Beyond borders : broadening the artistic palette of (composing) improvisers in jazz

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3. IMPROVISING WITH JAZZ MODELS

3.1 Introduction

3.1.1 The chord-scale technique

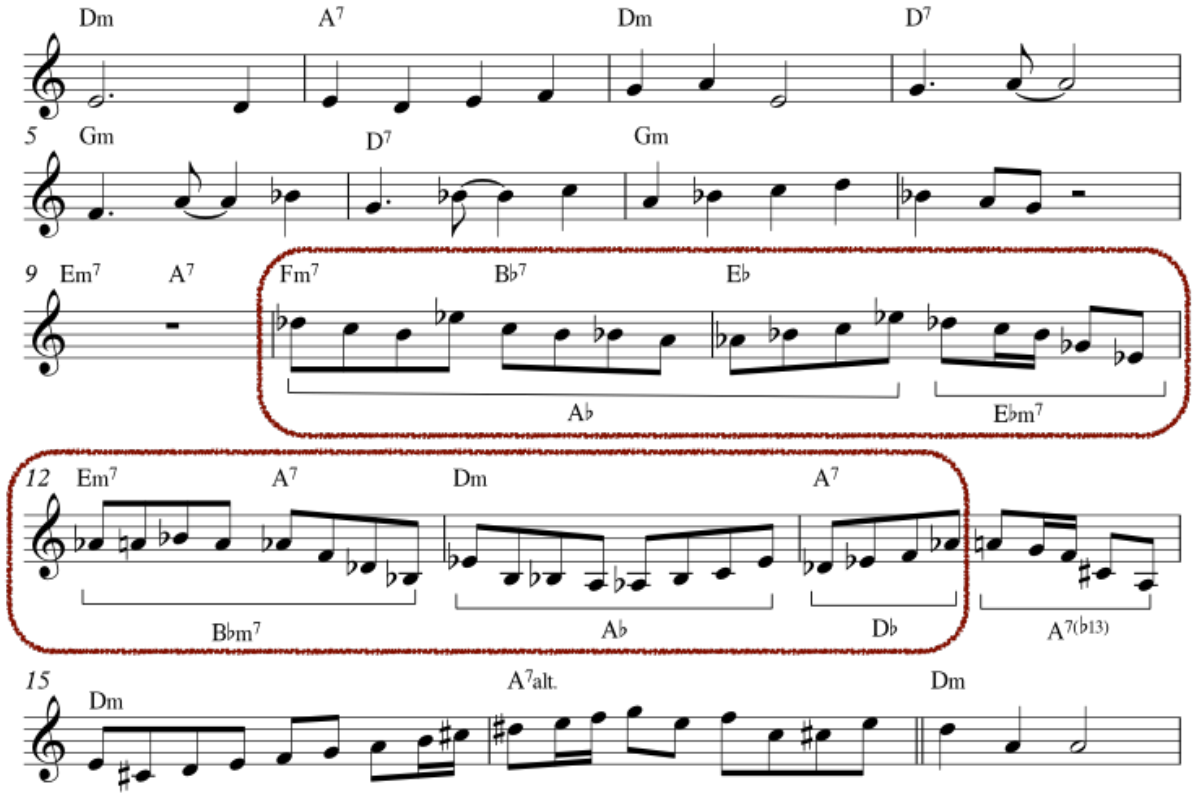
Through the years, a large number of educational methods on how to improvise in jazz have been published (for instance Oliver Nelson 1966; Jerry Coker, Jimmy Casale, Gary Campbell and Jerry Greene 1970; Bunky Green 1985; David Baker 1988; Hal Crook 1991; Jamey Aebershold 2010). The instructions and examples in these publications are basically meant to develop the musician's skills in chord-scale improvisation, which is generally considered as the basis of linear improvisation in functional and modal harmonies. In section 1.4.1, I have already discussed my endeavors to broaden my potential to play "outside" the stated chord changes, as one of the ingredients that would lead to a personal sound. Although few of the authors mentioned above have discussed comprehensive techniques of creating "alternative" jazz languages beyond functional harmony, countless jazz artists have developed their individual theories and strategies of "playing outside", as an alternative to or an extension of their conventional linear improvisational languages. Although in the present study the melodic patterns often sound "pretty far out", I agree with David Liebman's thinking pointed out in section 2.2.1, that improvised lines are generally related to existing or imaginary underlying chords. Unsurprisingly, throughout this study the chord-scale technique as a potential way to address melodic improvisation will occasionally emerge.

3.1.2 Playing outside the changes

With the notions "outside the changes", "playing outside", "outside sound" or "outside" in this study, I mean that an improviser intentionally plays phrases that do not correspond to the scales that match the underlying chords. Separated from each other, the melodic line and the harmony both sound right, but put together they create a surprising dissonance, a bitonal sound that is different from what the listener might expect. Whether such an outside phrase sounds "right" depends both on the authority with which the performer phrases his line and on the competence and the empathy of the listener.

The difference between inside and outside can be illustrated by a phrase that starts inside, goes outside and ends inside again. For instance, in the next example of a solo by alto saxophonist Eric Marienthal in Chick Corea's composition "Got A Match" (2003). The notes he plays in bars 1-8 of this fragment match correctly with the original chords that are written above the staff. But in bars 10–14 he goes outside the stated chords by

playing lines that evoke the alternative chords that are indicated by the brackets under the staff. From the second half of bar 14, his notes match the original chords again.



[ex 3.1.2.1 "Got a Match" – fragment of alto saxophone solo by Eric Marienthal]

Once again it should be emphasized that the effect of this desired dissonance depends on the listener's ability to explicitly or intuitively recognize the relation between the melodic line of the improviser and the harmonies played by the rhythm section. Even if the pianist plays sparsely (such as in this example), or even stops accompanying temporarily, and even when the bass player obscures the original chords by superimposing a stationary bass pedal, the listener should be able to keep imagining the form and the original changes of the tune, in order to appreciate the improviser's performance.

In the following subchapters, the theories, techniques and practical applications published by jazz saxophonists and educators David Liebman, Jerry Bergonzi, George Garzone, Walt Weiskopf and John O'Gallagher will be evaluated. Which techniques do they apply when playing outside the chords and – led by my intended operations with the Tone Clock and Messiaen's modes in the remainder of this study – what are their connections to serial compositional techniques?

3.2 David Liebman (2013). *A Chromatic Approach to Jazz Harmony and Melody.* Rottenburg: Advance Music.

3.2.1 Theory

Liebman's publication can serve as a theoretical framework and a treatise on how to step forward from conventional linear jazz improvisation by applying the concepts of tonal and non-tonal superimposition. The author defines his chromatic approach as "the construction of melodies and harmonies which can coexist with, or replace given key centers. It implies setting up contrary tonalities, thus creating a heightened degree of tension and release in order to expand one's expressive palette" (Liebman 2013:9). The term chromaticism is meant "specifically for a situation in which there is an intentional relationship between melody and harmony. [Because] for jazz, it is the harmonic accompaniment which frames the melody" (Liebman 2013:13).

Liebman discerns three categories of melodies in relation to the diatonic system, to define his concepts of tonal and non-tonal superimposition. In the first category are melodies that stay for the most part within the given harmonic background. If any chromatic tones appear, they are quickly resolved. In the second category are melodies that hold chromatic tones for longer periods. This can be called tonal chromatism. The third category hosts melodies that are not related to any specific overall tonal center, though they may temporarily resolve. This is called non-tonal chromatism.

Tonal chromaticism is achieved by applying techniques of harmonic superimposition, for example, in Liebman's terms, "tri-tone", "alternate ii-V", "scale quality", "modal", and "pedal point" substitutions. Although the resulting melodic lines may sound far outside the basic harmonic structures, Liebman still considers these techniques as extensions of the improviser's conventional chord-scale skills, and uses the familiar chord terminology to identify the notes.

Non-tonal chromaticism refers to melodic lines and harmonies in which, in Liebman's words, no key centers are given priority, but "shape, ambiguous tonality and overall color (resulting from factors of phrasing) are the important aspects" (Liebman 2013: 55). However, although these melodic lines are structured by interval connections, it is still possible to identify their pull towards temporary tonal centers. Liebman defines these as tonal anchors, which means that in these sort of melodic lines "tonality is flexible and in continuous flux as a line evolves. Within the progress of the line itself, temporary points of tonality may be established as anchors. This is a form of linear tonality and may result from several musical developments: the emphasis of one pitch or pitch cluster, leading

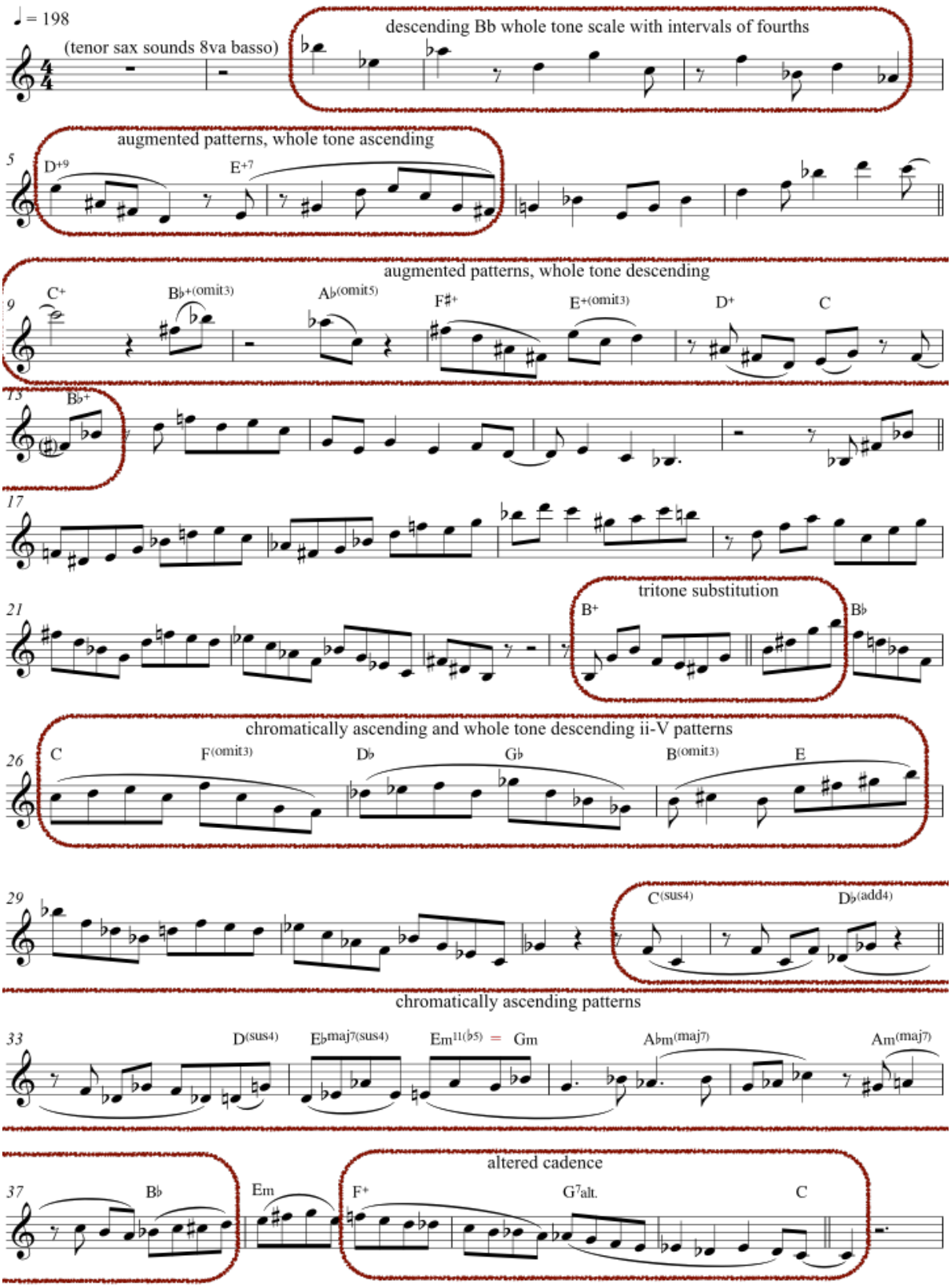
tone activity (half or whole tone step pull), rhythmical stress on a pitch, or how the intervallic shape seems to lead to a tonal center" (Liebman 2013: 55).

Liebman argues that in jazz harmony, non-tonal improvisation is a very relative term because any configuration of notes can be identified by using similar chord terminology, the numbered system figured from the root, as in functional harmony, or by constructing complex chords of stacked triads on the root.
How Liebman's theoretical concepts are put into practice depends on individual aesthetic choices and on the musical relationships in a group of musicians. One group may choose to facilitate musical communication by using names of chords or scales, to create a familiar point of reference. Another, without the need of such a safety net, will be challenged to communicate more instinctively and create fresh reference points. "Harmonically speaking, the spontaneous reference point may turn out to be diatonic or non-tonal; this has to do with the situation, style and particular musicians involved. Achieving a sense of no pervading harmonic center implies the absence of direct superimposition and means that the music is purely intervallic" (Liebman 2013: 30). In this type of playing the improvisers will have to use intervallic recognition as an important tool to react and play by ear instead of by knowledge of chords and scales. According to Liebman, this spontaneous playing in response to the direct musical context, without thinking of tonal references and harmonic relationships, can be truly called free music.

3.2.2 Practical applications

With most of the discussed techniques of tonal chromaticism, I had become familiar by analyzing musical examples, by the advice of my teachers and by experimenting with peers. Applying harmonic superimpositions such as tri-tone substitutions, alternate II-V substitutions and altered cadences had - by trial and error- become part of my musical language. This goes even more so for superimpositions of chord sequences such as cycles of fifths, chromatic ascending or descending ii-V patterns or whole tone sequences on a stationary chord or pedal note. The following example shows a number of these techniques in a recording of my improvisation over a C-pedal point in the A-part in "Sailing" (1995).
The first sixteen bars exhibit an overall whole-tone color. Firstly, by the fragmented descending Bb whole tone scale b♭, a♭, d, c, b♭, a♭) and its intervals of fourths (e♭ – a♭; d – g; c – f; d – a♭) in bars 2–4. Secondly, by the whole tone ascending augmented patterns in bars 5 and 6, and by the whole tone descending patterns in bars 9–13.
Bars 24–40 feature a number of superimpositions. The B augmented chord in bars 24–25 is a tri-tone substation of F7 and resolves to Bb as a temporary tonal center. Bars 26–28

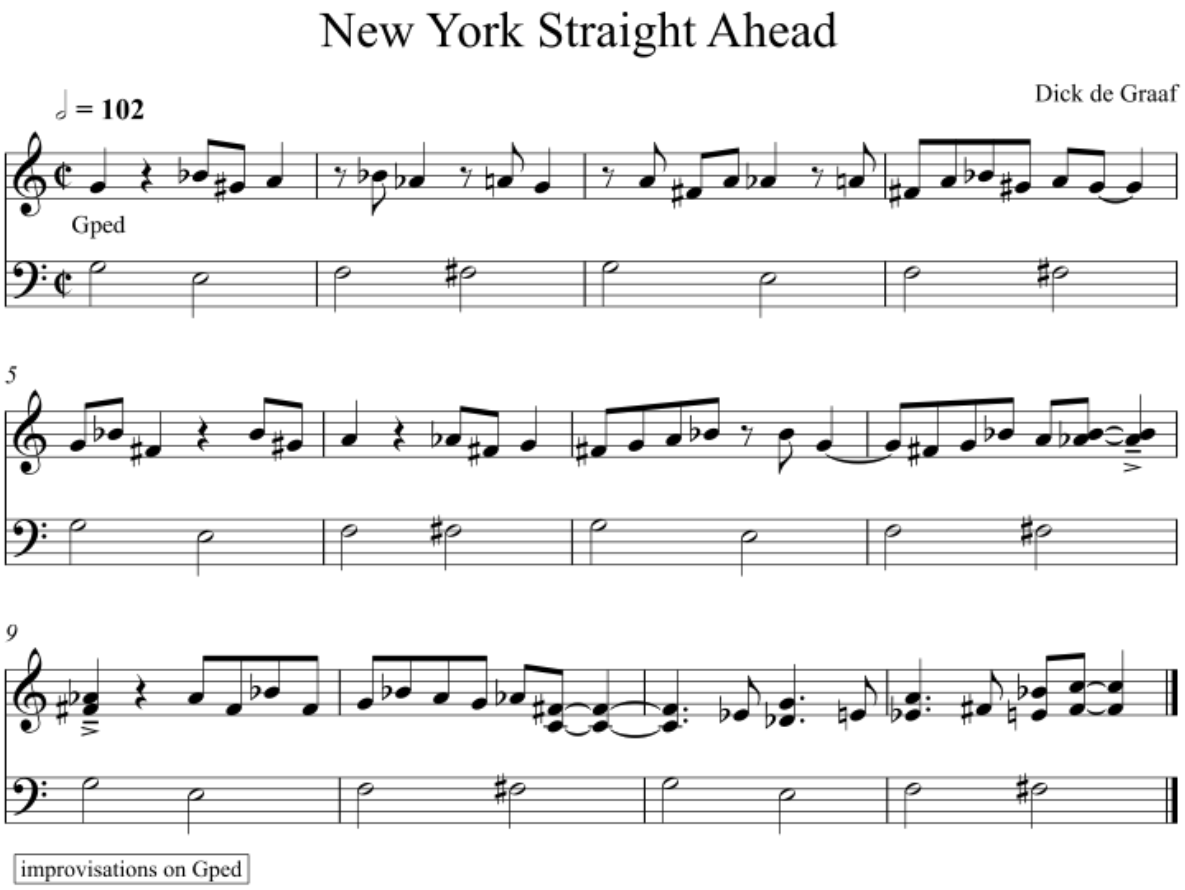
contain one chromatically ascending and one whole-tone descending ii-V pattern. Bars 31–37 show eight chromatically ascending patterns. The shapes of these patterns are different but in bars 31–34 the intervals of fourths suggest cycles of fifths. Finally, an altered cadence starts on the second half of bar 38 and resolves to the tonality of C in bar 41.



