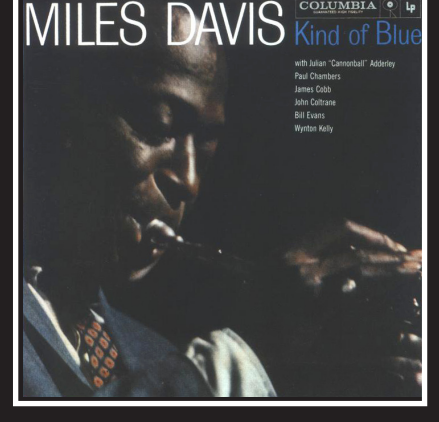


IMPROVIZ

Visual Explorations of Jazz Improvisations

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Is it possible to see how a jazz musician improvises? Is it possible to see how one musician's style is distinct

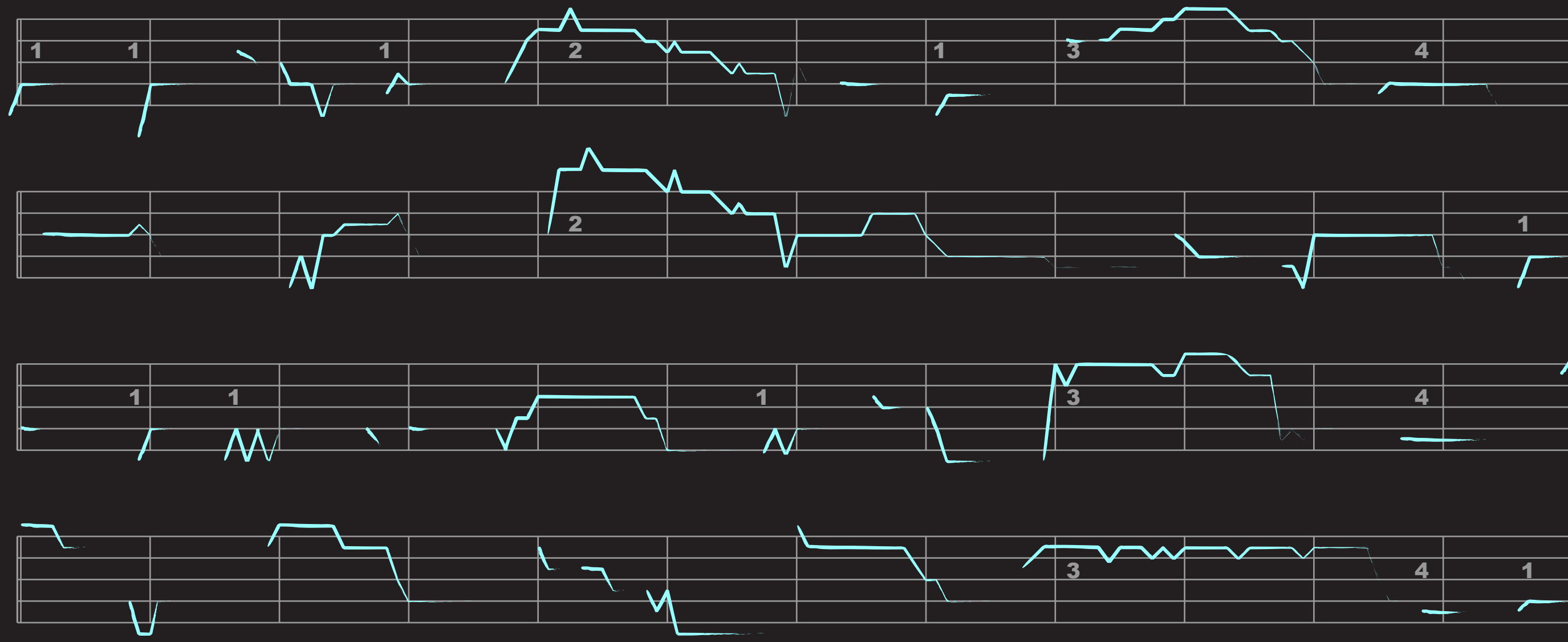
from another's? ImproViz attempts to answer these questions through two visualizations: (1) *melodic landscapes* show the general contours of musical phrasing; and (2) *harmonic palettes* represent the musician's tendency to use a particular combination of notes in a given part of the song. In this example, a composition from the classic Miles Davis recording *Kind of Blue* was explored. Viewing *All Blues* through the lens of ImproViz illustrates the contrasting melodic and harmonic styles of three legendary jazz musicians: Miles Davis, Cannonball Adderley and John Coltrane.



