Linear Tonality in Jazz Improvisation

Extending diatonic, chord/scale-based "Tonality" with a focus on development of the coherence of the melodic line rather than superimposed vertical relationships

Almost every young jazz player I've met wants to know how to "play outside of the changes", and I have searched for an effective approach to explain and teach playing *out* ever since I myself asked that question 35 years ago. To that end I would like to present here a follow-up to my previous paper[1] that explored the concepts of linear structural development (intervallic and rhythmic) rather than vertical chord superimposition as the clearest way to understand how many great soloists created chromatic lines. I will present my observations and theories about how the these improvisors actually created their lines, and believe that this perspective can lead to a learning strategy that brings a greater level of success for improvisors seeking to leave the limitations of diatonic note choice.

I have analysed solo excerpts from a wide variety of musicians from a horizontal, linear and melodic rather than a vertical, harmonic perspective, reaching conclusions that differ from what I see in most jazz textbooks. I am convinced that an intensive study and practice regimen of diatonic and chromatic intervals is an exceptionally effective way to teach the art of improvising in contexts that lie outside the conventional, strictly diatonic, chord/scale boundaries. Viewing this approach as a sort of "Linear Tonality[2] that includes linear, intervallic resolutions, consonances and dissonances as well as the vertical relationships of note-to-chord can open up our playing in exciting ways.

In addition to concentrated listening and solo analysis I have researched some of the existing literature in jazz education, which includes books by authors Jerry Bergonzi, Mark Levine, Jerry Coker, Jamey Aebersold, David Baker, David Liebman, Gary Campbell and Gary Keller among others, and have found much with which to work regarding melody. I will present excerpts from solos by Herbie Hancock, John Coltrane, Rich Perry, Chris Potter and my own recordings and include concepts from the writings of well-known theorists Ulehla Ludmila, David Liebman and Jerry Coker as well as a doctoral dissertation

[1] Melody in Jazz Improvisation and the Fallacy of the "In-Out" Polarity Regarding Harmonic Content (2015)
[2] Ludmila, Ulehla (1994). "*Contemporary harmony: Romanticism through the twelve-tone row"*. Rottenburg, Germany: Advance Music. 'Linear tonality… refers to a pull of a key centre as a result of melodic movement, not necessarily dependant on harmonic conglomerates'.

by the New Zealand pianist Mark Baynes[3]. With the exception of Liebman's book I have found that writers focus on a strict analysis of ***what*** was composed or played, rather than on elucidating ***how*** the melodic lines were created.

For the jazz composer and improvisor the conventional analysis of the relationship between melodic lines and their harmonic accompaniment leads to a deeper and necessary understanding, in an intellectual way, of the structural relationships found in the chosen musical excerpts, but the vital question of *how* it was arrived at isn't adequately addressed. In order to teach improvisors in a way that leads to an integration of this *how* I have come to the conclusion that we need to update the analytical tools and definitions as well as the level and breadth of focus that are used in standard jazz improvisation texts and classes. As an American schooled in the United States and now teaching in Europe I have found, in this context, essentially no difference in teaching methods or materials between the continents or countries.

In the books by authors mentioned above, the most common analytical tool employed is the vertical analysis of the relationship of individual melodic tones to the chord of the moment, with a group of techniques used to justify and explain chromaticism. This analytical approach is a completely effective and comprehensive tool to describe chromatic tones found in, for example, Charlie Parker, Clifford Brown, or even John Coltrane solos up through late 1962 . In these improvisations, the complete justification for notes that do not fit the chord of the moment (chromatic tones) comprises the following: 1) chromatic passing tones, 2) upper and lower neighbour tones, 3) surround-tones using a double chromatic approach, 4) anticipated and delayed harmonic resolution, 5) superimposition of dominant chords or ii-Vs a tritone away, 6) *Coltrane changes*, and 7*),* brief chromatic sequential departures from the chord/scale called *side-slipping*. A further linear analysis usually involves the extraction of a scale or mode, like the altered scale, the diminished scale or a variety of pentatonic scales that the player was using in whole or in part.