[ex 3.2.2.1 "Sailing" – fragment of tenor saxophone solo]

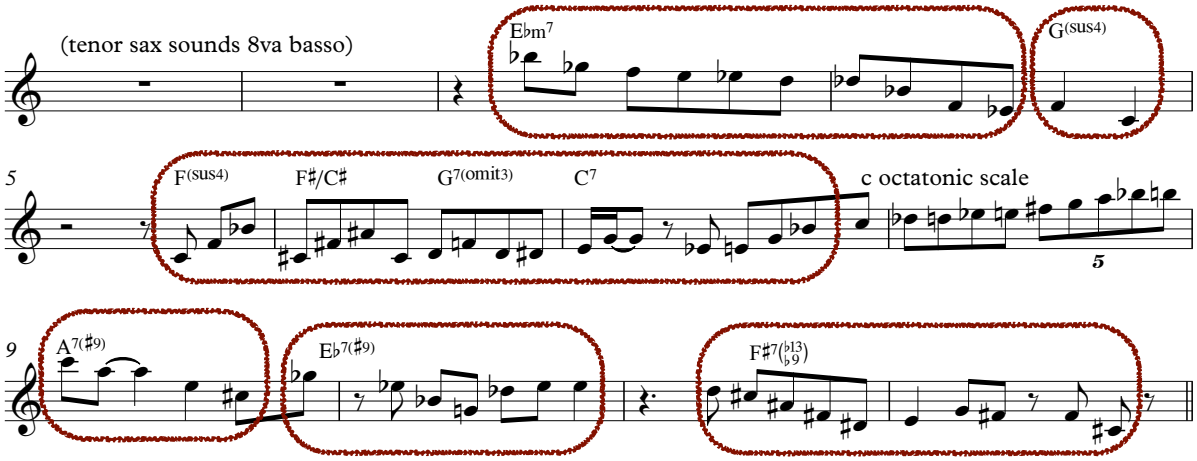
According to Liebman, hearing intervallically is the highest goal in chromatic playing. To facilitate intervallic recognition, he maps the intervals in three categories. The first contains major and minor seconds, thirds and sixths. These are considered smooth and relatively consonant (Liebman 2013:71). Second are the fifth and the perfect and augmented fourth intervals. The fifth and perfect fourth can be associated with the dominant and sub-dominant functions in diatonic harmony, while the tritone stands out because of its striking color (Liebman 2013:72). The third category hosts the major and minor sevenths and ninths. By using these intervals, one creates an angular shape in chromatic lines. Liebman argues that, "together with the half step, these intervals are the most characteristic of twentieth century contemporary music" (Liebman 2013:73).

Liebman's advice to practice intervallic construction by applying only one class of intervals moved me to conceive "New York Straight Ahead" (1994). The 12-bar melody of this tune consists of a limited number of notes (basically five notes in the first ten bars with four extra notes mainly in the second voice) using Liebman's first category intervals only: mostly minor and major seconds and minor thirds, and two major thirds. Only because I added a second voice from the end of bar 10, four intervals of augmented fourths occur in the two-voice harmonies. The bass ostinato and the frequent appearance of the note b♭ tend to imply the tonal color of G minor, but by the meandering character due to the many chromatic notes the tune lacks a specific harmonic color. In Liebman's terms it could be called "G-keyish."



[ex 3.2.2.2 "New York Straight Ahead" – theme]

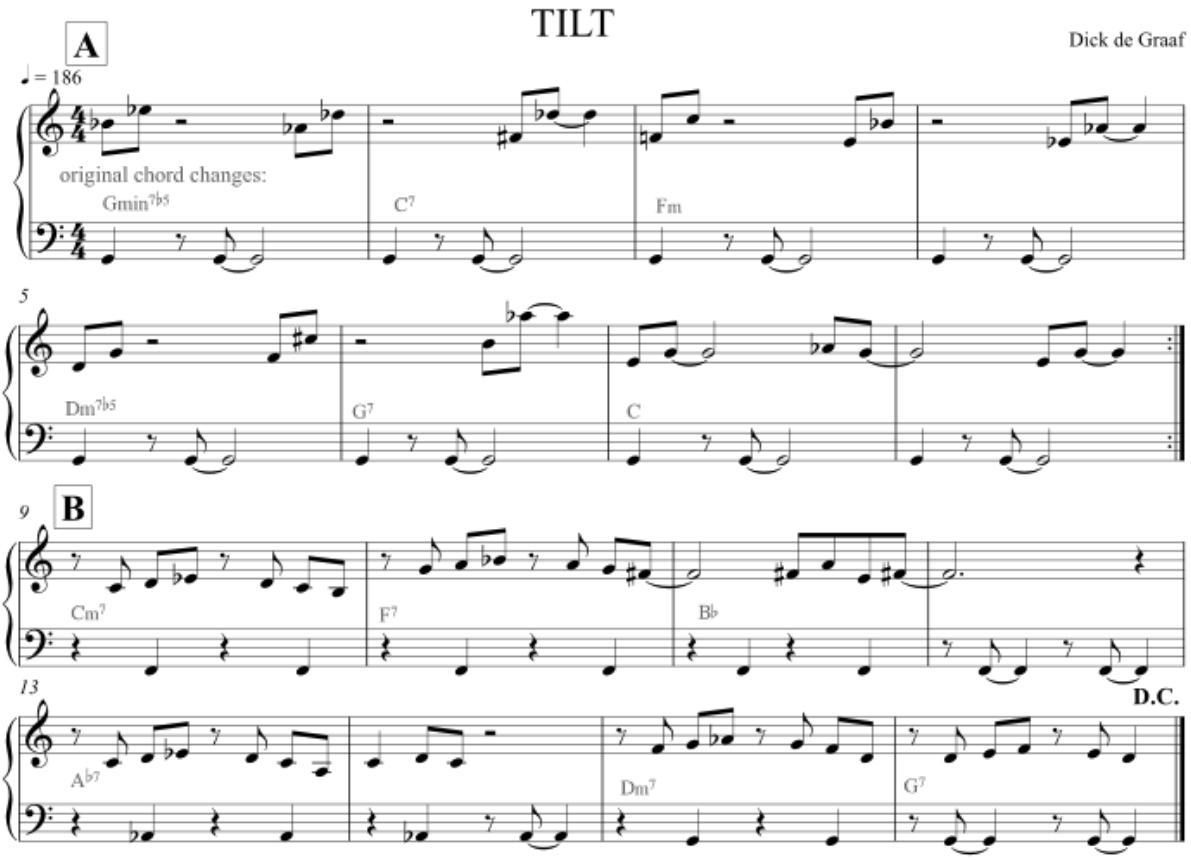
The following example is an illustration of the application of linear tonality in the first line of my improvisation on "New York Straight Ahead". It starts with Ebm7 that suggests the upper structure of a D7 altered chord to resolve to G. But by changing the note d into a $d^{\flat}$ in bar 4, Ebm7 tends to sound as a temporary tonal center on its own. Next, as an example of diatonic lyricism, the notes f and c together with the G-pedal in the rhythm section evoke the sound of Gsus4. The C7 chord in bar 7 can be seen as the next temporary tonal center. It resolves from the three chromatically ascending chords Fsus4, F#/C# and G7 in bars 5-6. On the last eighth note of bar 7, a C octatonic scale starts (with extra notes d and b added) that ends on the first note of bar 9. Bars 9 and 10 contain two similar descending patterns built upon the major thirds of $A7^{\#9}$ and $Eb7^{\#9}$, two dominant seventh chords at a tritone distance. Finally bars 11–12 contain a line over $F\#7^{b9}$, sounding a minor second below the stated G-keyish tonality. Just like C7, F#7 sounds convincingly like an independent temporary tonal center. But, together with the C7, $A7^{\#9}$ and $Eb7^{\#9}$ chords, it can also be considered as the last of four chords whose root notes together would form a diminished tetrachord, and as such would extend the tonal color of C7 octatonic in bar 8.



[ex 3.2.2.3 "New York Straight Ahead" – fragment of tenor saxophone solo]

As to Liebman's techniques of superimpositions, it is evident that most of these result in increasing harmonic tension. Different chords are added to existing ones, chains of chords are superimposed on single chords and scales and modes on given chords are substituted by other types of scales built on the same root. To his stratification of techniques, I would add an intervention that first goes the opposite way, by simplifying an existing harmonic structure, for example by creating a bass ostinato that obscures a number of chords, and by consequently applying Liebman's pedal point superimposition. This operation relates to what Liebman calls the "slack theory" in which emphasizing on one element is compensated by proportionally de-emphasizing others. For instance, in an improvisation on a complicated harmonic progression, an interesting effect can be created by playing a simple melodic line. And vice versa, on a basic rhythmic and harmonic fundament, one can superimpose a complex harmonic and melodic structure.

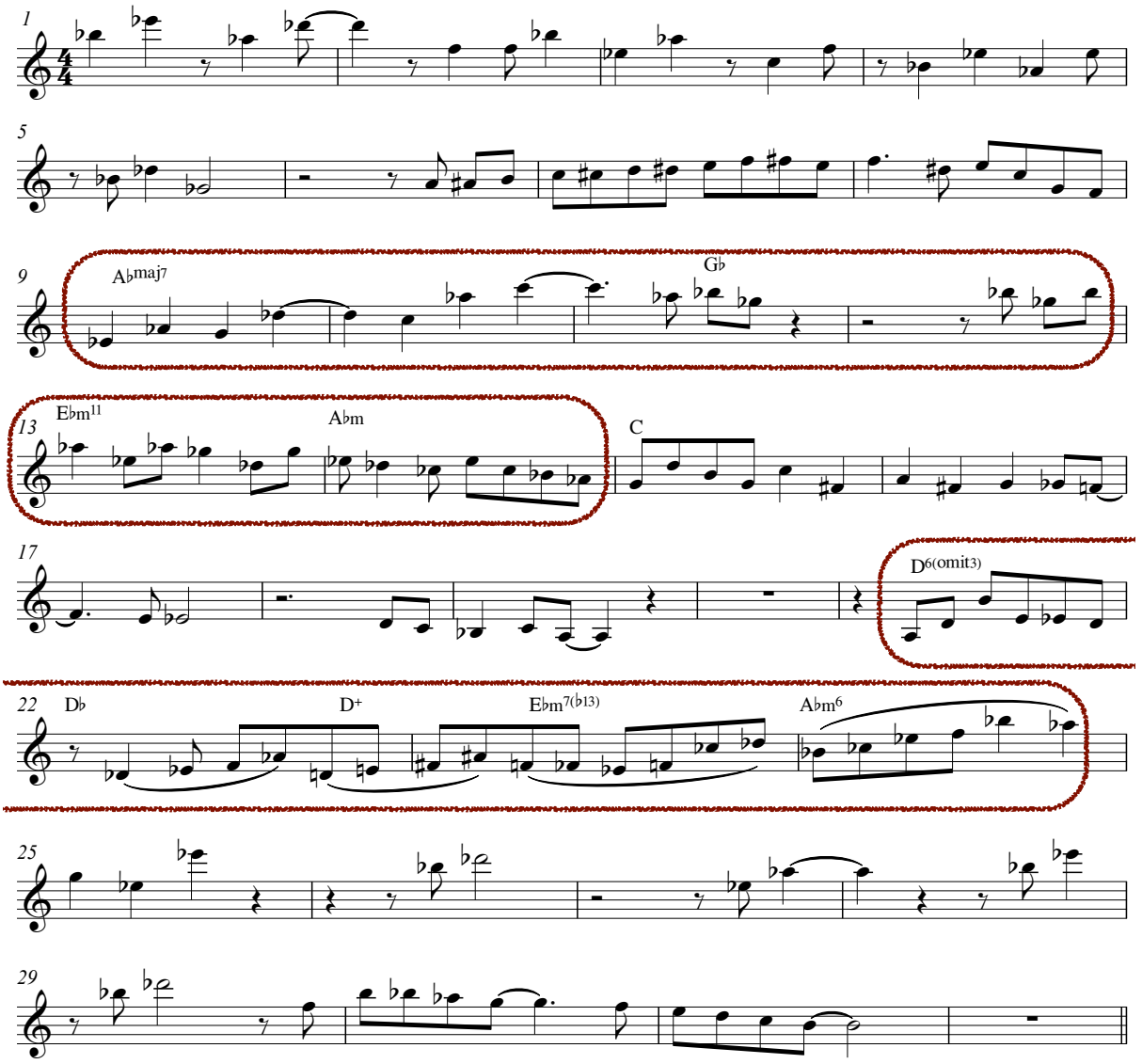
The following example shows this in "Tilt", my contrafact of the jazz standard "What Is This Thing Called Love" on the CD *Sailing* (1995). The original chord changes in the A-section are replaced by a single G pedal point, those in de B-part by three different pedal points, respectively G, Ab and again G.



[ex 3.2.2.4 "Tilt" – theme]

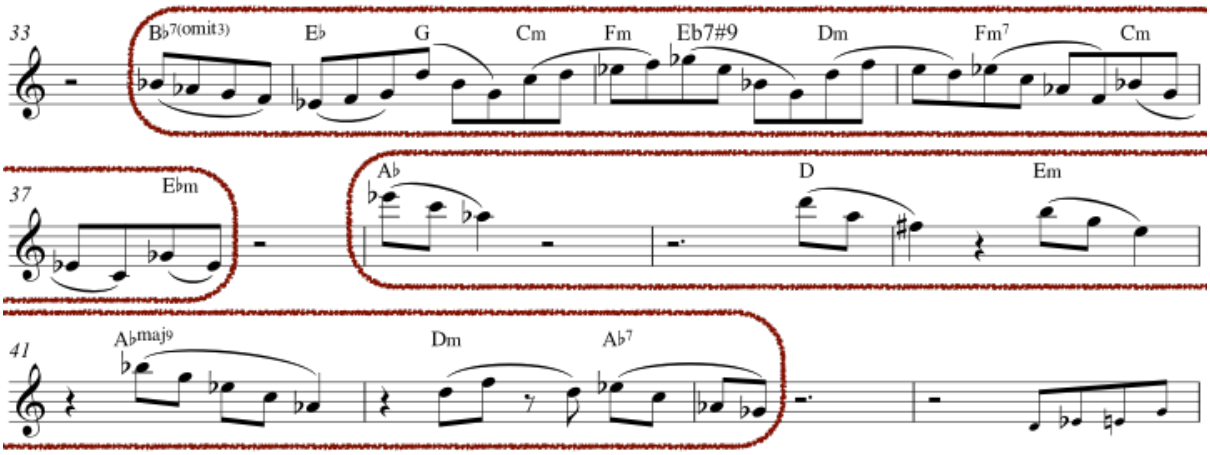
In this recording I wanted to challenge my group to shine a different light on both a well-known jazz standard and on the beaten tracks of our improvisation practices. Before we took off, I asked the rhythm section to strive for a maximum degree of harmonic vagueness, by giving priority to the pedal points and avoiding the original chords as much as possible. As expected, it appeared to be impossible to totally neglect the original changes of the jazz standard that were so upfront in our collective memory. Yet in this act of explicitly trying to avoid the expected harmonic structure of this tune, the chromatic techniques proved their worth to a maximum. The next fragment shows a number of examples in my first three solo choruses.

In bars 9–12 the Abmaj7 chord and the incomplete Gb triad sound like temporary tonal centers, obscuring the original changes Am7b5 - D7b9 – Gm. In bars 13–14 an altered cadence Ebm11 – Abm is played instead of the original Dm7b5 – G7b9 – Cmaj7 chords. The Ab minor chord can be considered the upper structure of the G7 altered chord.
Likewise in bars 21–24, where an alternate cadence blurs the original changes Ebm7 – Ab7 – Dm7 – G7, and the Abm6 chord in bar 24 can be considered the upper structure of G7 altered again.



[ex 3.2.2.5 "Tilt" tenor saxophone solo first fragment: temporary tonal centers and altered cadences]

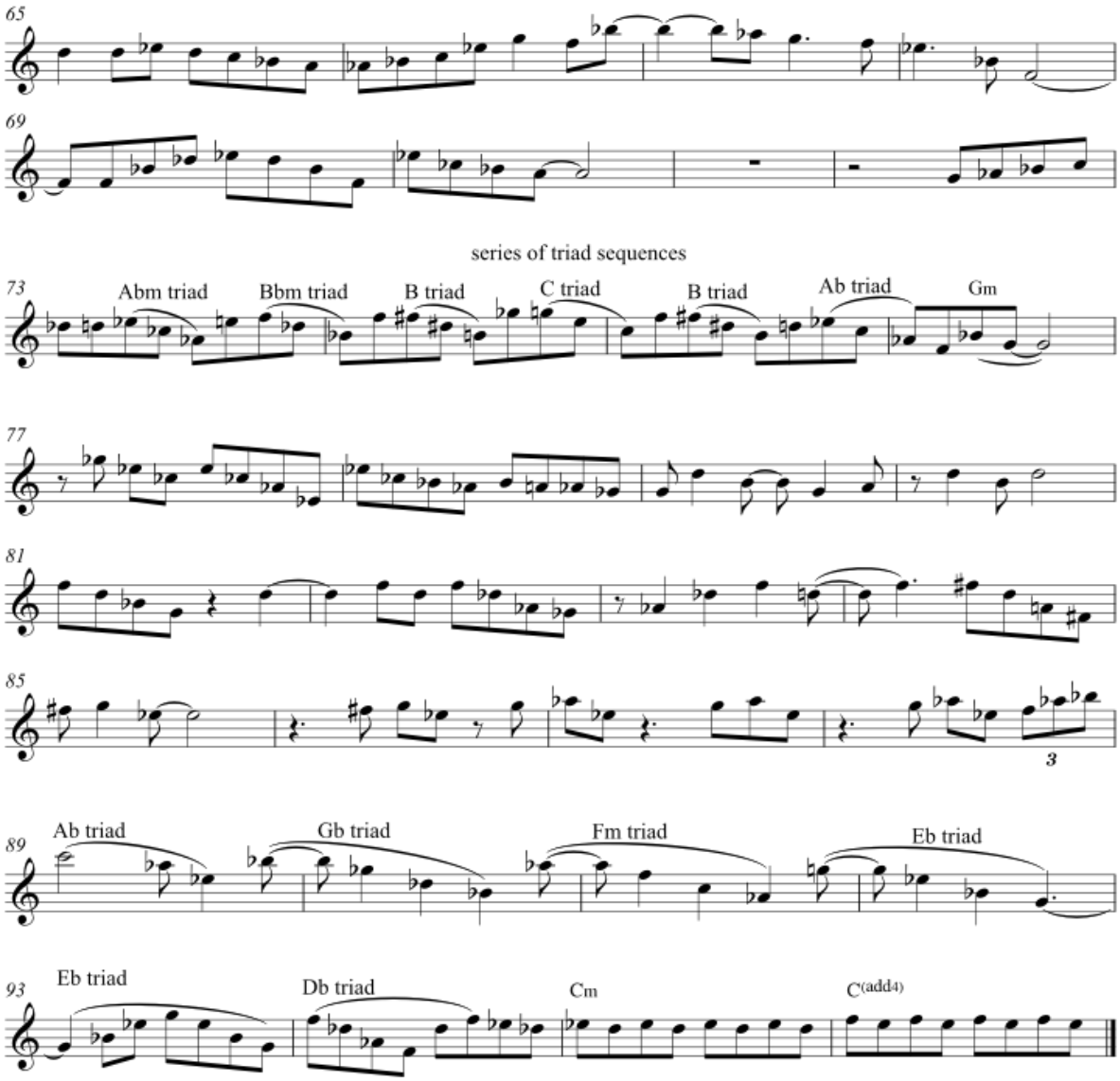
Bars 33–45 can be seen as an example of Liebman's definition of non-tonal chromaticism. By putting the accent on the mere shape and the overall color of the melodic lines as done here, the original chords completely disappear to the background. The uninterrupted succession of quavers in bars 33–37, gives the line a high density. A number of triads and chords are identifiable, but the line as a whole doesn't evoke an obvious tonal center. Bars 38–43 have a more open rhythmic structure and contain three- and four-note sequences. As a result of the Ab major triad in bar 38, the Abmaj9 chord in bar 41 and the Ab7 chord in bars 42–43, a tonal anchor of Ab-keyish is perceived.