MILES DAVIS

Trumpet

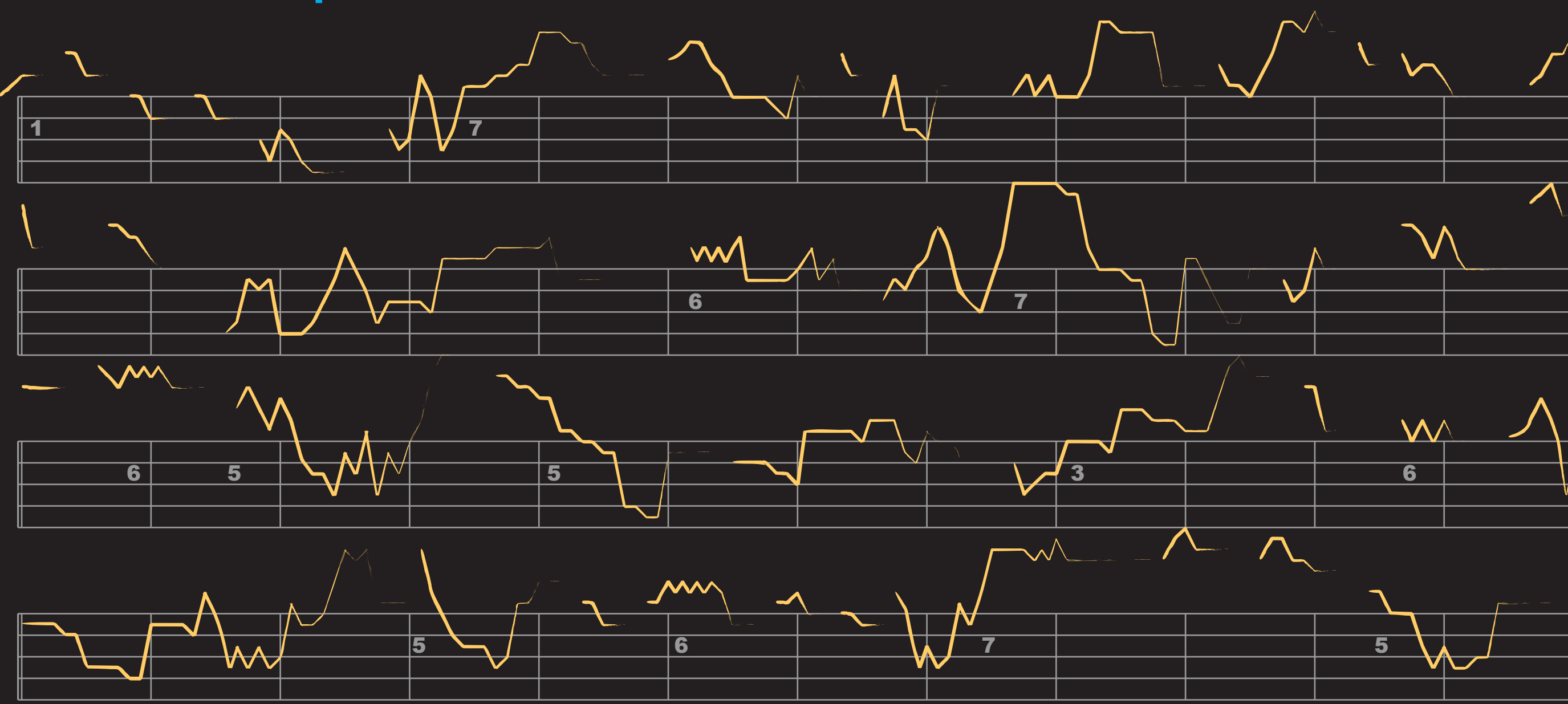
Davis plays extended phrases and punctuates them with equally long silences, creating a sparse *musical landscape*. He fills his solo with musical motifs, like the opening two-note riff that he develops and then returns to at the end, later echoed by the other soloists (1). He repeats a haunting fanfare in the middle of the tune (2) and finishes off each chorus by drawing out a mysterious, almost mournful tone (3), but then releases the mood with a simple figure (4).



