first six degrees belong to G Locrian and then includes a major sixth and major seventh (G, A♭, B♭, C, D♭, E♭, E, F♯, G). Staff 4 combines $G^{\circ 7}$ and $Fm^{7\flat 5}$ to form a G whole-tone scale with an additional minor third and major sixth (G, A, B♭, B, C♯, D♯, E, F, G). The first staff on the page combines a four-note quartal chord beginning on B and an $A^{7\sharp 9}$ chord. The resulting G scale uses the first six degrees of G Lydian before beginning a major tetrachord on the G an octave above (G, A, B, C♯, D, E, G, A, B, C).
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18. Yusef A. Lateef Collection, Box 12, Folder 7, Special Collections Library, Vanderbilt University, Nashville, TN.
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19. This copy comprises only the piece's first movement and appears with an alternative title, *EDHTAS*. *Three Brevities* was composed in 1960, although it was not published until 1969. As Allen 2020 (37) also notes, Dolphy and Smith were friends, which makes it likely that Smith let Dolphy copy from the original manuscript. Malcolm Breda notes that the piece was first performed by Thomas Nyfenger in Cleveland and that Harold Jones also performed the piece in New York in 1974 (Breda 1975, 34).
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20. Eric Dolphy collection, 1939–1964, Box 3, Folder 7, Music Division, Library of Congress, Washington, D.C.
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21. Lateef adopts the same approach using Alexander Scriabin's "Prometheus" or "mystic" chord, which is often rendered as a stack of perfect and augmented fourths (C–F♯–B♭–E–A–D, for example), but which Lateef arranges as a stack of thirds (G_4–B_4–$D♯_5$–$F♯_5$–A_4–$C♯_5$). Lateef (1981, 93) rearranges this collection into a scale (G_4–A_4–B_4–$C♯_5$–$D♯_5$–$F♯_5$–G_5), two four-note chords, (G3, $C♯_4$, D_4, B_4) and ($F♯_3$, $C♯_4$, $D♯_4$, A_4), and some brief homophonic arrangements.
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22. Eric Dolphy collection, 1939–1964, Box 3, Folder 8, Music Division, Library of Congress, Washington, D.C.
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23. Lateef's *Method on How to Perform Autophysiopsychic Music* (1979) shows that he associated modes with chord types, demonstrating that these chord-scale associations are not the exclusive domain of institutional chord-scale theory.
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24. Quashie notes that "The individual, as such circulates in the Western imaginary, is an incompatible and bankrupt idea for my study of black aliveness. For one, the notion of individuality is not possible for a black subject in an antiblack world, since blackness is always not only a collective designation but a collective indictment. There is no conceptual individuality possible for one who is black in an antiblack world" (Quashie 2021, 32). Quashie's theorization of "oneness," which centers Black feminist thought, is a compelling alternative that treats "self-regard as an essential component of black female relationality," thereby broaching clear divides between the individual and collective (37).
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25. A very similar process of scale exploration appears for a different scale on the reverse side of Dolphy's handwritten parts for "Miss Ann," a composition recorded on *Far Cry* (1962). See Eric Dolphy collection, 1939–1964, Box 2, Folder 12, Music Division, Library of Congress, Washington, D.C.
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26. Reuben Jackson, the interviewer, asks about Lateef's compositional techniques and encouraging performers to express themselves. Lateef responds that he notates his music so as to compel performers to infuse their realization of the notated material with themselves:

> I put just note heads. Of course . . . the harmonies may have been uh, and they were in some cases . . . uh . . . there are various kinds of harmonies that I use. For example, I may use uh . . . hexatonic harmonies. There are only four hexatonic scales, and I would juxtapose against these verticalities . . . maybe three notes over one measure, and then for the, when the harmony changed there might be four notes against that change now, et cetera. Ralph was free to use those three notes or four notes in any manner he chose. He could put notes in between the first and second notes that he chose, or

between the second and third, and I tell him that. . . . He may have different ways of looking at those three notes. He may play the first note plus the major seventh, or that note, the second note plus the tritone of that second note, [or] the third note plus the flat nine of that note. There are many approaches." (Lateef 2000, 31)
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27. See Yusef A. Lateef Collection, Box 8, Folder 6, Special Collections Library, Vanderbilt University, Nashville, TN.
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28. Lateef calls his additional pitches "interpolations," an adaption from Nicolas Slonimsky's *Thesaurus of Scales and Melodic Patterns* (1947), from which Coltrane famously practiced during the early 1960s. For Slonimsky, interpolated pitches appear within the interval formed by two principal tones, while "ultrapolated" pitches appear above this interval, approaching the second principal tone from above. Lateef's examples demonstrate that his use of the term encompasses both of these definitions. For discussion of Coltrane's use of Slonimsky's book, see Bair 2003 and Veal 2024, 46 and 102.