[ex 3.2.2.6 "Tilt" tenor saxophone solo second fragment: non-tonal chromatism]

Bars 73–76 contain a series of ascending and descending triad sequences that start on Abm and end on Gm, obscuring the original $Gm7^{b5}$ – $C7^{b9}$ changes. Gm replaces Fm as a temporary tonal center.

Also, the end of this third solo chorus is well endowed with triads. In bars 89–90 the combination of the Ab and Gb triads replaces the Gm^{b5} – $C7^{b9}$ chords. This is a common tonal harmonic superimposition because all notes in these triads belong to the scale of the C7 altered chord that resolves to F minor. Likewise, the Eb and Db triads in bars 92–94 are superimposed on the $Dm7^{b5}$ – $G7^{b9}$ chords. Their notes together belong to the scale of the G7 altered chord that resolves to C minor.



[ex 3.2.2.7 "Tilt" tenor saxophone third fragment: superimposed triads]

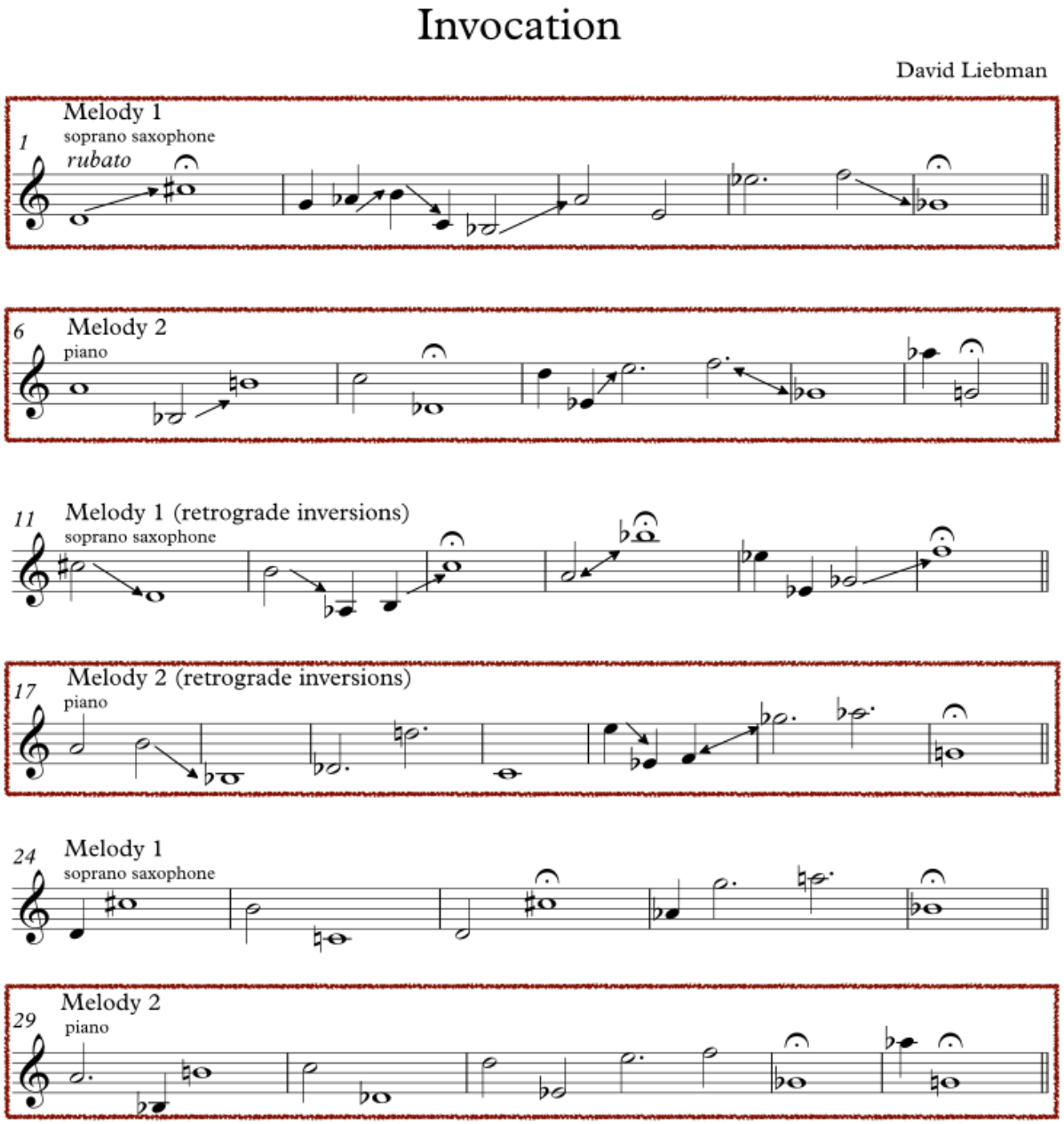
My operations in this solo, meant to play intentionally outside the original chord changes of this tune represent a number of the superimposition techniques that I had developed by trial and error. The analysis confirmed my assumption that according to Liebman's theory I mainly applied tonal, rather than non-tonal superimpositions.

3.2.3 Twelve-tone techniques

Encouraged by my acquaintance with the serial elements of the Tone Clock as discussed in chapter 1 and hereafter in chapter 4, I was attracted by Liebman's assertion that in his concept of non-tonal chromaticism the same principles are observed as in Arnold Schoenberg's concepts of the tone row. Liebman summarizes his interpretation of twelve-

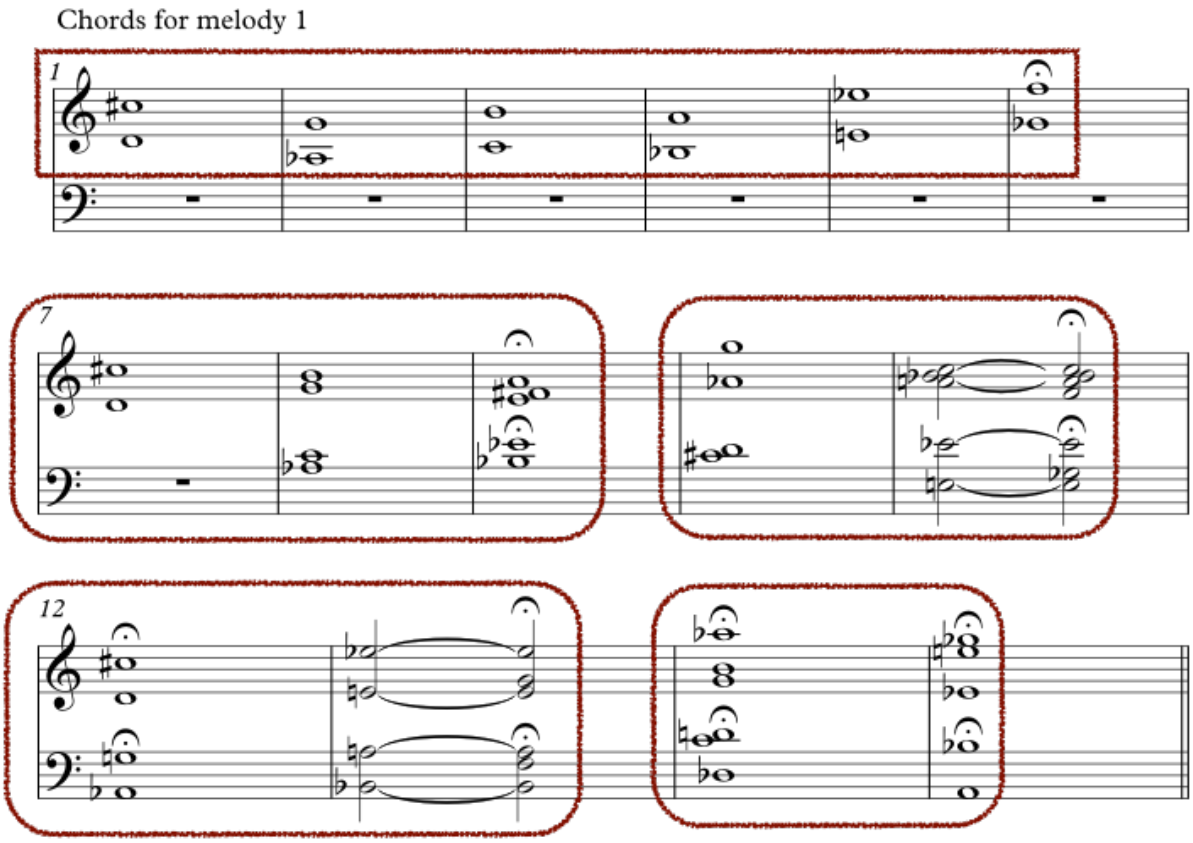
tone techniques as avoiding the harmonic dominance of any of the twelve tones, and the application of certain row variations. In this music, tension and release is effected by density of texture, speed and grouping of ideas, range, dynamics and form, rather than by the cadential resolution to fixed key centers in functional harmony. The row variations (retrograde, inversion and retrograde inversion) and compositional operations such as octave displacement, various serial techniques, and rhythmic permutations are applied to add variety and relative points of tension to the melodic lines (Liebman 2013:34).

The following example shows Liebman's operations with twelve-tone rows on a duo recording with pianist Richie Beirach of "Invocation" (2006). The six lines in the following example are played alternately by the soprano saxophonist (melody 1) and the pianist (melody 2) at the beginning of the first part. In bars 1–5 Liebman plays a twelve-tone row containing five major seventh intervals. In bars 11–16 the arrows mark his retrograde inversions of these intervals. Because in bar 16, he repeats the note e♭ in the lower octave instead of playing it as the note e, the row contains eleven notes instead of twelve. In bars 24–28, constructed with only eight different notes, he plays again five intervals of a major seventh. Beirach keeps more strictly to the twelve-tone rows than Liebman, whose line in bars 6–10 contains four intervals of a major seventh and three intervals of a minor ninth. In bars 17–23 he repeats two of these minor ninth intervals as retrograde inversions. His last line in bars 29–33 is roughly a repetition of the one in bars 6–10.



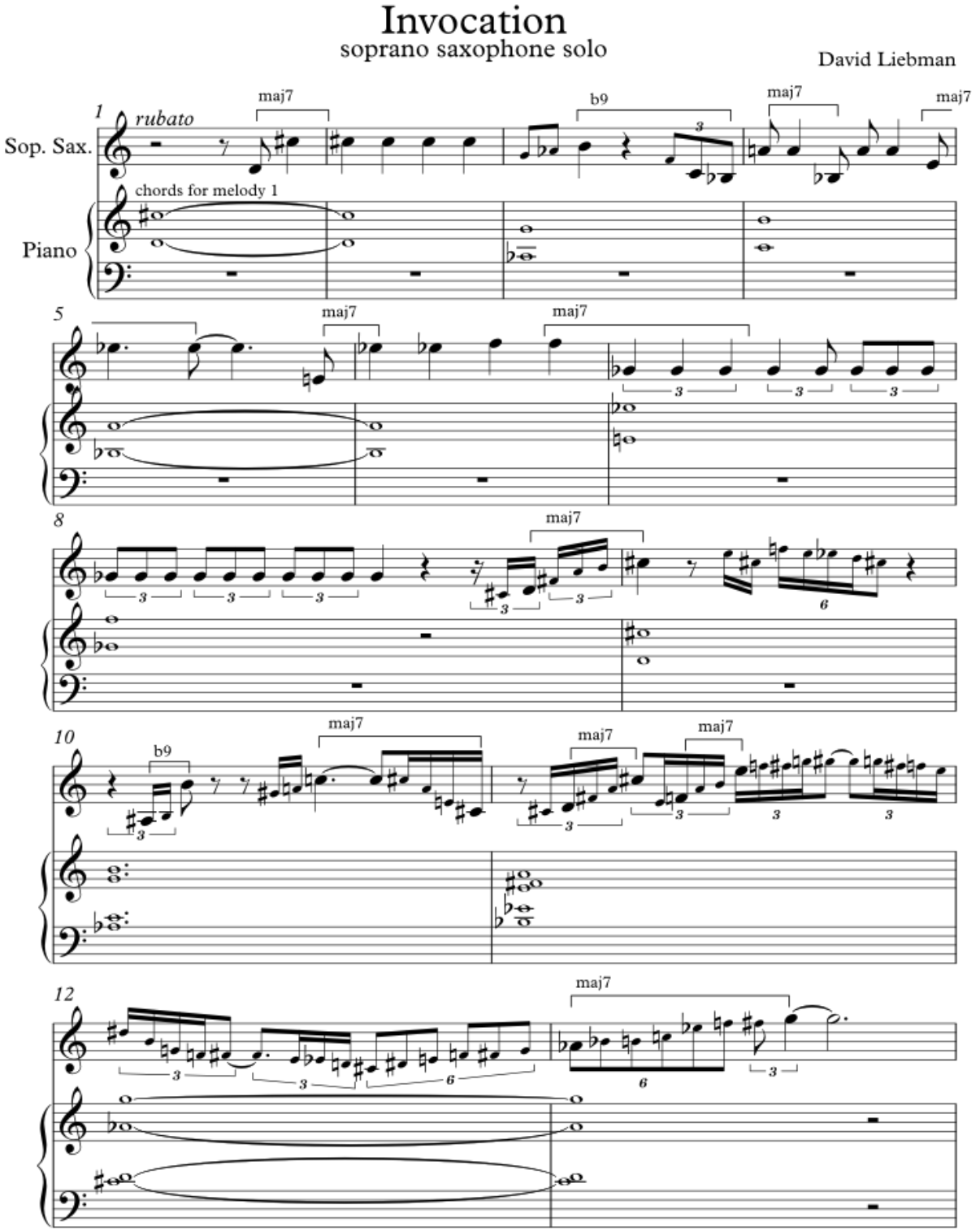
[ex 3.2.3.1 "Invocation" (David Liebman) – melody lines]

The next example shows how Liebman constructed vertical harmonies by stacking and intertwining the characteristic major seventh and minor ninth intervals from the soprano saxophone lines (melody 1). The pitch collection is played five times. Only the first time, in bars 1–6, are all twelve pitches from the row played. Bars 7–9 contain an eleven-tone row (the note f is missing), just as bars 9–10 (the note b is missing), and 14–15 (the note f is missing). Bars 12–13 contain a ten-tone row (the notes b and c are missing).



[ex 3.2.3.2 "Invocation" (David Liebman) – harmonies]

In the next example of a fragment of Liebman's solo it is easy to recognize the intervallic structure of the melody lines, as he plays ten intervals of a major seventh and two intervals of a minor ninth. Because he intends to follow the pianist's "chords for melody 1", he emphasizes the tonal anchors that these harmonies evoke, rather than taking the twelve-tone rows of melody 1 and 2 above into account. Examples of tonal anchors are Dmaj7 (bars 1–2), Abm^{maj7} and Abmaj7$^{\#11}$ (bar 3), Bbmaj7b9/C (bars 3–4), Dmaj7/Bb and Dm^{maj7} (bars 8–9). From bar 8 on, the two intervals are interwoven in diatonic scale patterns (bar 10) and sequences (bar 11) with an increasing dense texture (bar 13).

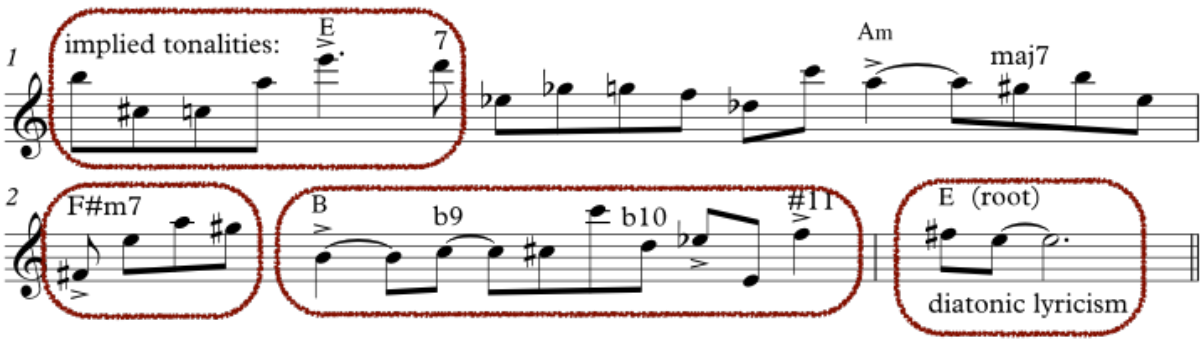


[ex 3.2.3.3 "Invocation" (David Liebman) – soprano saxophone solo fragment]

Twelve-tone techniques also appear in Liebman's line compendium, which consists of 100 randomly presented melodic lines. Liebman advises the reader to apply chromatic line variations to these lines: rhythmic variations, such as diminution, augmentation and

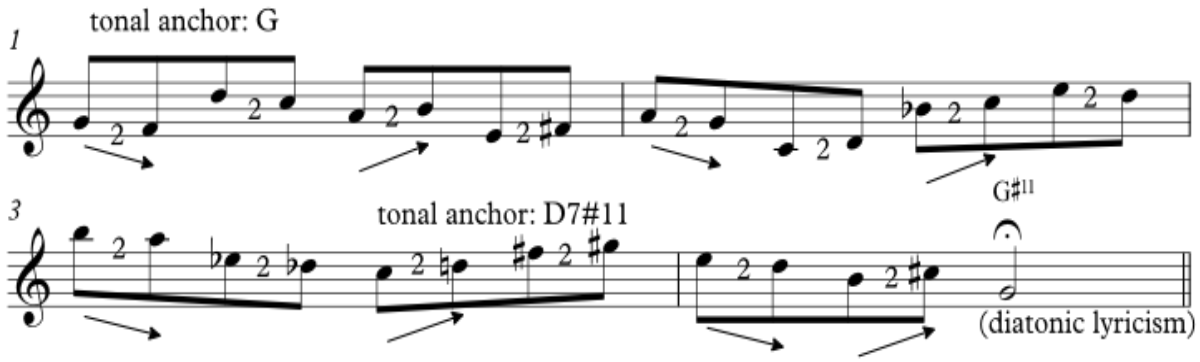
syncopation, and pitch variations, such as sequence change, neighboring tones, octave displacement and transpositions. He also advises to analyze his chromatic lines in order to identify tonal anchors, to apply intervallic analysis and to identify an implied tonality of the line in general.