The aforementioned vertical note-for-note analysis functions very effectively in diatonic, key-based contexts like the standards, Bossa novas, bebop, blues and rhythm changes tunes that made up the repertoire of jazz from its roots through the early 1960's. Beginning in the 1960's, however, the harmonic and melodic language of both the

[3] Mark Baynes, The University of Auckland (2015) . "Analytic Descriptive and Prescriptive Components of Evolving Jazz, A New Model Based on the Works of Brad Mehldau"

compositions and improvisations of certain key musicians like Wayne Shorter, John Coltrane, Herbie Hancock and Joe Henderson began to significantly expand and change, yet the analytical tools and definitions employed to study their music to this day have not. Compositions such as John Coltrane's "Like Sonny", "Lazy Bird", and "Moment's Notice", while highly complex and moving through many chromatic shifts, are still at their core diatonic tunes that simply include more key centres, both resolved and unresolved, than the majority of the earlier jazz repertoire. Compositions like Wayne Shorter's "Speak No Evil", Herbie Hancock's "Speak Like a Child" and Joe Henderson's "Punjab", however, employ modal and chromatic elements that are no longer possible to define as strictly diatonic. The group improvisational approaches of bands like the Miles Davis Quintet featuring Shorter, Hancock, Ron Carter and Tony Williams and the John Coltrane Quartet with McCoy Tyner, Jimmy Garrison and Elvin Jones reached so far beyond the earlier styles of jazz in almost every way that new definitions and new tools need to be brought into play in order to adequately understand this music.

Here is where I'd like to return to the oft-asked question of the eager young jazz musician - "How do I play *out*"? If we use only the vertical analysis of melody note to the chord of the moment, which is most likely simply the chord in the lead sheet of the composition, not what the accompanists are *actually* playing, we must resort to a limited set of justifications that rely exclusively on the concept of superimposing more harmony on top of the existing harmony. I don't believe that this is at all sufficient to describe, for example, what Wayne, Herbie, Ron and Tony were doing on the night of December 23, 1965 in a Chicago nightclub called "The Plugged Nickel", released as a Miles Davis Quintet LP of the same name. The explosive yet highly refined music of the John Coltrane Quartet on pieces like "One Up, One Down" and "Resolution", by using simpler forms and less harmonic material, explored different musical territory but similar melodic departures from the conventional than the jazz standards Miles' band deconstructed.

The similarities of linear and expressive freedom both bands found lead me to propose several new analytical approaches. To start with, the definitions that we use must be updated and expanded. The terms "in" and "out", "diatonic", "chromatic" and "tonality" have been problematic and unclear for over 100 years in the classical world, and for at least 50 years in jazz. It would seem that the only definition, whether formalised in a book or simply in the vernacular, applied to describe what playing *in* or *out* means is the same one used for analysing Charlie Parker's or John Coltrane's pre-1963 chromaticism. What I hear in much of jazz since the mid-60's includes, yet is so much more than, the

basic set of 7 justifications for chromaticism I listed above. Even the definition of "chromaticism" needs to be expanded now - the simple formula of a note belonging to the chord/scale meaning "diatonic", and not belonging meaning "chromatic" is an insufficient definition because it gives us no information on the how or the why of the chromaticism. The list of chromatic justifications I made earlier is a simple tool no longer applicable to the kind of linear improvisation that is now very common in jazz. With this paper I hope to begin a re-evaluation of jazz theory and improvisational pedagogy that includes new definitions, new analytical tools, and, most importantly, an understanding of the *how* that lies behind the *what.*

In its most basic manifestation, the definition of playing *out* is simply playing notes that don't belong directly to either the chord tones or the chord/scale of the given chord, for example, playing an F# over an Fmin7 chord. When we look vertically at F# over Fmin7 we miss almost everything important - how did the musician reach that note, in which context was it conceived (heard is actually more accurate) and, perhaps most importantly, where and how will it resolve? If we look at improvised jazz as a form of counterpoint, with the soloist and bassist being the 2 main lines and the chordal accompaniment and drums augmenting the rhythmic phrases and harmonic contexts, we will recognise that in a passage with 2 measures of Fmin7 the bassist might only play F once, and that the melodic, linear, horizontal character of each musicians' phrase is therefore far more prominent, both to the listener as well as the player, than the vertical note-to-note relationships.