CANNONBALL ADDERLEY

Alto Saxophone

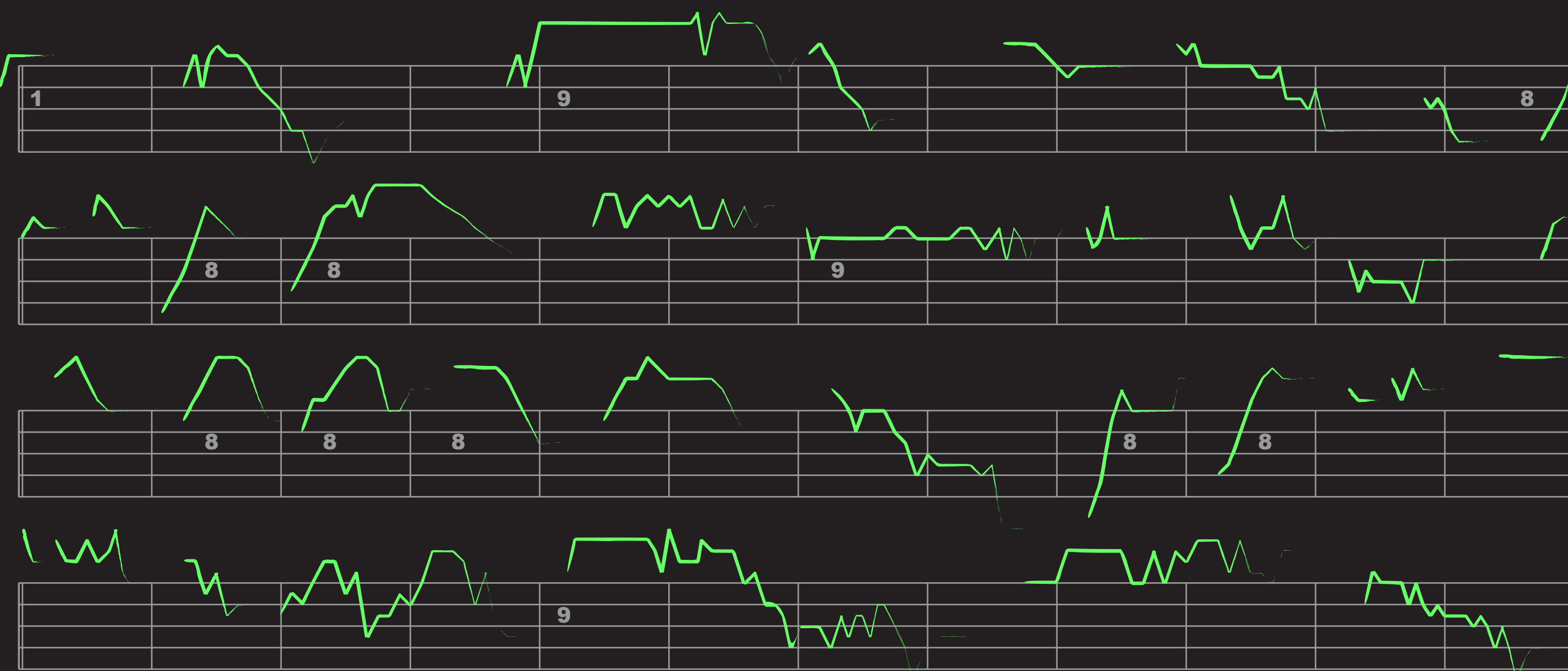
Julian "Cannonball" Adderley creates a funky, syncopated rhythm by starting and stopping phrases mid-measure. He sometimes begins with a high note and descends down the blues scale and up again to create big dipper shapes (5). He often zigzags between two blues notes (6). In his most complex phrases, he builds up tension by climbing upwards, comes down a little, then soars up to a peak and holds it for a climactic moment before descending (7).