The next example shows my analysis of one of Liebman's examples to define implied tonalities. As a result of both octave displacement of the notes e and c, and of the augmentation of the notes e and a in bar 1, the keys of E and Am^{maj7} can be identified as temporary tonal centers. Further line analysis reveals the tonal anchors F# and B in bar 2. F#m7 results from accentuating the note $f^{\sharp}$, while B (with tension notes b9, b10, #11) results by both the accent on, and the augmentation of the note b. Because I hear these tension notes evoke the tonal color E, I have added this as the root in the last bar, according to Liebman's observation that "consonance is achieved through diatonic lyricism: the well timed use of a phrase which clearly outlines a tonal center" (Liebman 2013:15).



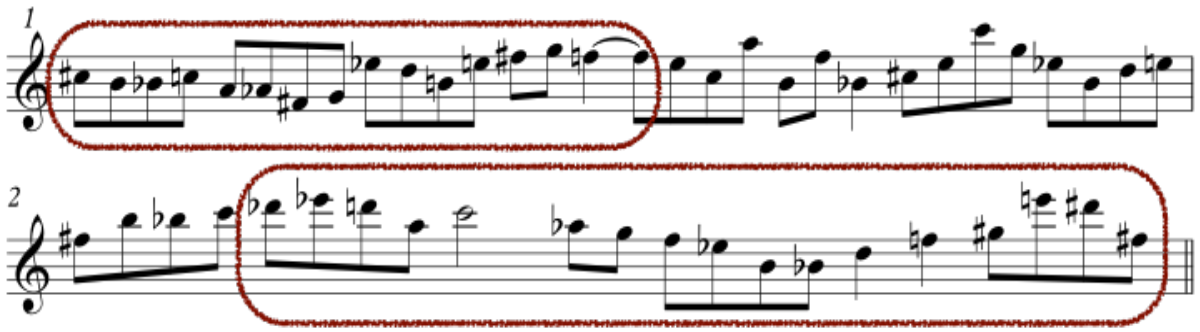
[ex 3.2.3.4 line compendium #29 (Liebman 2013: 194)]

An application of intervallic analysis is shown in the next example. All four-note patterns begin and end with a major second interval. The initial interval of all first patterns of bars 1–3 is put in descending direction; the initial interval of all second patterns in ascending direction. These alternating directions are repeated in the four-note pattern in bar 4. Then, the second pattern of bar 1 has the shape of a retrograde inversion, although the intervals between the mid voices are not similar. The same appears in bar 3, where the second pattern represents only the shape of a retrograde of the first without observing the correct intervals.



[ex 3.2.3.5 – line compendium #31 (Liebman 2013: 194)]

Line analysis of the next example reveals a quite strict twelve-tone application. Analysis of this line reveals three phrases. The first and the third contain twelve-tone rows, the first with three and the third with two pitches repeated. The second phrase contains eleven notes, with six repetitions. Because the overall phrasing of the line, just as in the example above, is mainly done in eighth notes, it suggests a dense texture. Or, in Liebman's terms (and depending on what tempo the line is played) it features a fast grouping of ideas. It doesn't contain any apparent implied tonalities, although the last four notes to my ears sounds like F#7 pulling to Bmaj.



[ex 3.2.3.6 – line compendium #12 (Liebman 2013:192)]

3.2.4 Evaluation

At the time of finding the first edition of Liebman's book in 1991, I had already applied a number of his techniques intuitively. Since then his terminology such as "tritone", "alternate ii-V", "scale quality", "modal", and "pedal point" and the step-by-step stratification of terms and practices served as a useful theoretical framework to articulate my endeavors of extending my playing beyond conventional linear improvisation.

Liebman's applications of twelve-tone operations are obvious in the examples above, but his interpretation of the twelve-tone theory in section 3.2.3 is quite global. By only

mentioning the name Schoenberg he does not define his own position to the current state of affairs in twelve-tone music. In the following paragraphs, I will summarize composer and theorist Charles Wuorinen's discussion of the theory and development of twelve-tone music (Wuorinen 1994) to clarify its relations with the applications by Liebman and the other authors to be discussed in the remainder of this study.

Wuorinen's publication *Simple Composition* (1994) provides a basic outline of the twelve-tone system of composition accompanied by assignments for composition students. The author defines the difference between the tonal and the twelve-tone systems as "the tonal system is based upon interval *content*, the twelve-tone system upon interval *order*" *(*Wuorinen 1994:5). In tonal music, the content of pitches and intervals can be identified by their positions in the diatonic scale and its implied triads and tetrachords. This content is fixed, and independent of where the notes appear in the melody, or in the chord. In twelve-tone music, all twelve pitches of the chromatic scale are equally important, in other words: there are no notes dominating the others. The twelve pitches are arranged in a row in which the fundamental structure principle is determined by the order of the pitches and their connecting intervals.

As to the state of affairs of twelve-tone music, at the time of publication 75 years after its introduction by Schoenberg, Wuorinen expresses observations that are important in the context of this study. He states that, now twelve-ness and the non-repetition of pitches before all twelve have been exposed is no longer compulsory, the principle of ordered interval succession is the main organizing factor of twelve-tone music. He considers the ongoing merging of content-based principles of pitch organization with the basically order-determined music as a next step "to demonstrate our assertion that the tonal and twelve-tone systems are not really separate musical entities" (Wuorinen 1994:9).

Now, if Liebman's chromatic concept of non-tonal superimposition can be considered as an example of Wuorinen's "highly chromatic music of the present day" resulting from this "reconciliation of the two principles of pitch organization, content and order (Wuorinen 1994:9)", his treatise can be regarded a stratification of operations that demonstrate this process within jazz music. Wuorinen's concept of reconciliation also sheds light on Liebman's observation quoted in subchapter 3.2.1 that non-tonal improvisation is a very relative term because any configuration of notes can be identified by root oriented chord symbols. This relativeness results from the combination of the vertically stacking of horizontally ordered pitches, and the orientation on a root note in a principally keyless

situation. These mixed operations again witness the merging of tonal and twelve-tone techniques.

Today's almost intuitively blending of (elements from) tonal and twelve-tone techniques explains the paradox throughout Liebman's book between his definition of non-tonal chromaticism referring to "melodic lines and harmonies that have no discernable key or root orientation [and can be considered to result from] linear counterpoint" (Liebman 2013: 34) and his positioning of chromaticism in "specifically […] a situation in which there is an intentional relationship between melody and harmony. [Because] for jazz, it is the harmonic accompaniment which frames the melody" (Liebman 2013:13).

Although the way Liebman designs and analyzes his complex chords and related scales is clear and useful, the complexity and quantity of his suggested twelve-tone operations might hinder the spontaneous creative process on stage. Simpler applications of twelve-tone techniques would be more attractive to help improvisers "inventing melodies which are fresh, alive and full of meaningful emotional and thoughtful content" (Liebman 2013: 13). As a demonstration of these simpler applications I will come back to "Invocation" in subchapter 4.6, discussing trichord analysis as a potential alternative to Liebman's derivation of scales from the complex chords in the fourth part of this composition.

One last comment on Liebman's line compendium. His adding of instructions and examples of line analysis and line variations, are an improvement compared to earlier editions of his book. As a kind of thesaurus, it may indeed inspire the interested reader to adapt (fragments of) these examples to his personal needs and taste. However, by the absence of musical context it still misses the instructional quality to help the improviser creating melodic lines alike. An example of the combination of a compendium with an explicit model to generate melodic lines beyond functional harmony, as an alternative to a mere thesaurus, will be discussed in the next subchapter.

3.3 Jerry Bergonzi (2000). *Thesaurus of Intervallic Melodies.* Rottenburg: Advance Music.

3.3.1 Theory

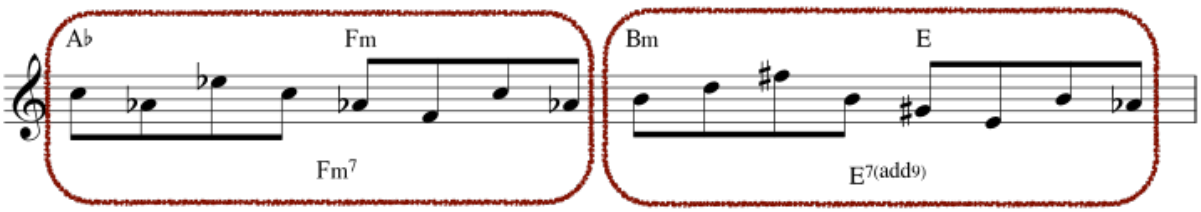
In this publication Bergonzi discusses a model to create melodic lines that are purely intervallic. The major part of it consists of a thesaurus of 1704 intervallic melodies that result from his applications of this model. (In fact, the collection contains 852 melodies, because from 853 on, the first 852 are repeated, transposed up a minor second and put in retrograde). Like Liebman, Bergonzi provides the reader with instructions to apply rhythmic and melodic variations to the lines in his thesaurus. However, the intervallic melodies in his book are presented consistently in four-note groupings of eighth notes, without any rhythmic variations.

With a limited amount of possible operations Bergonzi's system should be able to generate an infinite amount of "original lines and melodies." By calling his examples "some interval combinations" he wants to express that his selections are subjective, or in his words "motivated by intuition and based on the ear". Bergonzi's book requires the reader to use his intuition "while at the same time it helps to develop that faculty" (Bergonzi 2000: 7).

With these quotes, Bergonzi seems to express a somewhat outdated idea about intuition per se. In addition to his somewhat cryptic notions regarding the relationship between knowledge and intuition in the praxes of (composing) improvisers, I would rather use the term "informed intuition". Just like processing knowledge seems impossible without a certain degree of intuition, acting on intuition depends on a body of conscious or unconscious knowledge. I will use the term "informed intuition" to address the type of intuition allowing (composing) improvisers to (instantly) generate musical content in response to a variety of musical situations, depending on their knowledge acquired by formal education, professional experience, and taste.

Bergonzi considers his model as a way to get outside the chord changes of a tune. His basic aim is not to imply any tonal references. Just as Liebman, he argues that the shape and sound of the melodic lines are the intended purpose and that it is up to the reader to decide to either ignore or opt for tonal references. However, he admits that for skilled composers and improvisers, tonal references should be obvious. For instance, in the next example he combines the intervals of a minor third, a major third and a perfect fifth. This

melodic line can be analyzed as four groups of four notes, with the implied Abmaj, Fm, Bm and Emaj triads, or in two groups of eight notes with the implied Fm7 and E7 chords.



[ex 3.3.1.1 – implied tonalities (Bergonzi 2000:66)]

3.3.2 Practical applications

Before I discuss my experiences with Bergonzi's model, I will explain shortly how it works. As I have already mentioned, Bergonzi's choices of interval combinations are intuitive and based on concentrated listening. The sizes of these intervals range between a minor second and a major sixth. Major and perfect intervals are marked with numbers 2 (major second) until 6 (major sixth). Minor or diminished intervals are marked with a minus sign: -2 (minor second) until -6 (minor sixth). Augmented intervals are not identified. The following example shows Bergonzi's collection of "some three-interval combinations".

-2	2	-3
-2	3	5
-2	4	-5
-2	2	5
2	4	5
-2	3	6
2	3	-5
2	3	5
-3	3	-6
-3	3	5
-2	-5	5
-2	2	3
-2	2	4
2	-3	3
-3	3	4

[ex 3.3.2.1 – some three-interval combinations (Bergonzi 2000: 56)]

Next to the choice of the interval combinations, the essential parameters are the permutations (the order in which the intervals appear) and the note directions (either ascending or descending) of the chosen intervals. These tools to manipulate the interval

combinations are listed in two separate tables. The note directions are marked in Arabic numerals, the intervallic permutations are marked in capitals.

According to the numbers of intervals used, the thesaurus contains three types of melodies. In order of appearance, the first is constructed with four intervals, the second with three and the third with five. For each type Bergonzi has constructed separate tables. For all three types, the numbers of possible note directions and permutations are different.

As the next examples illustrate, four-interval melodies can take sixteen different note directions

16 Note Directions

A	↑	↑	↑	↑	I	↓	↓	↓	↓
B	↑	↑	↑	↓	J	↓	↓	↓	↑
C	↑	↑	↓	↓	K	↓	↓	↑	↑
D	↑	↓	↓	↓	L	↓	↑	↑	↑
E	↑	↓	↑	↓	M	↓	↑	↓	↑
F	↑	↑	↓	↑	N	↓	↓	↑	↓
G	↑	↓	↓	↑	O	↓	↑	↑	↓
H	↑	↓	↑	↑	P	↓	↑	↓	↓

[ex 3.3.2.2 – table of note directions of four-interval melodies (Bergonzi 2000: 11)]

and twenty-four permutations.

24 Permutations

1	A	B	C	D	7	B	A	C	D	13	C	A	B	D	19	D	A	B	C
2	A	B	D	C	8	B	A	D	C	14	C	A	D	B	20	D	A	C	B
3	A	C	B	D	9	B	D	A	C	15	C	B	D	A	21	D	B	C	A
4	A	C	D	B	10	B	D	C	A	16	C	B	A	D	22	D	B	A	C
5	A	D	C	B	11	B	C	A	D	17	C	D	B	A	23	D	C	A	B
6	A	D	B	C	12	B	C	D	A	18	C	D	A	B	24	D	C	B	A

[ex 3.3.2.3 – table of permutations of four-interval melodies (Bergonzi 2000:11)]

Five-interval melodies can take thirty-two note directions

32 Note Directions											
A	↑	↑	↑	↑	↑	Q	↓	↓	↓	↓	↓
B	↑	↑	↑	↑	↓	R	↓	↓	↓	↓	↑
C	↑	↑	↑	↓	↓	S	↓	↓	↓	↑	↑
D	↑	↑	↓	↓	↓	T	↓	↓	↑	↑	↑
E	↑	↑	↓	↑	↓	U	↓	↓	↑	↓	↑
F	↑	↑	↑	↓	↑	V	↓	↓	↓	↑	↓
G	↑	↑	↓	↓	↑	W	↓	↓	↑	↑	↓
H	↑	↑	↓	↑	↑	X	↓	↓	↑	↓	↓
I	↑	↓	↓	↓	↑	Y	↓	↑	↑	↑	↑
J	↑	↓	↓	↓	↑	Z	↓	↑	↑	↑	↓
K	↑	↓	↓	↑	↑	AA	↓	↑	↑	↓	↓
L	↑	↓	↑	↑	↑	BB	↓	↑	↓	↓	↓
M	↑	↓	↑	↓	↑	CC	↓	↑	↓	↑	↓
N	↑	↓	↓	↑	↓	DD	↓	↑	↑	↓	↑
O	↑	↓	↑	↑	↓	EE	↓	↑	↓	↓	↑
P	↑	↓	↑	↓	↓	FF	↓	↑	↓	↑	↑

[ex 3.3.2.4 – table of note directions of five-interval melodies (Bergonzi 2000:73)]

and one hundred twenty permutations.