When we look beyond the note content of a solo to its linear aspects - the size and direction of the intervals, the rhythmic phrases, and the melodic development techniques employed, among the many possible factors, including what the rhythm section is playing - the diversity of elements that make up why and how a given note was played become more evident. We haven't yet left the Bebop-era analysis, because that F# could be the result of one of the chromatic justifications I mentioned earlier. If, however, Wayne Shorter is the soloist and he's playing with Miles' Quintet then there are many additional possibilities to explain his chromaticism. At this point, the concepts of consonance and dissonance, and even the definitions of tonality and diatonicism, become central to the discussion. Additionally, an understanding of the concept of a perceptual *frame* that allows the musician as well as the listener to hear form and to identify intervallic and harmonic resolution as either diatonic or chromatic relative to a harmonic context is

essential. “Dropping the needle” somewhere in the middle of “On Green Dolphin Street” from the 1961 Miles Davis recording “In Person Friday and Saturday Nights At The Blackhawk” requires mere seconds to identify where in the form we find ourselves because of the way the band expresses the form and harmony. Dropping the needle in the middle of a later version of the same tune on Miles’ recording “Live at the Plugged Nickel” from 1965 is quite another matter. Depending on where our random entry leaves us it may take minutes to ascertain exactly where we are in the form, and this might be apparent only to extremely well-trained musicians while being impossible for laymen and less advanced instrumentalists or singers to comprehend.

I posited the idea in my book “Melodic Improvising”[4] that the impression of dissonance and consonance, or, to use the less formal jazz terms *in* and *out*, is not exclusively a factor of a note’s relation to its supporting chord, as would be predicted by the analytical method I described earlier, but is a more complex perceptual event. The size category (2nds/3rds, 4ths/5ths/6ths, 7ths/9ths), or angularity, of an intervallic group can influence our impression of its consonance, for example. Tones completely diatonic (belonging to) the key centre can sound *out* because of the angularity and rhythmic or metric placement, and tones foreign to the key centre may actually sound more *in*. The notion that the line in and of itself, external to or independent of any harmonic context, creates a tonality is the central principle of Linear Tonality. Two very clear examples of this perceptual incongruity come from sequential intervallic groups - a succession of minor 3rds and major 2nds (sometimes called the “harmolodic scale”), and a pattern of successive perfect 5ths and major 2nds. The harmolodic scale sounds to me as if it changes key every 3 notes but in fact remains in one major key for 9 consecutive notes! Alternatively, the pattern of ascending 5ths and 2nds leads to a shift in key after 5 notes, but has a very strong and unified character that, to me, supplants the very notion of key altogether, as do groupings of perfect 4ths, for another example. A principle that I have derived from this phenomenon is that lines made up of similar intervals have a coherence and a “linear tonality” that supersedes existing vertical note-to-chord relationships and key-based diatonicism.

I very recently had the insight that there are several layers of perception in relation to diatonic chord/scale identity and form that are possible to define in order to illuminate how players like Herbie Hancock, McCoy Tyner, Wayne Shorter, Joe Henderson, Keith

[4] Andy Middleton, Advance Music (2005). “Melodic Improvising”

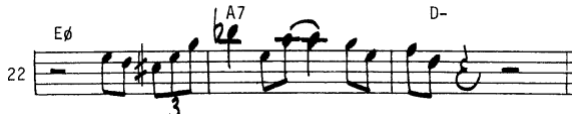
Jarrett and John Coltrane may have approached their music. As is often the case in music there are rarely "pure" examples of anything, and, with that in mind, I have found examples that fit the parameters fairly closely. Authentic music-making seldom respects any limits of definition, in my experience.

5 levels of form and phrase perception of a diatonic tune

1. *Bebop Chord-Tone Resolution Level*
2. *Diatonic and Sequential Chord Relationship Level*
3. *Key Centers and Modal Plateaus Level*
4. *Linear Tonality with Harmonic Reference*
5. *Linear Tonality without Harmonic Reference*

1. The first, top layer of perception operates with the systematic resolution of bass notes and guide tones as the most prominent factor in the ear and mind of the improvisor. The structural resolutions that arise from chord functionality (3rd to 7th and 7th to 3rd) as well as the upper extensions which create dominant chord identity (5 to 9, 9 to 5, 13 to 9) function linearly and harmonically to create short-term phrase development. This structure-creating level of note choice specificity using chord tones and their diatonic intervallic resolutions I call the *Bebop Chord-Tone Resolution Level.* The player's focus is less on overall form than on individual chord resolutions on the scale of several beats to several bars. Charlie Parker's performance of his composition "Donna Lee" is an excellent example of layer 1.