JOHN COLTRANE

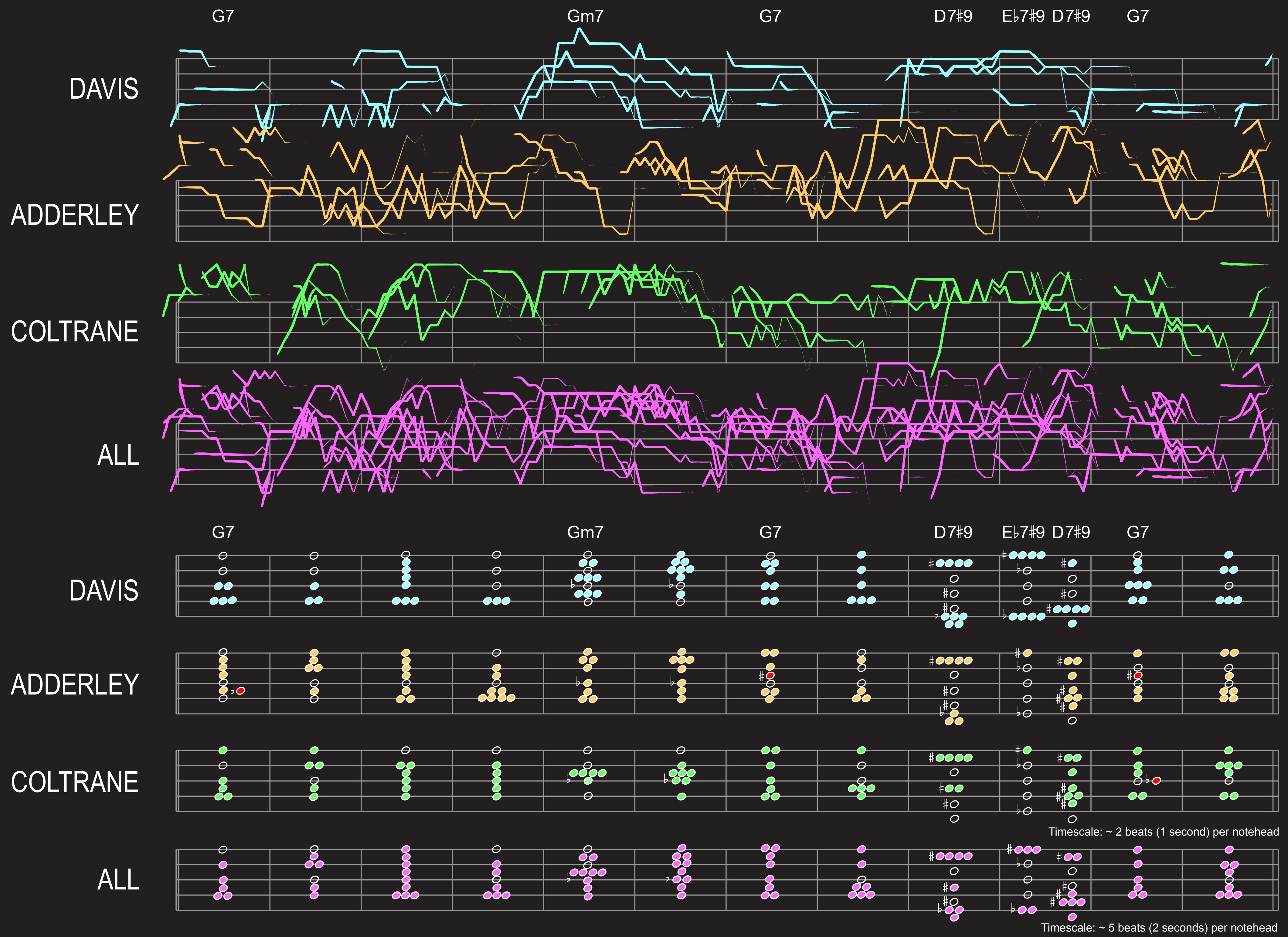
Tenor Saxophone

Around the time of this recording in 1959, Coltrane began to experiment with playing continuous streams of notes. He often launches into these *sheets of sound* with a rapid ascent that quickly trails off (8). In the middle of each chorus, Coltrane climbs to a high plateau, holds steady on a key note, then tumbles downhill in another *sheet of sound* (9). He peppers his solo with numerous rests, giving the listener's ear a chance to recover before the next nonstop run of notes.