120 Permutations

1	A	B	C	D	E	25	B	C	D	E	A	49	C	D	E	A	B	73	D	E	A	B	C	97	E	A	B	C	D
2	A	B	C	E	D	26	B	C	D	A	E	50	C	D	E	B	A	74	D	E	A	C	B	98	E	A	B	D	C
3	A	B	D	C	E	27	B	C	E	A	D	51	C	D	A	B	E	75	D	E	B	C	A	99	E	A	C	D	B
4	A	B	D	E	C	28	B	C	E	D	A	52	C	D	A	E	B	76	D	E	B	A	C	100	E	A	C	B	D
5	A	B	E	C	D	29	B	C	A	D	E	53	C	D	B	A	E	77	D	E	C	A	B	101	E	A	D	B	C
6	A	B	E	D	C	30	B	C	A	E	D	54	C	D	B	E	A	78	D	E	C	B	A	102	E	A	D	C	B
7	A	C	D	B	E	31	B	D	E	A	C	55	C	E	A	B	D	79	D	A	B	C	E	103	E	B	C	D	A
8	A	C	B	E	D	32	B	D	E	C	A	56	C	E	A	D	B	80	D	A	B	E	C	104	E	B	C	A	D
9	A	C	D	B	E	33	B	D	A	C	E	57	C	E	B	D	A	81	D	A	C	E	B	105	E	B	D	A	C
10	A	C	D	E	B	34	B	D	A	E	C	58	C	E	B	A	D	82	D	A	C	B	E	106	E	B	D	C	A
11	A	C	E	B	D	35	B	D	C	A	E	59	C	E	D	A	B	83	D	A	E	B	C	197	E	B	A	C	D
12	A	C	E	D	B	36	B	D	C	E	A	60	C	E	D	B	A	84	D	A	E	C	B	108	E	B	A	D	C
13	A	D	C	B	E	37	B	E	A	C	D	61	C	A	B	D	E	85	D	B	C	E	A	109	E	C	D	A	B
14	A	D	B	E	C	38	B	E	A	D	C	62	C	A	B	E	D	86	D	B	C	A	E	110	E	C	D	B	A
15	A	D	C	B	E	39	B	E	C	A	D	63	C	A	D	E	B	87	D	B	E	A	C	111	E	C	A	B	D
16	A	D	C	E	B	40	B	E	C	D	A	64	C	A	D	B	E	88	D	B	E	C	A	112	E	C	A	D	B
17	A	D	E	B	C	41	B	E	D	A	C	65	C	A	E	B	D	89	D	B	A	C	E	113	E	C	B	D	A
18	A	D	E	C	B	42	B	E	D	C	A	66	C	A	E	D	B	90	D	B	A	E	C	114	E	C	B	A	D
19	A	E	B	C	D	43	B	A	C	D	E	67	C	B	D	E	A	91	D	C	E	A	B	115	E	D	A	B	C
20	A	E	B	D	C	44	B	A	C	E	D	68	C	B	D	A	E	92	D	C	E	B	A	116	E	D	A	C	B
21	A	E	C	B	D	45	B	A	D	C	E	69	C	B	E	A	D	93	D	C	A	B	E	117	E	D	B	C	A
22	A	E	C	D	B	46	B	A	D	E	C	70	C	B	E	D	A	94	D	C	A	E	B	118	E	D	B	A	C
23	A	E	D	B	C	47	B	A	E	C	D	71	C	B	A	D	E	95	D	C	B	E	A	119	E	D	C	A	B
24	A	E	D	C	B	48	B	A	E	D	C	72	C	B	A	E	D	96	D	C	B	A	E	120	E	D	C	B	A

[ex 3.3.2.5 – table of permutations of five-interval melodies (Bergonzi 2000:74)]

Three-interval melodies can take eight different note directions

8 Note Directions

A	↑	↑	↑	E	↓	↓	↓
B	↑	↑	↓	F	↓	↓	↑
C	↑	↓	↓	G	↓	↑	↑
D	↑	↓	↑	H	↓	↑	↓

[ex 3.3.2.6 – table of note directions of three-interval melodies (Bergonzi 2000:55)]

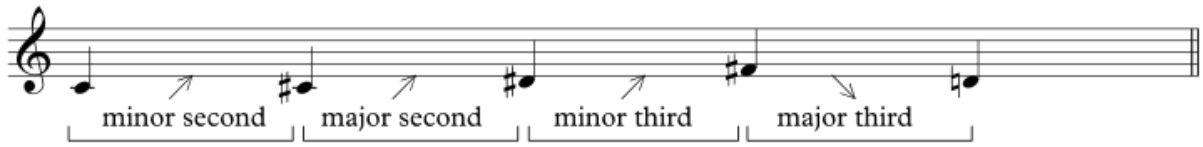
and twenty-seven permutations. Six of these are true permutations starting with ABC and ending with CBA while the other twenty-one contain repetitions of one of the intervals by which they have in fact been changed into a two-interval combination.

27 Permutations

1	A	B	C	10	B	C	A	19	C	A	B
2	A	C	B	11	B	A	C	20	C	B	A
3	A	A	B	12	B	B	A	21	C	C	A
4	A	A	C	13	B	B	C	22	C	C	B
5	A	B	A	14	B	A	B	23	C	A	C
6	A	C	A	15	B	C	B	24	C	B	C
7	A	A	A	16	B	B	B	25	C	C	C
8	A	B	B	17	B	A	A	26	C	A	A
9	A	C	C	18	B	C	C	27	C	B	B

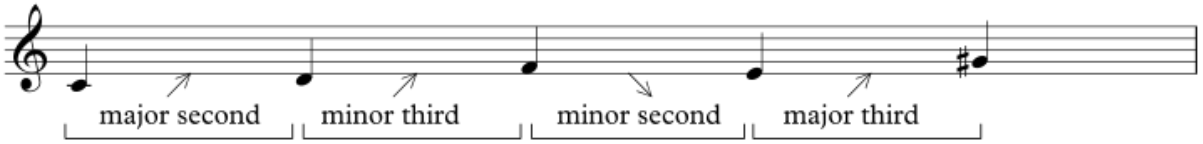
[ex 3.3.2.7 – table of permutations of three-interval melodies (Bergonzi 2000:55)]

The following example shows the manipulation of a four-interval combination with a minor second, a major second, a minor third and a major third, written /-2 /2/-3/ 3/ and manipulated by B1. With starting note c, Note Direction B (the first three intervals ascending and the fourth descending) and intervallic permutation 1 (in the order ABCD), the following four-interval melody occurs.



[ex 3.3.2.8 – four-interval melody /-2 /2/ -3/ 3/]

In another example, the manipulation called F11, with note direction F (two intervals ascending, the third descending and the fourth again ascending) and intervallic permutation 11 (BCAD) would result in the following four-interval combination.

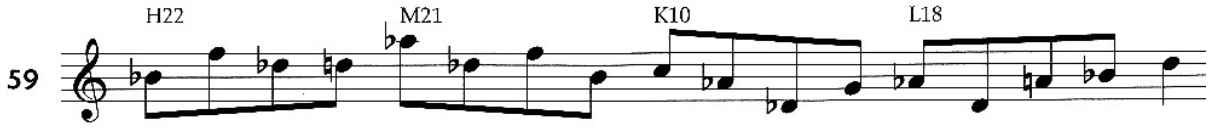


[ex 3.3.2.9 – alternative four-interval combination /-2 /2/ -3/ 3/]

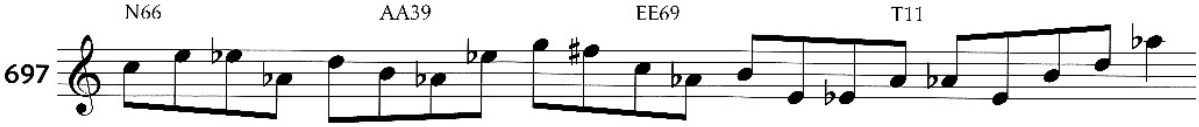
Bergonzi convincingly proposes educational applications of his model such as ear training and rhythmic development. However, in the context of this study I am primarily interested in the generative application of his model for the composing improviser. Analysis of the thesaurus reveals three types of intervallic melodies.

In the first type, all interval combinations are different. This results in capricious melodic lines that tend to serve the composer's use. For the improviser, they are quite complicated and therefore hard to memorize and to quickly transpose, especially when

there is no obvious tonal center implied. See for instance the next two examples. Because the first example evokes Bb as a tonal anchor it might linger in the ear more easily than the second one, which sounds purely intervallic. Therefore, for improvisers the first line would be easier to remember and manipulate than the second.

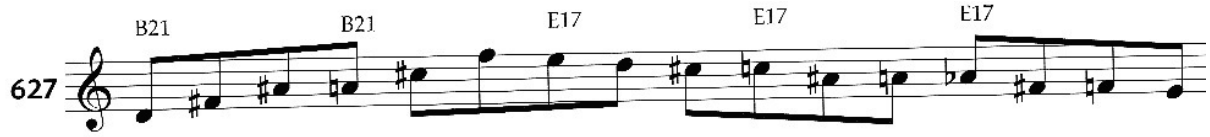


[ex 3.3.2.10 – Bb as a tonal anchor (Bergonzi 2000:17)]



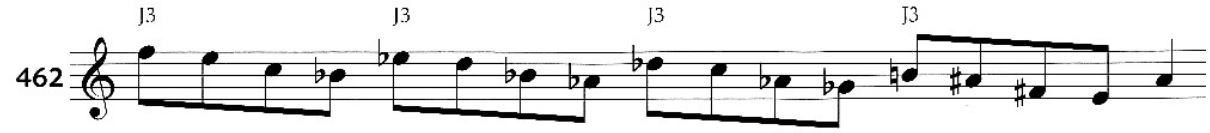
[ex 3.3.2.11 – sounds purely intervallic (Bergonzi 2000:78)]

In the second type of intervallic melodies, two or more interval combinations have the same structure. Hereby these "semi-sequential lines" sound more methodical than those of the first type. This makes them more predictable and therefore probably less interesting for composers unless they are for instance looking for accompanying riffs as vehicles for improvisations. However, for improvisers this type of line is easier to memorize and to quickly transpose.



[ex 3.3.2.12 – a semi sequential line (Bergonzi 2000:68)]

In the third type of intervallic melodies, all interval combinations have the same structure. The resulting "full-sequential lines" sound extremely methodical and predictable by which they are easy to manipulate by the improviser.

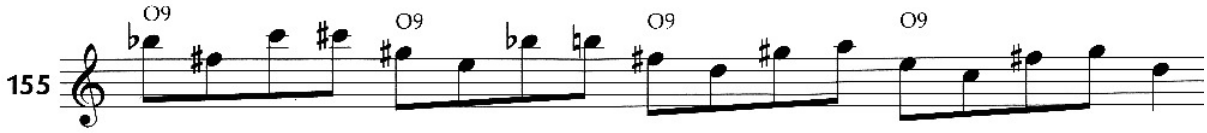


[ex 3.3.2.13 – a full sequential line (Bergonzi 2000:51)]

Memorizing a line is made even easier by full-sequential lines in which the first notes of the four-note patterns are connected by similar intervals of major seconds (such as in the example above: f, e♭, d♭, and b), minor thirds, major thirds or perfect fourths.

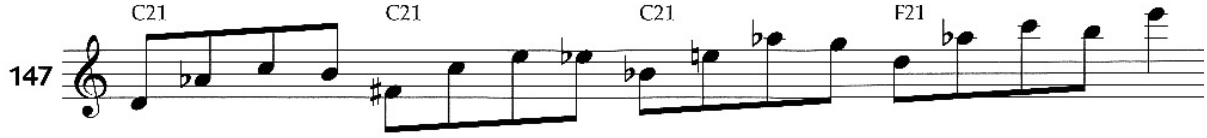
These connecting intervals can also help to facilitate the sounding of implied tonal colors such as in the next example. The four-interval combination A/-2, B/3, C/4 and D/-5, a

minor second, a major third, a perfect fourth and a diminished fifth, with the directions O (first interval descending, second and third ascending and the fourth descending) and permutation BDAC, results in the interval melody below. As a result of the major second intervals between the initial notes of the four-note patterns, in combination with their similar internal structure with three notes from the same whole-tone-scale, this line creates the sound of the D whole-tone scale.



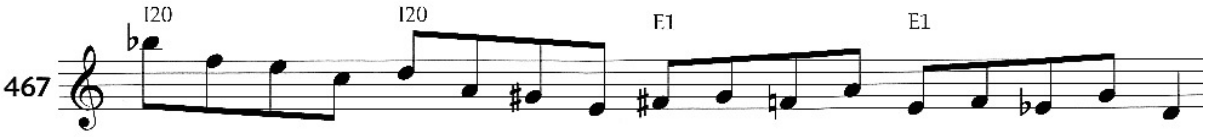
[ex 3.3.2.14 – whole tone scale as implied tonal color (Bergonzi 2000:25)]

In the following example, with the note b$^{\flat}$ enharmonically altered to a$^{\sharp}$, the intervals between the initial notes of the four-note groupings are major thirds. In combination with their internal structures, containing a flatted five and a major third this helps to evoke the tonal color of a D augmented triad.



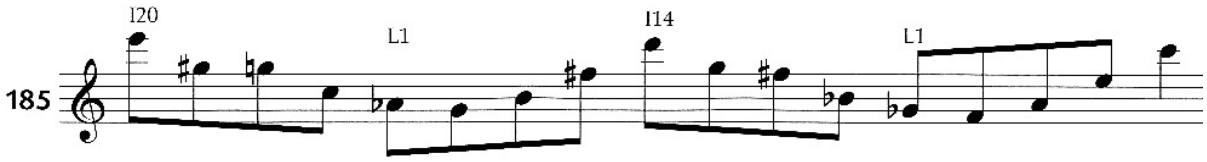
[ex 3.3.2.15 – D augmented triad implied (Bergonzi 2000:25)]

Although it is not Bergonzi's basic aim, some of his groupings of four-note patterns irresistibly evoke tonal references. For instance, by combining A/-2, B/2, C/3 and D/4 the following line could refer to a D pedal point,



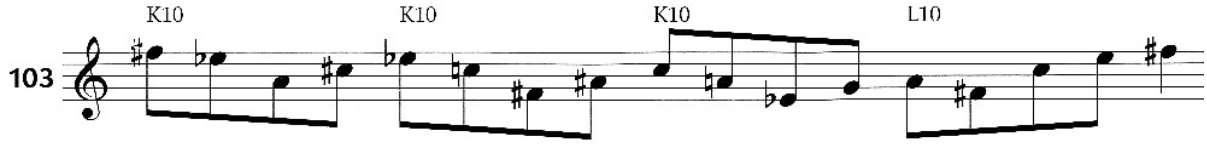
[ex 3.3.2.16 – D pedal point implied (Bergonzi 2000:51)]

while in the Interval Melody A/-2, B/3, C/5 and D/-6 the line could target a C pedal point.



[ex 3.3.2.17 – C pedal point as a target (Bergonzi 2000:28)]

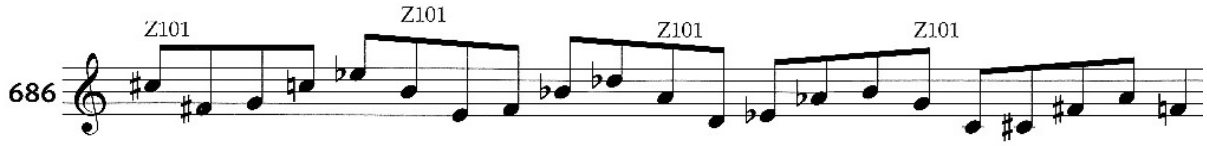
The next semi-sequential intervallic melody demonstrates an interesting quality of Bergonzi's system. Using A/2, B/-3, C/3 and D/-5, interval directions K and L, and permutation 10 (B D C A), the result is an intervallic sequence that clearly refers to the sound of F#7$^{13/b9}$, as a line variation of the F# octatonic scale. Thus, an original improvisational pattern that might not intuitively pop-up easily, is created to serve as an original addition to the jazz improviser's vast collection of "familiar licks" to embellish the octatonic scale.



[ex 3.3.2.18 – refers to a F# octatonic jazz pattern (Bergonzi 2000:21)]

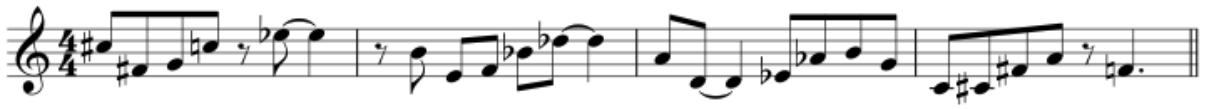
Just like his three- and four-interval melodies Bergonzi continues phrasing his five-Interval Melodies in four-note groupings instead of ordering them more logically in four groups of five notes in a 5/4 or 5/8 meter. The rhythmic displacement that results makes it harder to distinguish the individual patterns and to identify the melodic line as a whole. Is this the reason why Bergonzi seems to prefer sequential melodies above type-1 and type-2 lines? Of the 180 examples with five-Interval Combinations no less than 135 examples are full-sequential type-3 lines.

The following example is an illustration of such a line. By transposing the five-note patterns down by major seconds, a feeling of resolving to the tonal color of Fmaj is suggested.



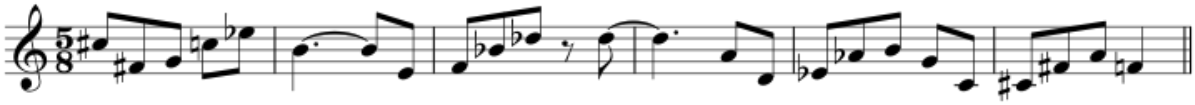
[ex 3.3.2.19 – pull to F (Bergonzi 2000:76)]

The next examples are rhythmic variations I added to the five-interval patterns in the example above, without changing their order of appearance. I applied two ways of re-arranging this interval melody as a means to clarify the obscured five-interval patterns. In the first example each 4/4 bar hosts one five-interval pattern.



[ex 3.3.2.20 – five-interval patterns in 4/4 bars]

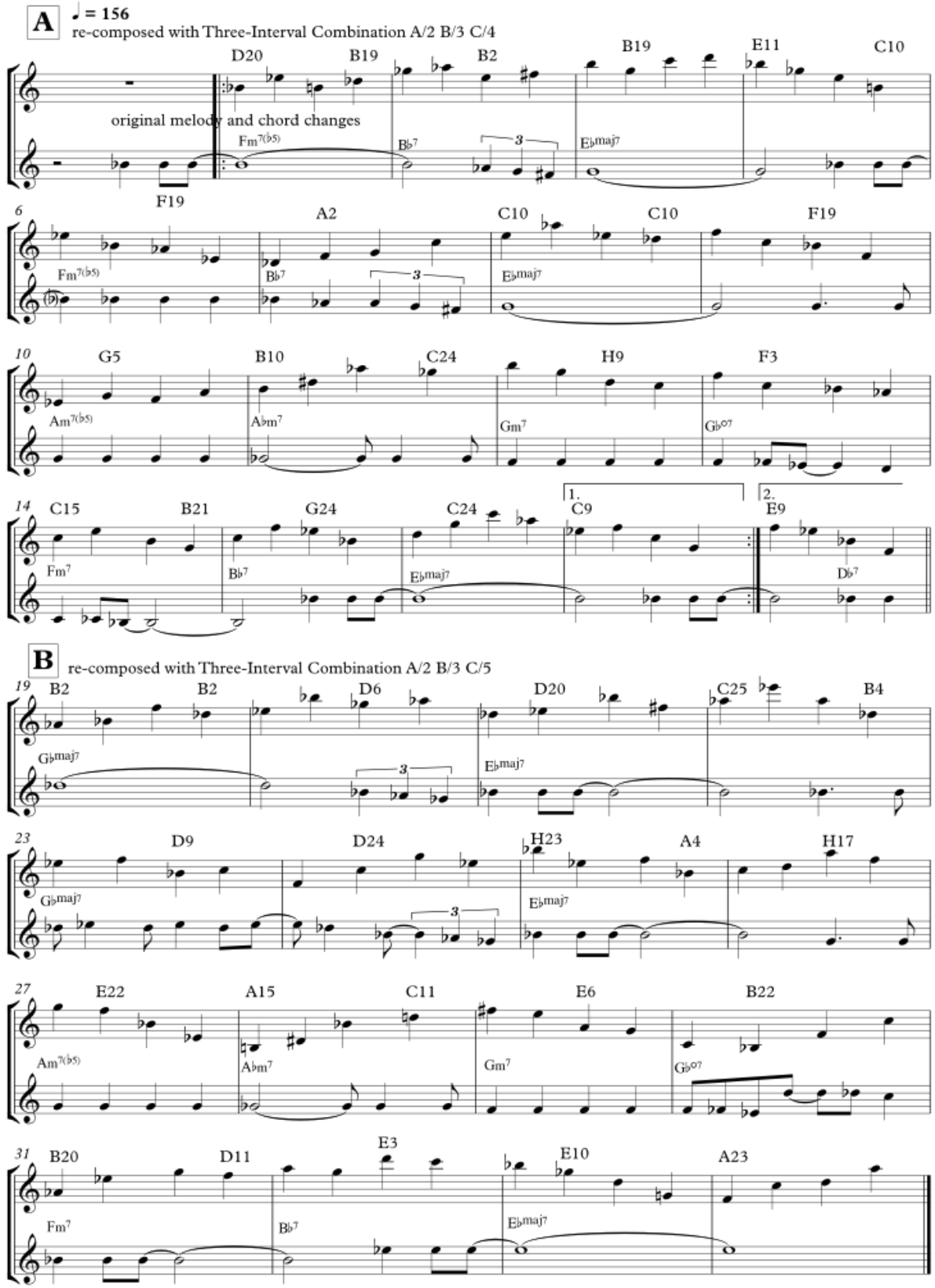
In the second example the same 5-interval patterns are re-arranged in six 5/8 bars.