Charlie Parker "Donna Lee" example:



2. The second layer is where the soloist is aware of and phrases melodically through the chord progression in simpler and more general terms than in layer one, for example as in the common movements "ii-V to the fourth step", "iii-VI-ii-V", or in more composition-specific chromatic ii-V or ii-V-I sequences. Below the first layer the focus of attention gradually shifts from individual intervallic resolution tied directly to chord tones, as above, to a broader and less diatonically specific intervallic resolution. Awareness on this level, as expressed in linear phrasing and accompaniment figuration, often includes larger general relationships than the guide tones of the first layer. I call the second layer the

Diatonic and Sequential Chord Relationship Level. Two representatives of this layer are saxophonist Rich Perry's 2004 CD "East of the Sun and West of the Moon" on the piece *The Touch of Your Lips*, and John Taylor's solo over *Everything I Love* on the Peter Erskine CD "You Never Know", where in both cases the harmony is explicitly stated in every measure from all of the musicians but the linear resolutions and voice leading are uncoupled from the direct movement of layer 1.

3. In the third layer of perception, which I call the *Key Centers and Modal Plateaus Level,* both the improvisor and accompanist are aware mainly of key areas, modal plateaus, and non-key contexts like diminished scales. Key centres are created either with a single mode of 2 or 4 bar duration (as in the 1st half of Joe Henderson's piece "Recordame") resolved ii-V progressions (as in the 2nd half of Joe Henderson's piece "Recordame"), unresolved ii-V progressions (as in John Coltrane's composition "Moment's Notice" and Jerome Kern's song "Speak Low"), or with fully resolved V-I progressions (as in Coltrane's "Giant Steps"). Note choice and intervallic resolution are no longer tied directly to guide tone resolutions of 3rd to 7th, 9th to 13th, and 5th to 9th. For key centres like a ii-V-I Jerry Coker created the term Harmonic Generalization, which "occurs when an improviser chooses one scale to accommodate two or more chords of a progression … (for example) the use of the tonic (I) major scale against chords which call for a derivative of that major scale."[5] Another common representation of this layer is an improvisor's reliance on the common tones between chords to create linear coherence while remaining within the chords. Wayne Shorter's solo on his piece *Tom Thumb* from the Blue Note CD "Schizophrenia" is made up of overlapping tonal groups rhythmically and harmonically clearly within the form and chords yet completely free of reliance on the guide tones of the first layer. The saxophone solo over *Yes or No*, from Wayne's Blue Note CD "Juju", again demonstrates this lack of guide tone specificity occurring in a line that nevertheless remains diatonic to the given harmony.

4. The fourth layer of perception reveals the musicians to be aware of harmony and form in ever-larger groupings of measures and note relationships, including: 1) the main points of harmonic resolution, 2) in which key the phrases begin and end, 3) short or long-term modulations, and, 4) the varied harmonic rhythms of different parts of each phrase. At this level the direct, vertical, chord/scale connection between the chord of the moment and the melodic tones begins to uncouple completely, and the importance of the "linear tonality" of

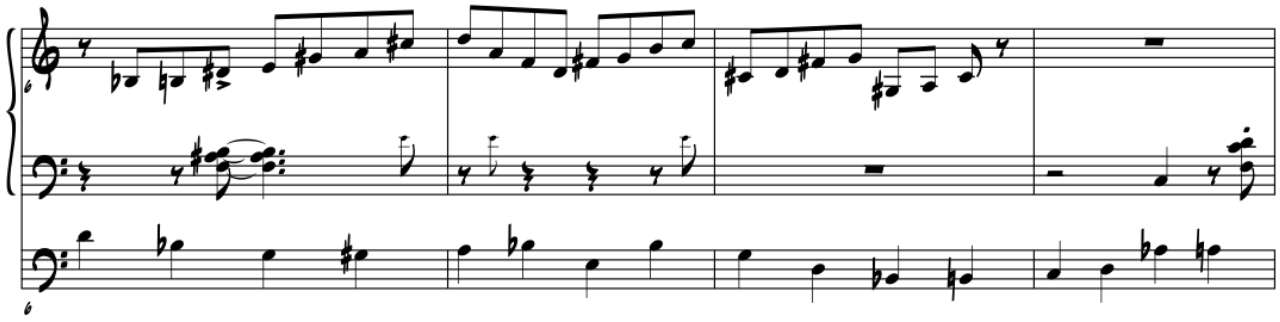
[5] "Elements of the Jazz Language for the Developing Improvisor", Jerry Coker, Alfred Music 1991

the melodic phrase takes precedence. The group of individual tones in each phrase may or may not correlate completely with the theoretical group of tones that the chord "contains", and we no longer hear the non-chord tones as not belonging to the sound of the chord progression. I call this layer *Linear Tonality with Harmonic Reference*. A good example a group performance on this layer is the Keith Jarrett Trio's rendition of "Everything I Love". Another example that reaches toward the fifth and final layer is McCoy Tyner's composition "Blues on the Corner", on the recording "The Real McCoy". As his solo progresses, McCoy marks the choruses regularly while freeing the linear and harmonic content within the 12 bar structures from direct harmonic reference. Henderson's solo has even fewer direct connections to the chords as stated in the melody, but McCoy's comping keeps the band in the 4th layer.