All Blues

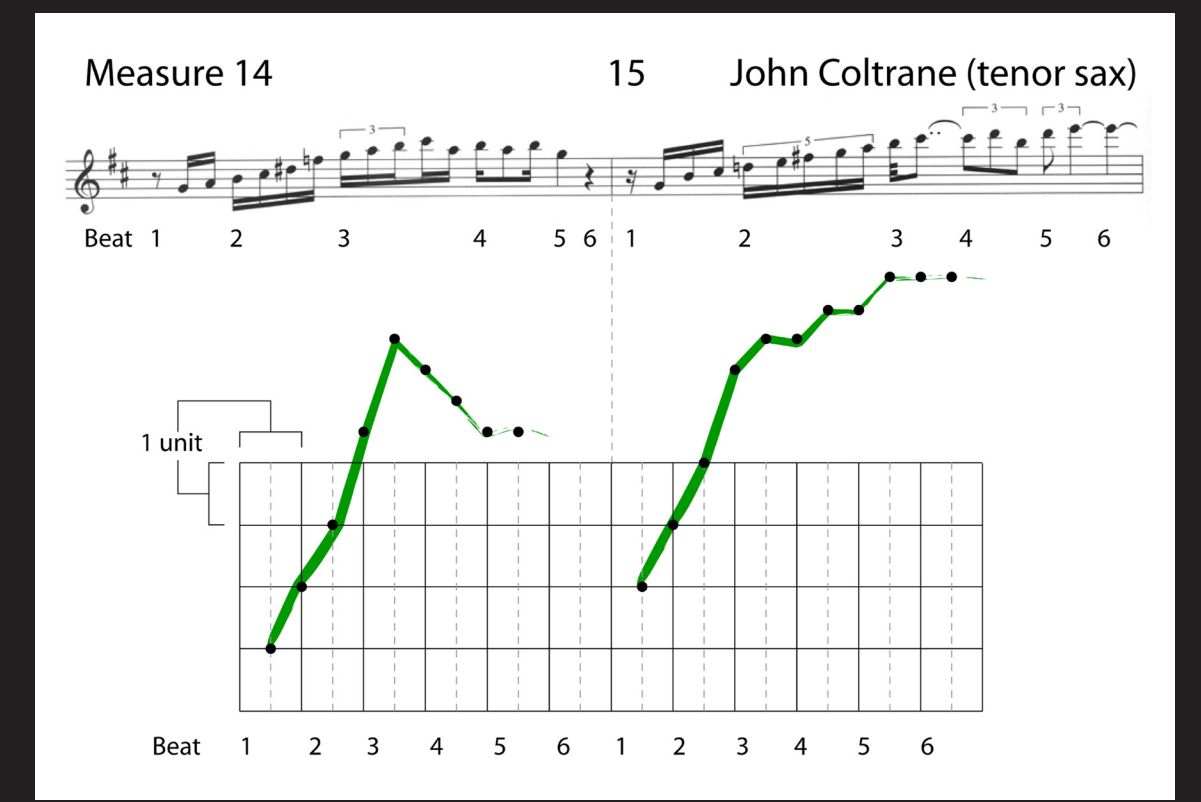
Written by Miles Davis
Recorded April 6, 1959 (Take 1)



MELODIC LANDSCAPES

Visualizing Melodic Patterns

A *melodic landscape* is a contour map of the rising and falling pitches of a soloist that outlines the general characteristics of an improvisation but suppresses the detail of individual notes. In standard musical notation the width of a measure is variable, based on the number of notes that must be displayed. In contrast, ImproViz uses a fixed width for all measures which normalizes the x axis (time). This allows melodic ideas to be viewed over a consistent representation of time to further shed light on patterns.



HARMONIC PALETTES

Visualizing Harmonic Patterns

A *harmonic palette* is a breakdown of the notes each musician played in every measure of the 12 bar blues. It illustrates a musician's tendency to use a particular combination of notes at a certain point in the song's structure. In the 5th measure, Davis (blue) did not play any of the basic notes in the Gm7 chord. Instead he opted for the chord's upper structures – the 9th (A), 11th (C) and 13th (E) – to form an A minor triad. Coltrane (green) emphasized the C, probably because a G blues traditionally changes to C7 in the 5th measure. Red notes (top of poster) show how Adderley played outside the G7 chord in bars 7 and 11 with a sharp 4th to create a lydian dominant chord.

LEGEND
 ● Filled noteheads notes played in chord
 ● Red noteheads notes played outside chord
 ○ Unfilled noteheads basic notes from chord left unplayed

COMPOSITES

Comparing & Contrasting Styles

Composite *melodic landscapes* show a soloist's approach for improvising over the 12 bar structure by superimposing all four choruses on top of each other (top of poster).



This view quickly reveals many of Davis' musical motifs (blue). Another composite consists of overlaying all three soloists on top of one another (inset graphic), revealing patterns of solo development and resolution. Composite *harmonic palettes* show the combined distribution of notes played by two or more soloists. The violet notes (top) show a composite *harmonic palette* for all three musicians.