[ex 3.3.2.21 – the same melodic line re-arranged in 5/8 meter]

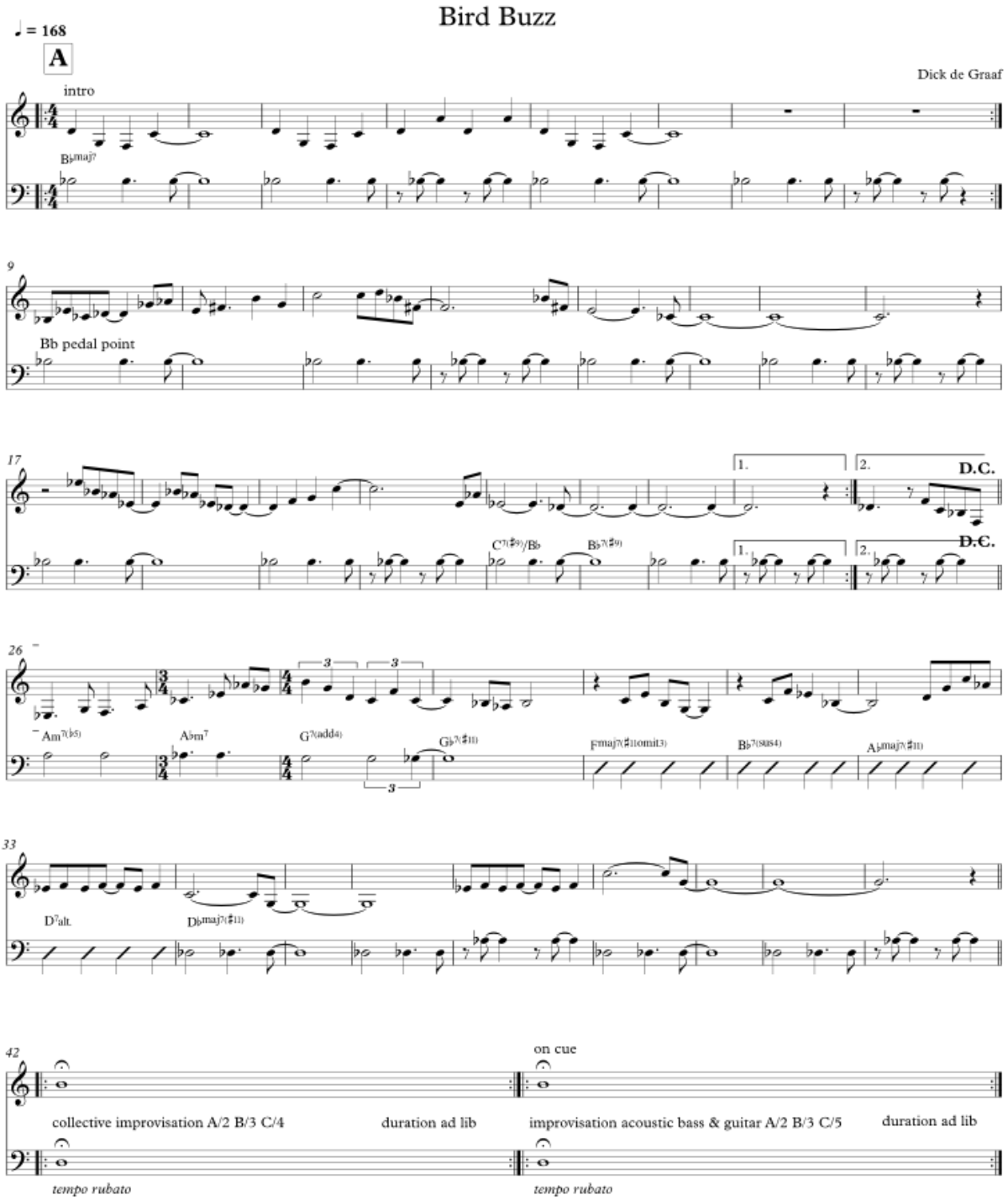
For a personal application of Bergonzi's model, I was inspired by his ear training instruction on how to sing intervallic melodies over major triads and other chord types. I transmitted this suggested application of his model to the construction of a contrafact of the jazz standard "Night And Day".

First I took the three-interval combination A/2 B/3 C/4 to create a melody in quarter notes on top of the chords of the A1 and A2 sections of the tune, and the three-interval combination A/2 B/3 C/5 to do the same on the B and A3 sections. I limited myself to these three-interval combinations because of the option, in Bergonzi's table of permutations, to apply similar intervals repeatedly. I assumed that this would facilitate spontaneity in the improvisations. My choice of size of the intervals was based on intuition, as were my decisions about the directions and the permutations of the interval combinations, although I tried to avoid obvious clashes with the original chords. Only after I had finished this first part of my re-composition did I use Bergonzi's tables of Note Directions and Intervallic Permutations to identify the Interval Melodies.
The next example shows the result of this first intervention. The new melody in quarter notes is written in the upper staff, the original melody and chords in the lower.



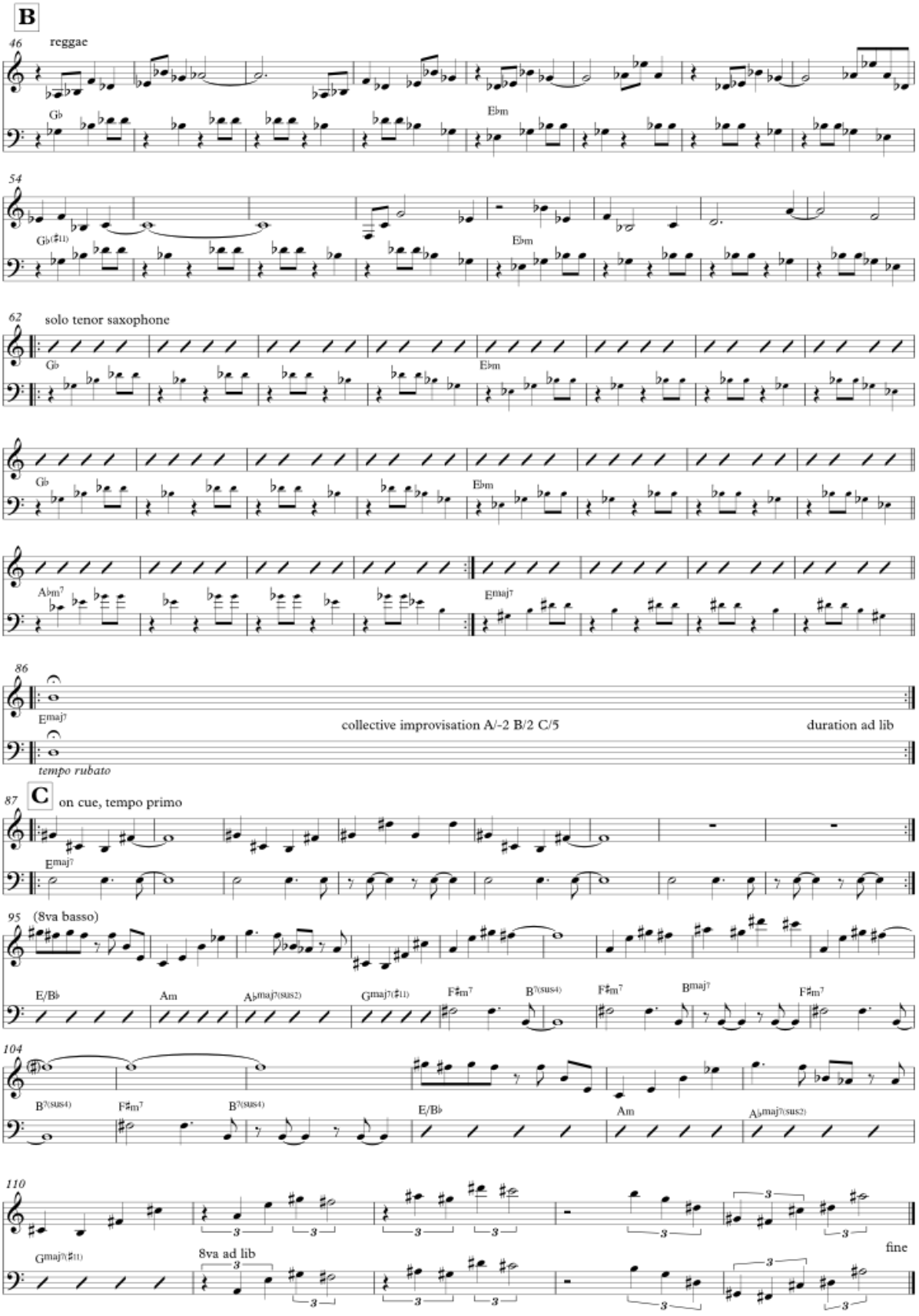
[ex 3.3.2.22 – "Night And Day" re-composed with Three-Interval Combinations]

My next step was to obscure the existing chords changes and to intuitively apply rhythmic variations and form interventions. Finally, I put back what to my ears remained the most characteristic chord changes (the four chromatically descending chords in bars 26–29) and adapted them to the new melodic and rhythmic structures. The result was my composition "Bird Buzz" (2015) as shown in the next examples. The tune is played in a rhythmic feeling of straight eights, with the drummer copying the rhythm of the bass ostinato. In bars 26–41 the harmonic movement refers to the original *Night And Day* but both changes and form here are thoroughly modified. At bar 42 the rhythm is interrupted and a collective solo in free rhythm is started, with all four musicians improvising. On cue at bar 43 the tenor sax and drums lay out and the guitar and bass continue their improvisations. At the end of this, the drummer leaps in and plays a cue to section B.



[ex 3.3.2.23 "Bird Buzz" – section A]

Section B is played in a reggae rhythm, with the saxophone improvising inside the modified chord changes of the B-section of "Night And Day". Also, this section turns into a collective and free form improvisation, again in a rubato rhythm, at bar 86. At the end of this the drummer plays a cue to section C in bar 87. This section is a transposed reprise of the theme in section A and played in the same tempo and rhythmic feeling.

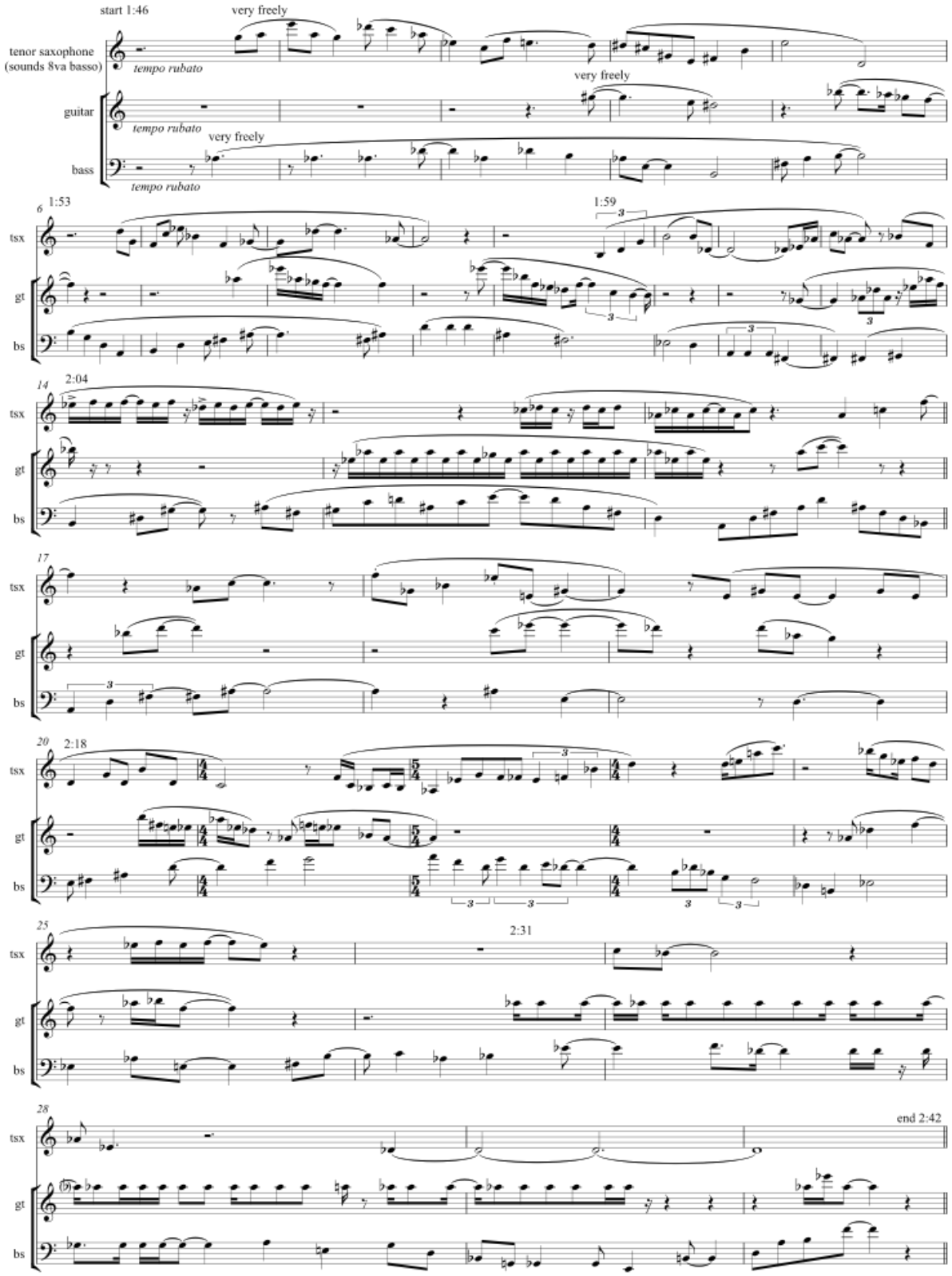


[ex 3.3.2.24 "Bird Buzz" – sections B and C]

As to the improvisations, I asked the musicians to confine themselves as much as possible to the selected intervals. The next example shows the transcription of the first part of the collective improvisation at the end of section A, where guitarist Federico Castelli, bassist Stefan Lievestro and I improvise with the intervals /2, /3, and /4 (a major second, a major third, and a perfect fourth). Apart from the idea to facilitate a close relation between composition and improvisation, I intended to avoid automatized diatonic scale patterns by leaving /-2 and /-3 (a minor second and a minor third) out.

In the interaction between the players, the saxophone and the bass are taking the lead. Guitar and drums are sparsely adding their accentuated fragments in between the lines of the leaders. As to the interval instruction, although quantitative analysis of the total number of the intervals played shows a considerable number of mistakes, several lines to my ears convincingly create the desired result to sound.[1] The bass for instance plays exemplary lines in bars 6–10 (with a minor third between the first two notes of bar 7 as the only mistake) and in bars 14–16. My opening line on the tenor saxophone reflects the intro before section A, by the mistaken fifths at the transition of bar 1 to bar 2. The second and third fragments of this line both contain a minor second as a leading note, and in bar 5 the interval of a major second is displaced one octave, into a major ninth. However, to my ears, due to the overall phrasing and the presence of all preferred intervals during the final fragments in bars 4–5, I consider this line to be convincing. The same goes for the guitarist where he plays four fragments in bars 4–10 that all end with a chromatic leading note. Apart from his playing of a mistaken fifth at the beginning of bar 8 (sounding, just as the first fragment of the tenor sax in bar 1–2, as a response to the intro before the A-section), all intervals are correct, as is the fragment in bar 13–14 that concludes his well-phrased melodic line that started at the end of bar 3.

[1] A quantitative analysis of the intervals shows that the percentage of correct intervals varies between 57 and 75%.



[ex 3.3.2.25 "Bird Buzz" – collective solo section A]

3.3.3 Twelve-tone techniques

In fact, Bergonzi launches a personal approach to creating tone rows with intervals arranged in an ordered succession, but without using this term or expressing any twelve-tone related theoretical context to it. His aim is to create original melodies; his means are a three-stage generative model and a thesaurus. However, the way he combines his sets of intervals, permutations and note directions can be considered an intuitive application of twelve-tone techniques. Likewise, the basic twelve-tone row variations, transposition, retrograde, inversion and retrograde inversion, are not theoretically addressed, but practically implied. They simply result from the manipulation of interval combinations by his tables of note directions and permutations.
Essential rhythmic variations are encouraged and discussed in his introduction, but how to apply these on the interval melodies in his thesaurus is left to the intuition of the reader. Likewise, compositional characteristics such as texture, range, dynamics and form are not within the scope of Bergonzi's method.