5. At the fifth layer, the deepest and most large-scale structural level, the awareness is focused almost entirely on the overall aspects of the form in terms of duration, for example, four 8 bar phrases, or a single repetition of a 12 bar blues, without the need for harmonic references to mark the passage of the chords. Resolution of small-scale chord progressions using guide tones as in "Donna Lee", above, are mostly absent in this level of focus. I call this layer *Linear Tonality without Harmonic Reference*. The entire Miles Davis Quintet recording "Live at the Plugged Nickel" exquisitely represents the principles of this layer on every track. A clear example drawn from this CD is found in Wayne Shorter's solo on "Autumn Leaves" on Disc 6, where 53 seconds pass (almost 2 full choruses) with only1 direct, discernible reference to the melody or chords of the piece. As the solo progresses Wayne remains for long passages completely independent of harmonic reference, with Herbie and Ron occasionally stating chords clearly enough to hear if one has counted from the beginning of the form.

Master players can and often do "move" instantaneously from one level to another, reaching up to the surface level to define and delineate specific resolutions at anchor points, or moving towards the deeper layers in order to operate in a less harmonically specific environment. I will present several solo excerpts at this point to demonstrate the fluid movement between layers, especially 5 and 1, that has become an accepted aspect of modern jazz improvising. The solos excerpted are all, with the exception of the Coltrane solo, improvised over standard diatonic tunes and display highly individual approaches to linear tonality, both in the duration of the departure from the given harmony and in the manner in which the departure is created.

To use once again the comparison of the 2 versions of Miles Davis' "On Green Dolphin Street" from 1961 and 1965 we hear that Wynton Kelly and Hank Mobley play in a highly specific, tonality-defining style exclusively, whereas Herbie Hancock and Wayne Shorter move back and forth between clarity of melody/chord relationship to passages that can only be described as having linear tonality, where none of the notes in the lines are related directly to the chords of that part of the tune. Another good example of this comes from the same recordings, the 2 versions of "All of You". An excerpt from Herbie's solo from Disc 3 of the "Live at the Plugged Nickel" album clearly shows him playing a repeating sequential chromatic pattern of major 3rds and minor 2nds that creates very strong Linear Tonality but is unrelated to the harmony of the moment, while Wynton Kelly's solo on the "Blackhawk" recording, from which I unfortunately have no transcribed excerpts, remains true to the diatonic and chromatic profile discussed earlier that I call the "Bebop layer". Interesting to note in the Herbie excerpt is Ron Carter's bass line, which also contains few tones directly related to the chords between the 5th and 8th bars of the