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29. See Exercises 8, 14, 16, 25, 26, 27, parts of 28, 95, 96, 119, 120, and 120a.
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30. Because some of Lateef's interpolated pitches at the beginning of Example 24 duplicate pitches from Dolphy's original scale, some of the pitches in these exercises belong to both categories (rows 3 and 4) in Example 16.
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31. These pieces are unrecorded at the time of publication.
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32. I draw particularly from feminist music theorists who conceptualize analysis as a way of personally connecting with and loving music, such as Cusick 1994; Killam 1994; Guck 1994, 1996, and 2006; Hisama 2015 and 2020; Luong 2017 and 2019; and Cheng 2020. These writers do not discuss Lateef and his work, however. Recent music-theoretical work that attends to some of the ways that performers' physical engagements with instruments shape music analysis, such as De Souza 2017, Duguay 2019, Kozak 2019, Micchelli 2022, and Montague 2012, also recommends a "kinesthetic" analysis of Lateef's piece.
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33. Lateef writes that "[t]he blues form is simply a canvas for the performer to paint his/her creative energy. The melody, harmony, and rhythm will be directly proportionate to the Autophysiopsychic ability of the performer" (1979, 4). See Floyd 1995, Baraka 1963, and Ramsey 2003 for more on the role of the blues in Black American music.
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34. Dolphy's and Lateef's archives portend broader discussion of the politics of archival research on Black music. Both archives are marked by gaps and breaks that prevent further elucidation of these musicians' creative processes. Marisa J. Fuentes (2016) shows how archival silences attest to colonialist systems of power, which politicizes any straightforward interpretation of remaining materials. Mark Anthony Neal (2022, 161) emphasizes that engaging the Black musical archive requires "the labor of artists, critics, and theorists alike to animate the afterlives of fugitive archives long left in the wake. This is more than recovery work, or even the work of discovery (which it so often must be), but the work of imagination and creativity, as fictive realities that align with the very business of disappearing in plain sight."
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35. See Eric Dolphy collection, 1939–1964, Box 4, Folder 4, Music Division, Library of Congress, Washington, D.C.
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36. Dolphy's annotations at the bottom of the page suggest that the two transpositions similarly structure the improvisations that follow, although I reserve full analysis of this for another time: He notates the scales, denoting measure numbers for each (1–8, 12–13, 9–11) and writing "on this scale." He also includes one four-note harmony for each section: (F♯$_3$, G$_3$, C♯$_4$, D♯$_4$) for the A sections, which corresponds to ($\hat{1}$, $\hat{2}$, $\hat{10}$, $\hat{11}$), and (E♭$_3$, F$_3$, B♭$_3$, C$_4$) for the B section, which corresponds to ($\hat{6}$, $\hat{1}$, $\hat{9}$, $\hat{10}$). Vibraphonist Bobby Hutchinson plays these dyads during the opening melody (0:00–0:32), usually realizing the former with a Charleston rhythm and the latter with a sustained quartal voicing.
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37. For more detailed discussions of improvisation's temporal dimensions, see Iyer 2016, Stover 2017, and Goldman 2019.
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38. See Eric Dolphy collection, 1939–1964, Box 4, Folder 4, Music Division, Library of Congress, Washington, D.C.
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39. First-order modernism, for Gallope, "fractures a given musical style such that a public could more or less agree about what counts as a chord or a note" (2024, 29). Gallope's discussions of Ornette Coleman and Alice Coltrane are particularly pertinent, but his theorization also provides useful insights for Dolphy's and Lateef's respective creative practices, even if it remains unclear whether Lateef and Dolphy would be categorized as first- or second-order modernists.
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40. Comparisons with Miles Davis's *Kind of Blue* are illustrative in this sense. Recorded just five years apart, the shared approach of using scales as primary musical materials on *Kind of Blue* and *Out to Lunch* throw their contrasting forms of modernism into sharp relief. The modal compositions on Davis's recording ("So What" and "Flamenco Sketches") feature relatively clear harmonic structures based on conventional scales (D Dorian, E♭ Dorian, etc.). The musicians also clearly articulate these structures in their playing. Dolphy's modal music, on the other hand, utilizes less conventional scales, and the musicians deploy them in obtuse ways (or ignore them all together).
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41. For more on Lateef's practice of Islam and its relation to his creative and intellectual practice, see Lateef 1977 and Monson 2019. My thanks also go to LuFuki for co-studying this topic with me.
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