In principle Bergonzi wants to avoid tonal references but he admits that the saturated composer-improviser cannot exclude these. This observation points back to Wuorinen's (1994) notion of the reconciliation of the distinct principles of content (tonal music) and order (twelve-tone music) in section 3.2.4. Earlier in this chapter I discussed this phenomenon already in relation to the performance of "Tilt" and again about the collective improvisation in "Bird Buzz". Just like myself, most of my peers have learned the music they play in a context of functional harmony. In order to learn this, or any other new musical language that is in any way related to techniques of twelve-tone music, it seems a good strategy to focus exclusively on this new idiom. By doing so, one should try to reduce the analysis of each melodic line's possible harmonic reference to a minimum. But, unwantedly, by an almost automatic pull to one's musical "mother tongue", the harmonic reference cannot be avoided, popping up automatically as well. Although principally unwanted, this merging of new and existing idioms serves the part of the final goal of this operation: to connect these "new" idioms with the existing ones, or at least to use them alongside. "Tilt" serves as an example of how difficult this process of incubation can be in a group situation. At the relevant recording session I had to repeatedly convince my peers to let go or to "look beyond" their traditional approach of the original chord changes of "What is this Thing Called Love". Next, in the collective improvisations in "Bird Buzz" the intuitively adding of filler patterns in between the requested limited number of intervals witnessed the automatic reflexes of the musicians to complete their musical lines as conventionally meaningful "sentences".

3.3.4 Evaluation

Considered from an aesthetic standpoint, Bergonzi's intervallic approach facilitates the creation of melodic lines that one could find challenging to the ear. Therefore, it is well suited as a tool to create original melodic lines. For instance picking a random or conscious collection of intervals and manipulating them freely with Bergonzi's method can be a fruitful start of a composer's writing process. I used the process of creating "Bird Buzz" as an insightful illustration. Bergonzi's model served well to generate meaningful melodic lines, both in the composed and in the improvised parts.

Composing improvisers in jazz, as well as professional composers who work principally by ear and by musical intuition, may consider Bergonzi's system as a detour. Concerning the jazz artists, this has to do with their obligation of composing tunes that leave enough space for improvisation by themselves and their groups members, to be marked as true "vehicles for improvisation". I would even dare to say that a good jazz tune is partly unfinished, because it must be completed by its performance on stage, every time in a slightly different way. To the classical composer, experienced in working on intuition, the system by Bergonzi might recall the strict rules of serial composition in the second quarter of the twentieth century. All of them however should realize that Bergonzi's aim is to present the reader with a system that can be used according to his taste, technical possibilities and musical needs, in any application that appeals to his informed intuition.

As an analytic model, improvisers can use Bergonzi's system to analyze complex melodic sequences in order to memorize, modify or quickly transpose them. In my creation of "Bird Buzz" the codification of the intervallic patterns with the two tables rather served as an analytic tool afterwards than as a generative device. On the other hand, the restriction to the three intervals in the improvisations inspired all group members to play meaningful lines.

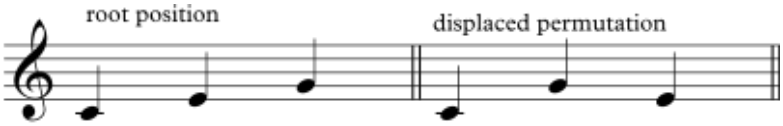
3.4 George Garzone (2009). "Basics of the Triadic Chromatic Approach." *Downbeat* 76/5: 58.

3.4.1 Theory

Garzone calls his chromatic triadic approach "a conceptual theory […] put together on the blackboard to improvise freely in the way I would like myself and the students to improvise". His method is an example of a simple model to create chromatic melodic lines. The author uses the four traditional types of diatonic triads: major, minor, augmented and diminished, to create melodic lines by connecting these triads in random inversions at a distance of a minor second. Apart from his "wish to be able to improvise freely" he does not share his thoughts on the tonal or post-tonal aspects of his method except that with his conceptual theory "you borrow from the 12-tone scale".

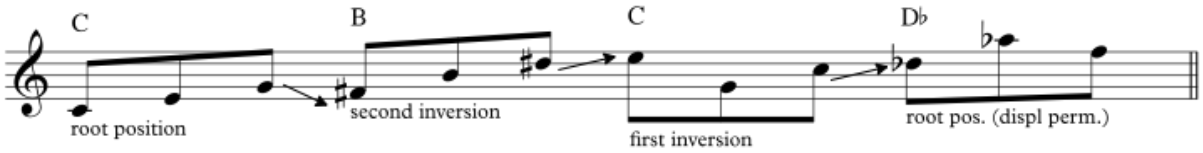
3.4.2 Practical applications

In Garzone's approach, triads can be played with the notes in their traditional order of appearance, either in ascending or in descending direction, or in "displaced permutation": with the notes sounding in alternating order. In the following example the C triad in root position is followed by the same triad in displaced permutation.



[ex 3.4.2.1 – displaced permutation (Garzone 2009:58)]

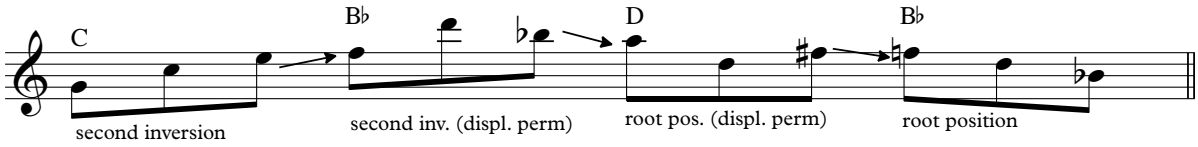
The playing rules of Garzone's Triadic Chromatic Approach are as follows: start with any triad in any position. From its last note either go one minor second up or one minor second down and play this as the first note of the next triad. This can again be played in any position, but one should avoid repeating the same position of the previous triad.
The following example illustrates a correct application of Garzone's approach. The C triad in root position is descending to the B triad in second inversion. The latter ascends back to the C triad in its first inversion that ascends to the Db triad in a displayed permutation of its root position.



[ex 3.4.2.2 – correct application]

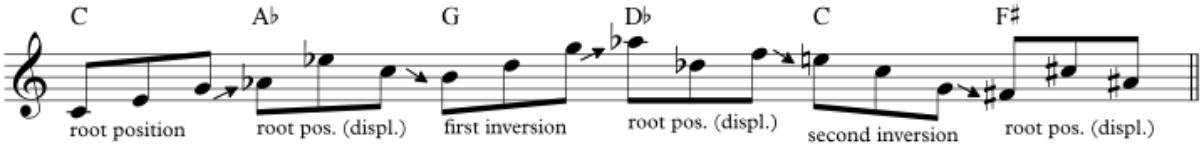
Because Garzone considers any displaced permutation of a triad as an inversion, he allows the same inversion to be used in adjacent triads as long as one of them is played

in displaced permutation. In the following example the adjacent triads C and Bb are both put in second inversion, and the D and Bb triad are both in root position. Garzone allows them to be coupled this way because the Bb and D triads are put in displaced permutation.



[ex 3.4.2.3 – displaced permutation]

In the following melodic line, Garzone demonstrates a correct approach to his method.

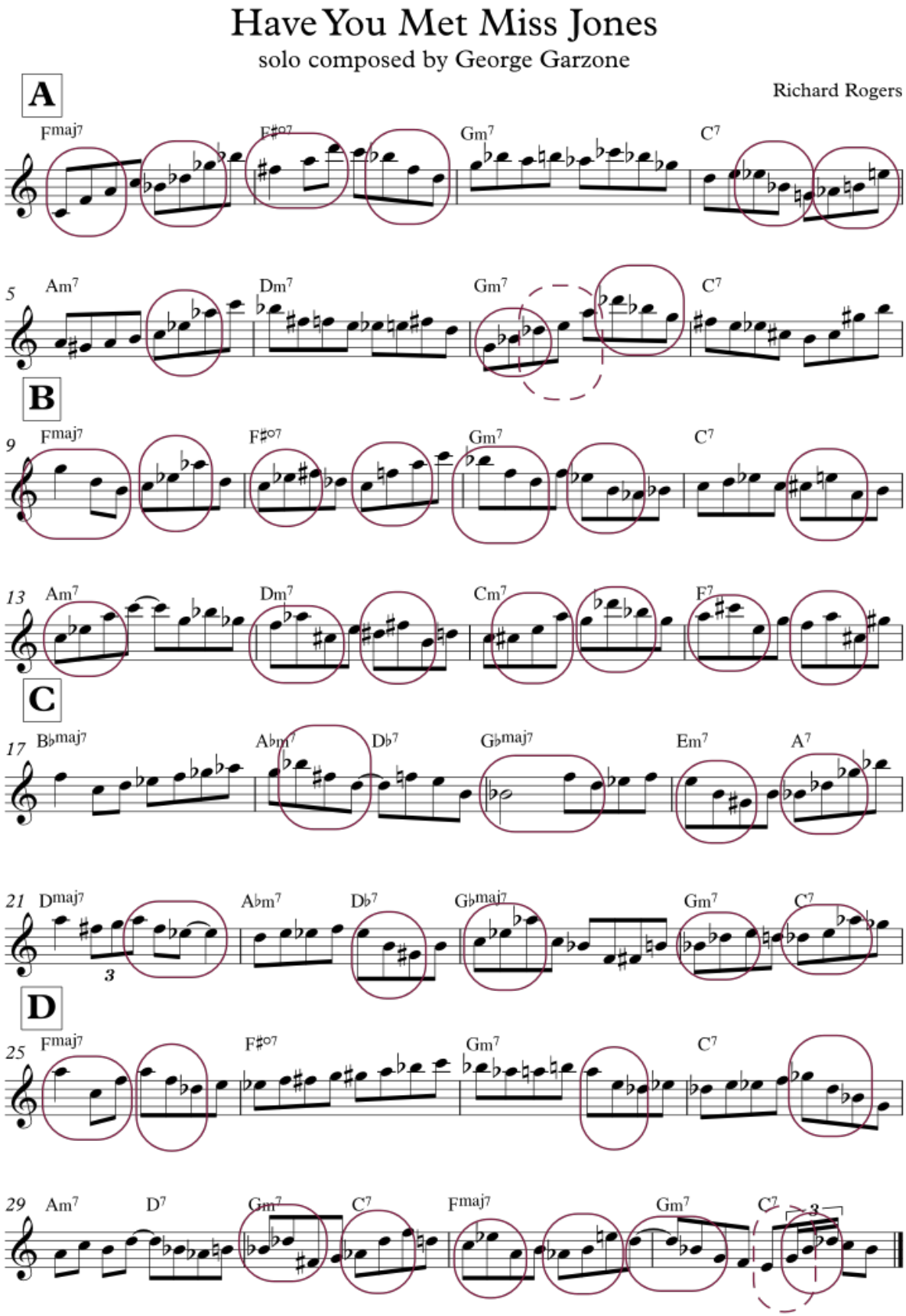


[ex 3.4.2.4 – appropriate approach of the method (Garzone 2009:59)]

In a composed solo over the chord changes of the jazz standard "Have You Met Miss Jones" Garzone puts his conceptual theory into practice. Garzone plays this composed solo as a countermelody in octaves with pianist Joey Calderazzo, while tenor saxophonist Joe Lovano plays the original melody. In the improvisation that follows, Garzone loosely alternates between echoes of this composed triadic countermelody and lines that are firmly rooted in traditional linear improvisation.

The next example shows this composed solo. While Garzone's article uses major triads exclusively to demonstrate his triadic chromatic approach, in this solo forty-five triads of different sorts can be found: twenty-eight major, four minor, four augmented and ten diminished triads. The connecting intervals between the triads are not only half steps, such as in bars 4 and 9, but also whole steps, such as in bars 15–16. The connections between the triads are created by repeating a note from the triad, such as in bars 22–23, or by inserting passing notes that are not in the triad. Examples of this can be found in bars 24 and 31. The triads are alternated with short diatonic and chromatic scale patterns.

Apparently, the shape of the melodic lines prevails over application of the correct scales to the chords, which results in interesting examples of outside notes. For instance, in bar 8 where the note b is played instead of the correct b$^{\flat}$ in the chord of C7 and in bar 14 where a B triad is superimposed on Dmin7. By choosing these notes, Garzone explicitly distances himself from a rigid chord-scale approach.



[ex 3.4.2.5 "Have You Met Miss Jones" – composed solo (George Garzone)]

Although Garzone presents his approach as a generative model for improvisers, the example of his composed solo above illustrates that it also can be used as an interesting arranger's tool.

The next example shows the application of the triadic chromatic approach in my improvisation on the coda of "Démasqué", on pianist Andrea Pozza's CD *Gull's Flight* (2011). The rhythm section repeats the notes as written in bars 1–4 eight times while I freely improvise together with alto saxophonist Christian Brewer over a Bb pedal, ending on the Bbmaj7 chord in the two final bars.

In bars 7–9, I play a chromatically descending line with the triads B (second inversion ascending, the fifth is repeated), Bb (second inversion descending, the third and fifth repeated) and A (root position descending). For the half-note coupling between the B and Bb in bar 8, the note e is played as an extra leading note. The half-note coupling between Bb and A is achieved after repeating the notes d and f from the Bb chord.

The line in bars 11–15 contains the triads of F augmented (ascending, first inversion), Db (ascending, root position, displaced permutation), C (second inversion, displaced permutation), E (root position, displaced permutation, root note e is repeated), Bm (root position descending, the fifth is repeated), and A (root position, note of f# added, third repeated, fifth repeated). Not all couplings in this line follow Garzone's instructions literally. Half-note couplings are played between F+ and Db, and between Db and C. However, the coupling between C and E is made by repeating the common note e. Next, the coupling between E and Bm is done by adding the note g, as a chromatic passing note to the note $f^{\sharp}$ in Bm. The coupling between Bm and A is done by adding the note $c^{\sharp}$ as the ninth of Bm and connecting this to the common note as the third in A6. The adding of extra notes to Bm and A in fact turns the triads into tetrachords. These operations are not provided in Garzone's model, but turned out to be effective in generating a melodic line like this.

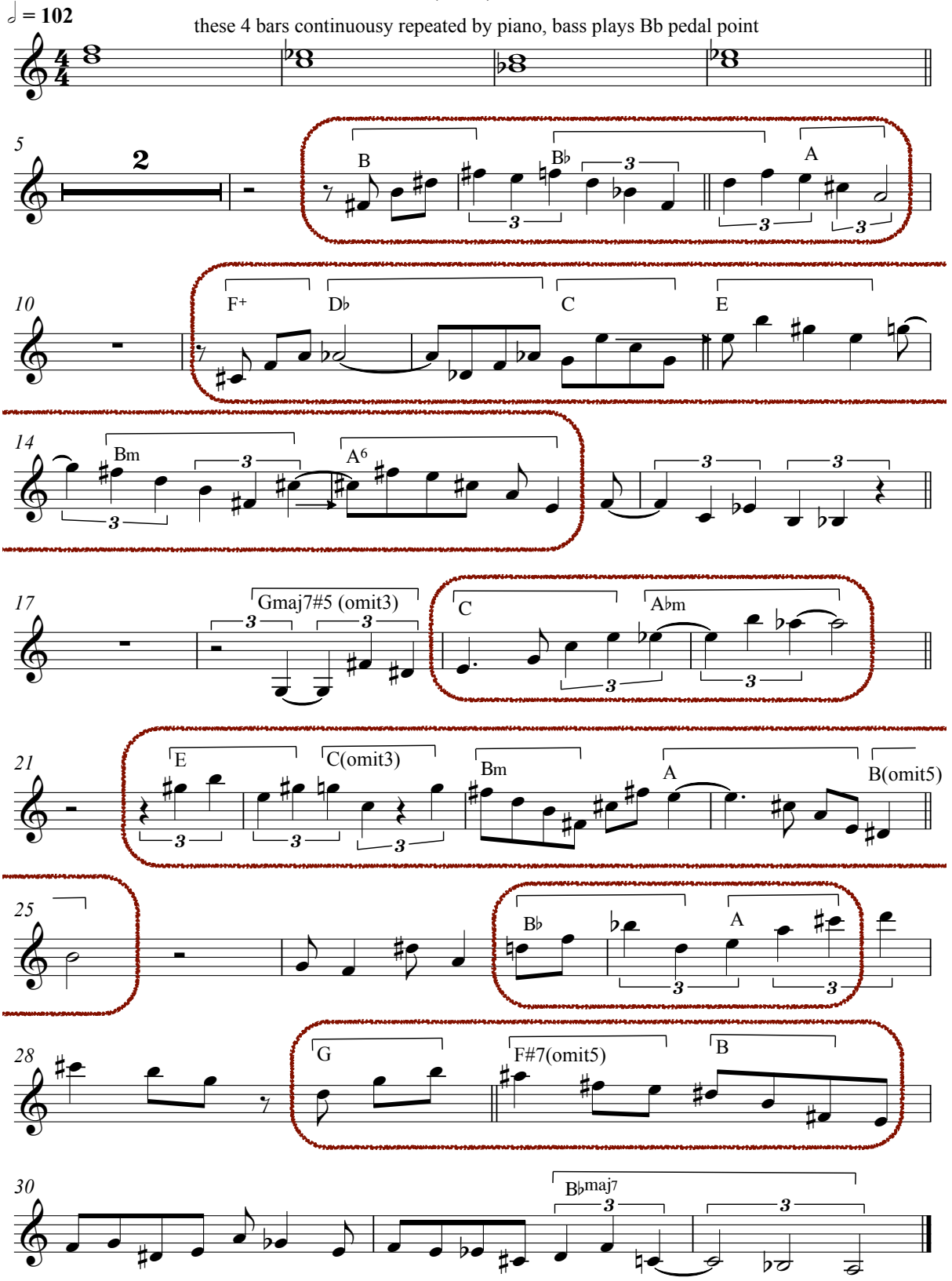
In bars 19–20 the triad of C (first inversion, the third is repeated) connects to Abm (second inversion, displaced permutation) by a half-note coupling. Bar 18 can be considered a $Gmaj7^{\#5}$ chord with the third omitted, connected to C by a half-note coupling, but this is again an operation beyond the scope of Garzone's triadic approach.
Another exemplary line in bars 21–25 shows two additions I made to Garzone's triadic approach. The first is the coupling of the triads Bm in bar 23 and A in bar 24, by the interval of a major second. This whole-note coupling is also applied in bar 27 to connect

Bb and A. The second addition is the use of incomplete triads, shown as C(omit3) in bar 21, B(omit3) at the transition of bars 24-25 and F#7(omit5).

Démasqué

tenor saxophone improvisation

(coda)



[ex 3.4.2.6 "Démasqué" – my tenor saxophone lines in the collective solo on coda]

3.4.3 Twelve-tone techniques

Although Garzone states that he is borrowing from the twelve-tone scale, he does not intend to create any twelve-tone collections. He designed his own limited applications of basic twelve-tone operations such as transposition, inversion and permutation instead. His most obvious ordering principle is that all triads should be ordered at distances of minor seconds, but he does not apply this strictly either.