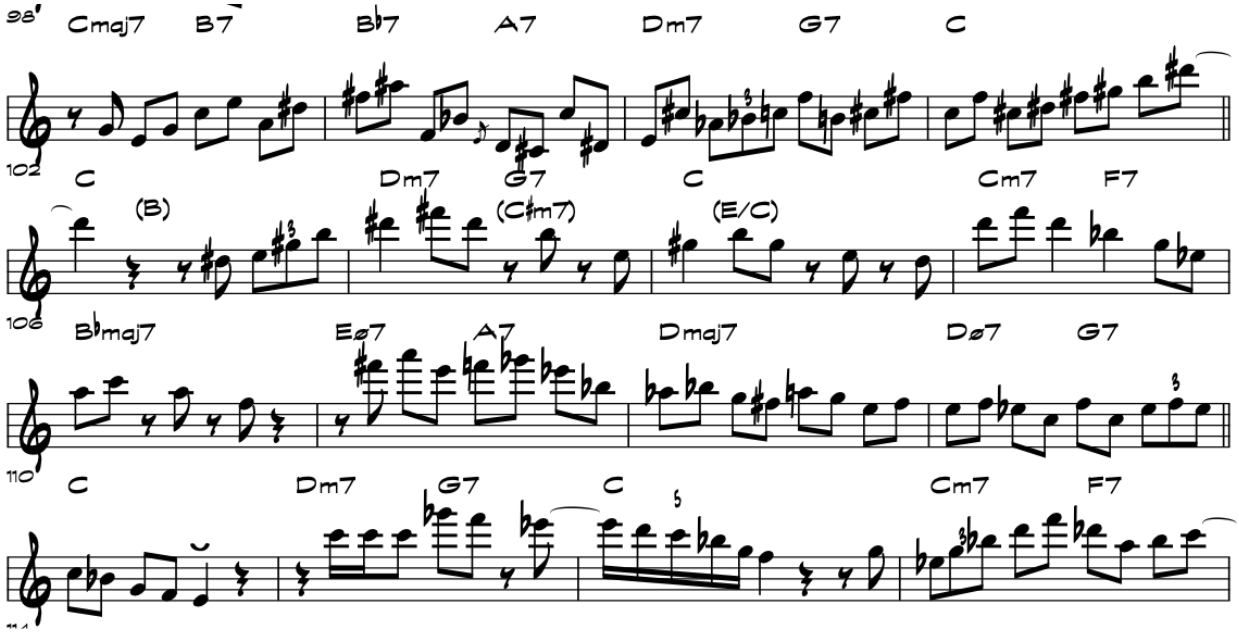


tune.

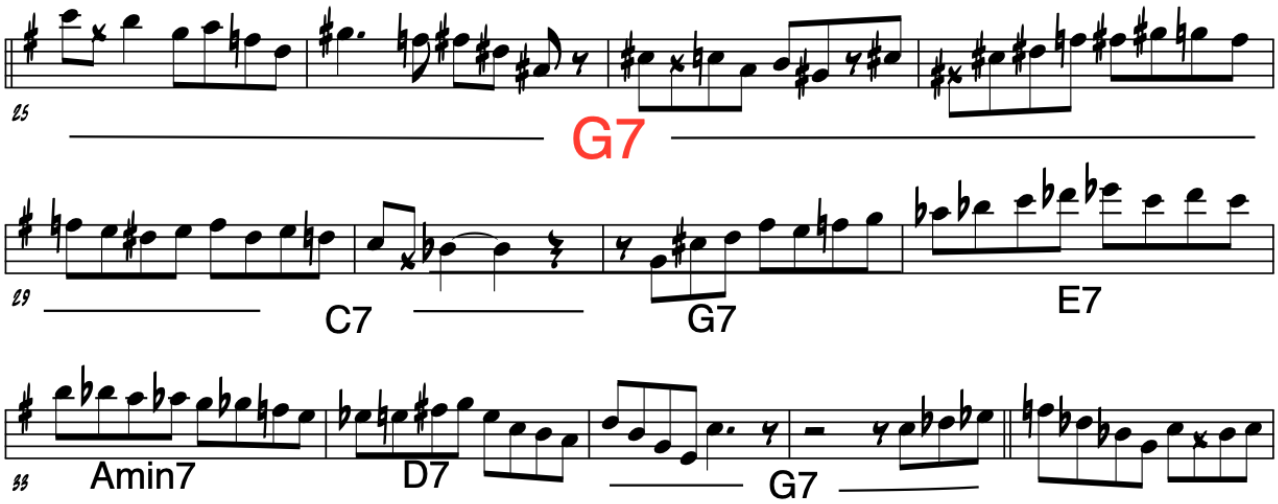
Abmin6 Ebmaj7 Fø7 Bb7

An excerpt from Chris Potter's alto sax solo on "Star Eyes" from his recording "Gratitude" (2000) shows extensive forays into linear tonality that can only be seen as discreet horizontal groupings creating melodic unity independent of the chord progression

through groupings of 4ths, passages of diatonic melody in foreign key centers, and sequential developments of 3rd groupings among other devices.

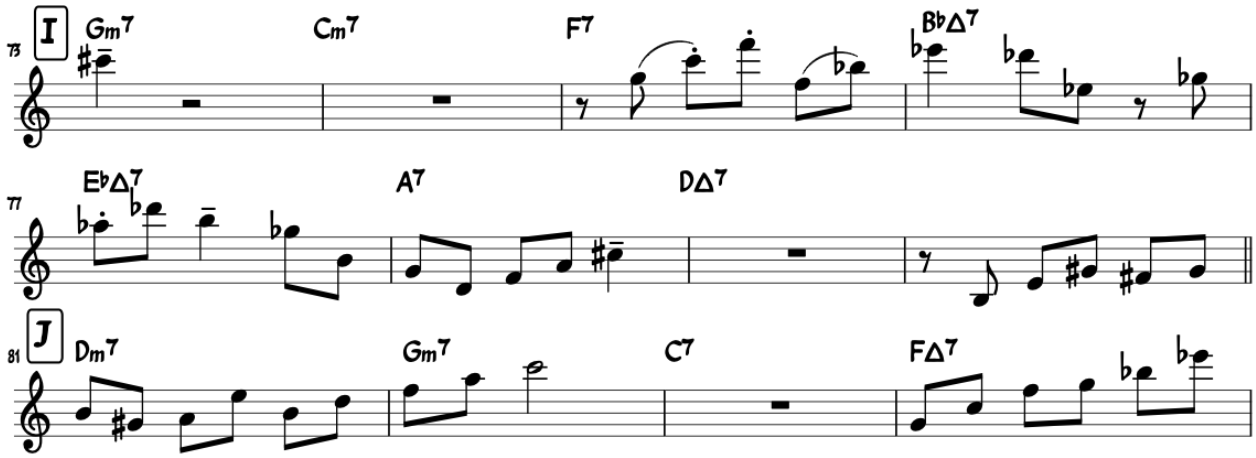


Tenor saxophonist Rich Perry's solo on the Freddie Hubbard F blues composition "Byrdlike", here in Bb transposition, from the Steeplechase recording "Jam Session, Vol. 28" (2008) likewise shows a mastery of a borderless approach to melodic invention, even considering the highly conventional accompaniment the pianist is playing. In bar 8 of this excerpt it is clear that Rich is implying Bbmin7- Ebmin7 as a bebop-style insertion of a chromatic unresolved ii-V, but the material before and after has less clear harmonic

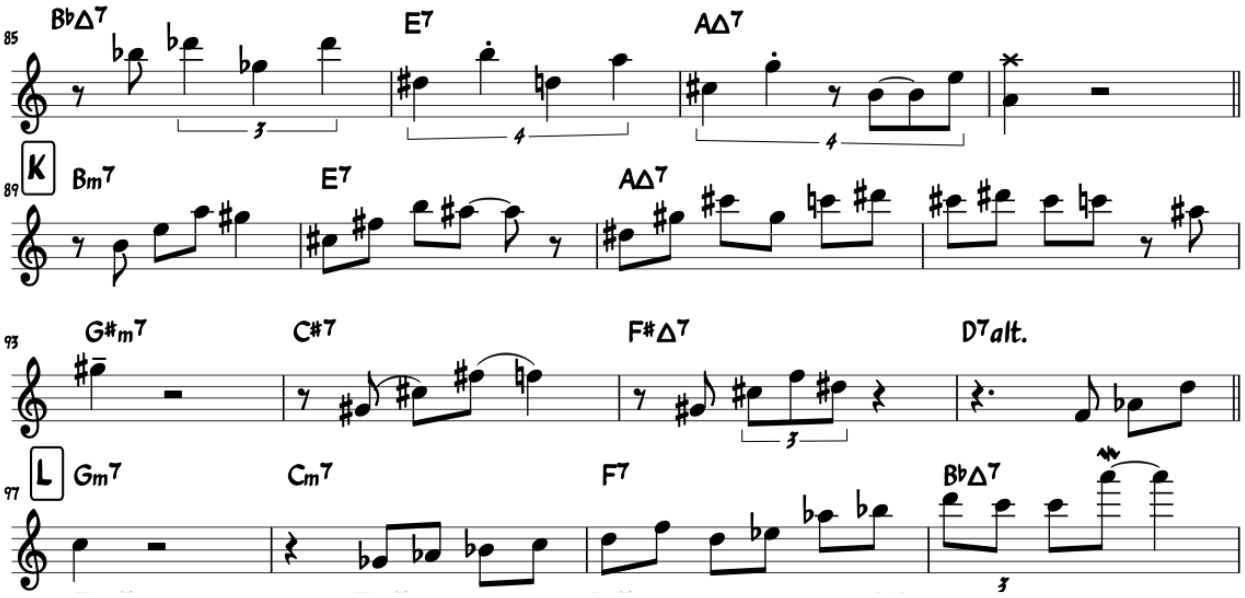


suggestion and appears to be using linear tonality with harmonic reference.

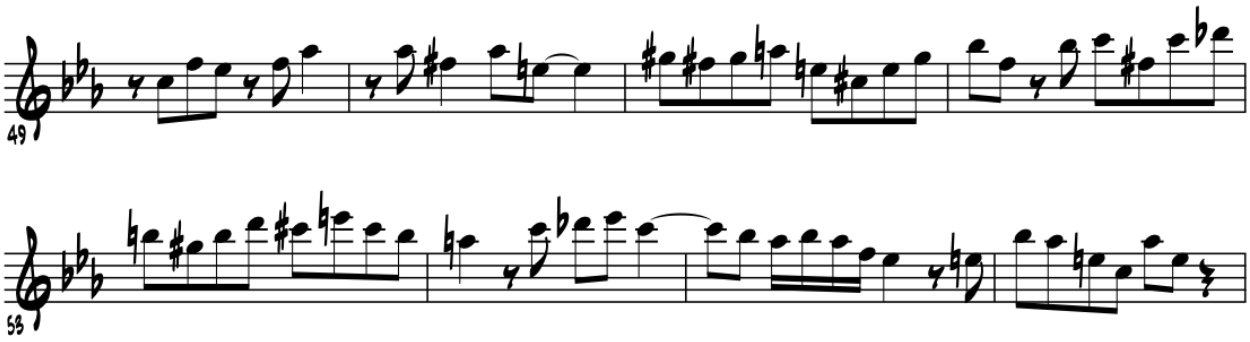
In my own solo over the chord changes of Jerome Kern's classic "All the Things You Are" from the Alessa Records CD "Three Hearts, Three Minds" (2011), this excerpted passage transposed for Bb tenor saxophone shows the use of sequential development in the different phrases that mainly begin diatonically to the chord structures but then follow the logic of the sequence rather than the harmony. The intervals of 4th and 5th as well as ascending 7th chord arpeggios are the inspiration for the first phrase, from bar 75 to 84, then a rhythmic element takes over. From 89 on the 2nd inversion triads ascending in whole steps move again to groupings of 4ths, leading at the end back to the phrase's diatonic culmination. Creating linear tonality that supersedes Kern's changes for the length of the passage by following the inspiration of a motivic phrase provided me with a great deal of musical variety within the solo. This recording was a trio session and is therefore a



very clear representative of the fundamentally contrapuntal nature of improvised jazz.



John Coltrane's classic Impulse recording "A Love Supreme" (1964), is a masterpiece of linear tonality played in context of simplified harmony and form, allowing immense freedom of expression and creativity. This excerpt, transposed in Bb, from Trane's solo on his composition "Resolution", is played over on open 8 bar phrase that is essentially an extrapolation of F minor, and therefore differs significantly from the earlier examples because it isn't based on a dense diatonic chord progression. The linear tonality Coltrane created appears to be the result of both his short, repeated rhythmic phrases as well as having elements of pentatonic structures with shifting root relationships. It is also conceivable, although I wasn't able to clearly identify it, that Coltrane is using some sort of



extraction of the "Giant Steps" or "Countdown" chord progression.

In conclusion, I feel that the terms *in* and *out* are insufficient to describe the widespread, highly individual and varied ways that master improvisors since1960 have actually been improvising. The creation of highly coherent lines outside of the given harmony using melodic structures of interval and rhythmic phrase in a contrapuntal context rather than a simple vertical "structure over chord" harmonic superimposition is a more accurate description of this complex system of many interrelated aspects than what so many people seem to think of as just "playing out". Internal coherence irrespective of external correlation is what makes strong lines outside of the harmony interesting, not the harmonic structure superimposed upon another, given structure.

I'm concerned that there has been an incomplete understanding in the educational world about how musicians improvise lines that lie outside of the original chords of the composition, and so I propose that we focus on intervals and rhythmic phrases rather than superimposition of vertical structures. The various ways that dissonance and consonance can be created, as well as the perception of the differences *between* dissonance and

consonance, are essential factors in the analysis of modern jazz solos. Superimposition of new harmony over the original harmony, however elegant these structural relationships may be, is only one of many approaches to expanded improvising, and by itself can only be an overly simple and completely inadequate description of both the process of and the results of playing outside of the diatonic framework established in the Bebop era. Linear Tonality is a term that describes and names the power of the line itself, as made up of intervals in rhythmic relation to each other, creating a harmonically independent sense of unity and an updated vision of tonality.

Andy Middleton, March 4, 2018