Other elements are rooted into diatonic harmony, such as his limitation to the use of the four diatonic triads, and his avoidance of obvious twelve-tone terminology such as retrograde and rotation. Instead of the latter, he uses traditional tonal terminology such as first and second inversions of the triad. Likewise the applications of Garzone's approach as an arranging tool to the jazz standard in the example above look more like random superimpositions than like conscious twelve-tone operations.

3.4.4 Evaluation

In fact, Garzone is another author to discuss an individual approach aimed at the creation of tone rows by experienced performers. Just like Bergonzi's model discussed in the previous section, Garzone's approach addresses the advanced (composing) improviser who has both the curiosity and the technical ability to blend this distinctive model with his existing knowledge. Just like Bergonzi, a meaningful application of Garzone's approach largely depends on the composing improviser's informed intuition. Less experienced students might yet be confused by the quite strict playing rules as to the transposition, inversion and permutations of the four diatonic triads on the one hand, and the absence of any theory of its harmonic implications on the other.

At first sight, by its playing rules that are so easily explained, Garzone's triadic approach offers attractive techniques for creating melodic lines beyond functional harmony. But the simplicity of this approach is also deceptive. In order to generate meaningful lines one needs to develop an agility to make multiple decisions. After the last note of one's initial triad, in root position, first or second inversion, one has to take four decisions. The first is about the direction of the half-note coupling: either ascending or descending. The second is about the position of the next triad. Here, one again has two choices because copying the position of the previous triad is not allowed. The third decision to make is about the direction of the triad: once again two choices, ascending or descending. The fourth choice is to either play the triad "straight", i.e. with the three notes in natural order, or to apply

a permutation. Actually, with every step to the next triad this procedure has to be repeated.
Interestingly, the author himself presents his application of the model in a composed solo instead of for instance, in a number of examples transcribed from solos.
As I experienced myself, after taking some time to embody Garzone's way of manipulating triads chromatically, it enabled me to create surprising melodic lines, particularly in a context without a stated harmony or with only a limited number of stationary chords. For example, as an intro on a pedal point or an ostinato in the bass part, as a solo over a stationary chord, or as a harmonic superimposition over the chord changes in a blues or in the A sections of "I Got Rhythm", or other familiar forms that can be reduced to a single overlapping tonal color.

My personal experiences with Garzone's method were surprising from the first time I started practicing it. At every attempt, I felt challenged to find a meaningful balance between its formally correct application and my spontaneous responses to the surprising tonal colors it inspired. The intense concentration this process requires sometimes results in a feeling of meditation.

3.5 Walt Weiskopf (2009). *Intervallic Improvisation. The Modern Sound: A Step Beyond Linear Improvisation.* New Albany: Jamey Aebershold Jazz.

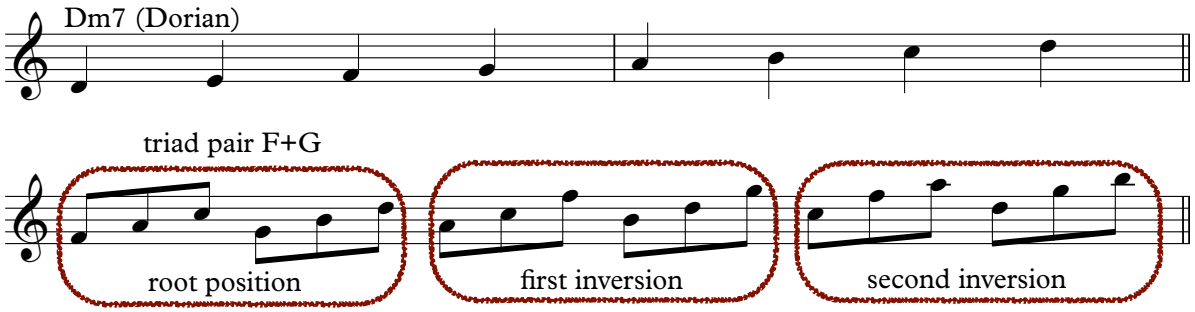
3.5.1 Theory

Weiskopf's book codifies a method of intervallic improvisation for advanced improvisers who want to modernize their vocabulary. It is motivated by his observation that jazz players, although they have a certain competence in the chord-scale approach that is the basis of linear improvisation, "often feel a large piece of the puzzle is still missing" (Weiskopf 2009:3). They hear modern jazz musicians improvise more intervallically and lack a method for developing this vocabulary.
Weiskopf argues that intervallic improvisation has the same principle as traditional chord-scale improvisation in that the artist chooses material that sounds good over an underlying harmony. The difference is that in intervallic improvisation, selected intervals from the scales are played instead of traditional scale embellishments. Thus, in contrast to Liebman's non-tonal superimpositions, Bergonzi's intervallic melodies and Garzone's chromatic triadic approach, Weiskopf's concept of intervallic improvisation is explicitly based on existing harmonic structures.

3.5.2 Practical applications

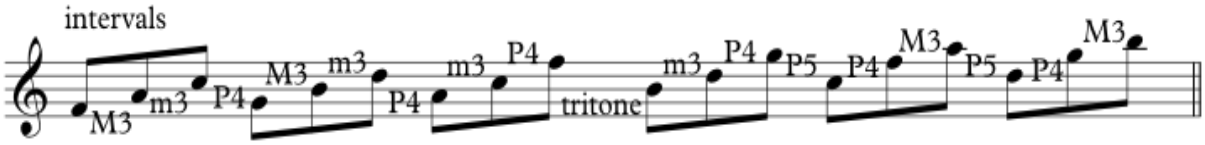
The intervals discussed in Weiskopf's book result from arranging pairs of triads that are derived from scales. These triad pairs – defined as "two triads that do not share any notes" (Weiskopf 2009:5) – can be derived from the modes of the major scale: the melodic and harmonic minor scales, the diminished, augmented, and whole tone scales. Every mode hosts one or more triad pairs that capture the tonal color of that particular mode. By playing these triad pairs, alternating their root positions and inversions, a series of intervals is represented.

For instance, the F major and G major triads capture the tonality of Dm7 because together these six notes contain all notes of the scale except the note e.



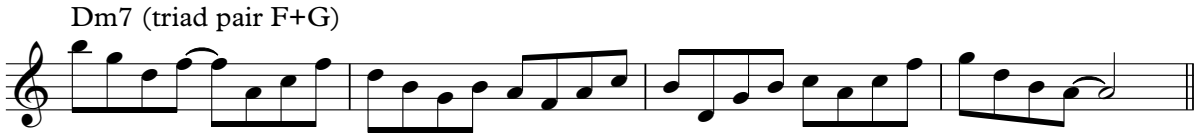
[ex 3.5.2.1 – triad pair F+G with inversions]

With the two triads played in root position, first and second inversion, the following succession of intervals of major thirds (M3), minor thirds (m3), perfect fourths (P4) and perfect fifth (P5) occurs.



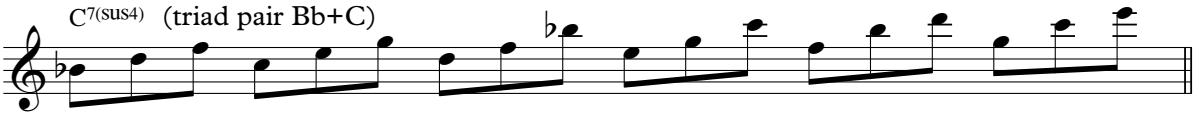
[ex 3.5.2.2 – intervals resulting from triad pair operations (Weiskopf 2009:4)]

As a practical application of his method, Weiskopf expects the player to learn the different permutations of the triad pair and to use these to create melodic patterns such as the following.



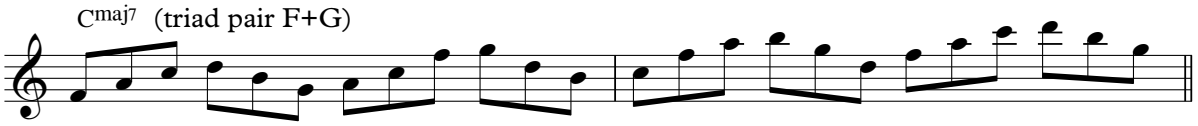
[ex 3.5.2.3 – melodic pattern constructed with triad pair F+G (Weiskopf 2009:4)]

Weiskopf discusses examples of a large number of triad pairs that are derived from the major and minor scales, the diminished, whole tone and augmented scales and the application of his method on polychords. The example above shows the most inside (i.e. diatonic) application of his approach on a Dm7 chord: a pair of major triads placed a major second apart, on the third and the fourth degree of the D Dorian mode. The next example deals with the dominant seventh sus4 chord. Here the most inside sounding triad pair is placed on the root and on the flat seventh, resulting in triad pair Bb+C on the chord $C7^{sus4}$.



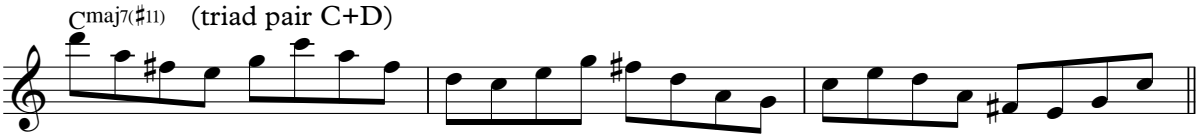
[ex 3.5.2.4 – triad pairs on $C7^{sus4}$ (Weiskopf 2009:6)]

On major seventh chords the inside triads should be put on the fourth and the fifth degree of the scale,



[ex 3.5.2.5 – triad pairs on Cmaj7 (Weiskopf 2009:7)]

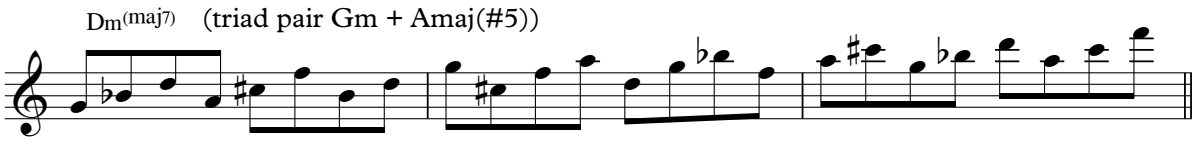
or, in the case of an augmented fourth (#11) sounding in the chord, on the root and the second degree of the scale.



[ex 3.5.2.6 – triad pairs on $Cmaj7^{\#11}$ (Weiskopf 2009:7)]

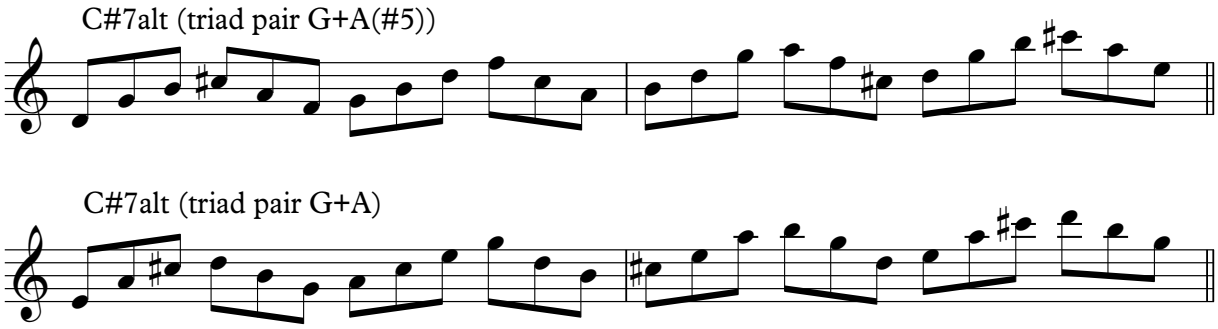
Weiskopf extensively discusses examples of triad pairs that are derived from the harmonic and melodic minor scales, for instance in the following example. Because in the ii-V-I progression $Emin7^{b5}$ – $A7^{b9}$ – Dm, all chords are in the key of D harmonic minor,

the triad pair Gm, Amaj$^{\#5}$ will sound well and inside all three chords – recalling a common embellishment of the minor chord in the bebop style.



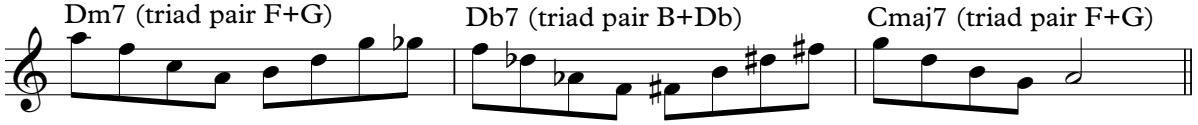
[ex 3.5.2.7 – triad pairs on Dm^{maj7} (Weiskopf 2009:10)]

Different triad pairs derived from the same melodic minor scale will result in different tonal colors. This is shown in the next examples of two different triad pairs, derived from the D minor melodic scale that is imposed on the C#7altered chord. Both lines contain the triad pairs G and A, but in the first, the note e in the A triad is changed to an f. This f, together with the notes d, a, and c$^{\sharp}$, confirms the tonal color of d melodic minor more convincingly than in the second example, where the triad pair G and A is used without this altered note. This triad pair creates an ambiguous tonality. It can sound either as G$^{\#11}$, or as an A7^{sus4} chord on a C# pedal point.



[ex 3.5.2.8 – triad pairs on C#7alt (Weiskopf 2009: 10,11)]

Another illustrative example of creating such an outside effect results from the adaptation of tritone substitutions to dominant chords. The next example shows the superimposition of a triad pair that belongs to the tritone substitution of the original G7 chord by Db7 in the ii-V-I progression Dmin7 – G7 – Cmaj7.



[ex 3.5.2.9 – triad pairs on ii-V-I (Weiskopf 2009:19)]

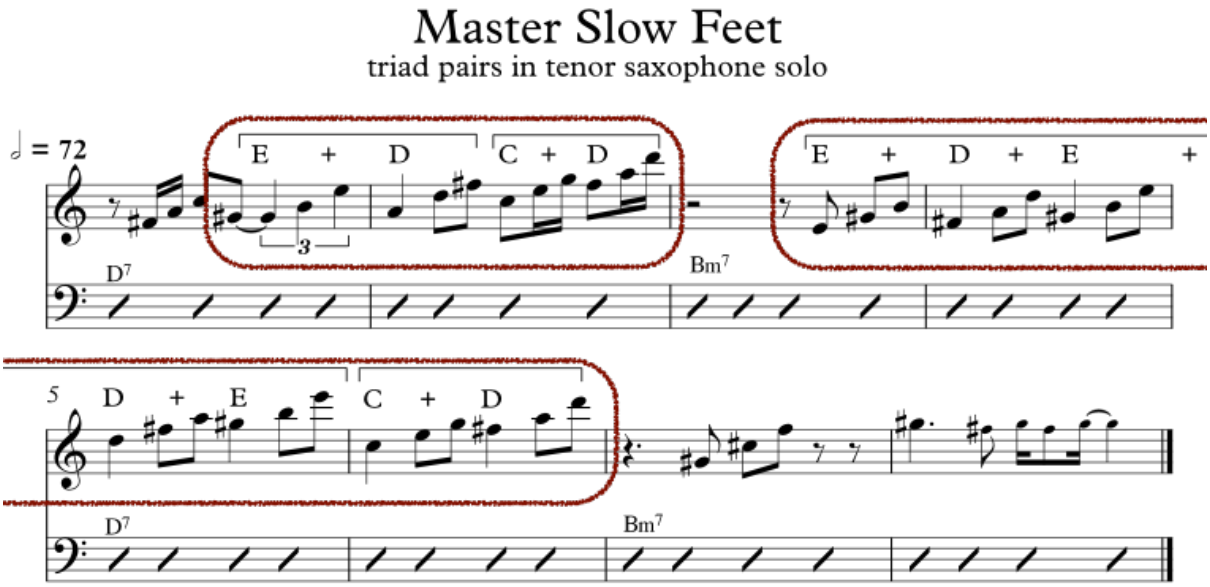
The musical examples in the introduction are followed by a table of triad pairs, listing eight categories of scales and their derived triad pairs: major, minor and augmented triads ordered at a major second, a minor second, a tritone and a minor third apart, in twelve keys. In the left column of his table the possible triad pairs are listed, in the right one the appropriate keys. The four columns in between mark the possible chords symbols that the triad pairs can be applied to.
The next example from his table of triad pairs shows the author's options of triad pairs in harmonic major scales.

Harmonic major derivations - One major triad and one augmented triad a half step apart

Gmaj and Abaug	$Cmaj7^{+5}$	$E7^{+5}$	Fmin/maj7	$Dmi9^{b5}$	C harm.maj.
Abmaj and Aaug	$Dbmaj7^{+5}$	$F7^{+5}$	Gbmin/maj7	$Ebmi9^{b5}$	Db harm.maj.
Amaj and Bbaug	$Dmaj7^{+5}$	$Gb7^{+5}$	Gmin/maj7	$Emi9^{b5}$	D harm.maj.
Bbmaj and Baug	$Ebmaj7^{+5}$	$G7^{+5}$	Abmin/maj7	$Fmi9^{b5}$	Eb harm.maj.
Bmaj and Caug	$Emaj7^{+5}$	$Ab7^{+5}$	Amin/maj7	$F\#mi9^{b5}$	E harm.maj.
Cmaj and Dbaug	$Fmaj7^{+5}$	$A7^{+5}$	Bbmin/maj7	$Gmi9^{b5}$	F harm.maj.
Dbmaj and Daug	$Gbmaj7^{+5}$	$Bb7^{+5}$	Bmin/maj7	$Abmi9^{b5}$	Gb harm.maj.
Dmaj and Ebaug	$Gmaj7^{+5}$	$B7^{+5}$	Cmin/maj7	$Ami9^{b5}$	G harm.maj.
Ebmaj and Eaug	$Abmaj7^{+5}$	$C7^{+5}$	C#min/maj7	$Bbmi9^{b5}$	Ab harm.maj.
Emaj and Faug	$Amaj7^{+5}$	$Db7^{+5}$	Dmin/maj7	$Bmi9^{b5}$	A harm.maj.
Fmaj and Gbaug	$Bbmaj7^{+5}$	$D7^{+5}$	Ebmin/maj7	$Cmi9^{b5}$	Bb harm.maj.
Gbmaj and Gaug	$Bmaj7^{+5}$	$Eb7^{+5}$	Emin/maj7	$C\#mi9^{b5}$	B harm.maj.

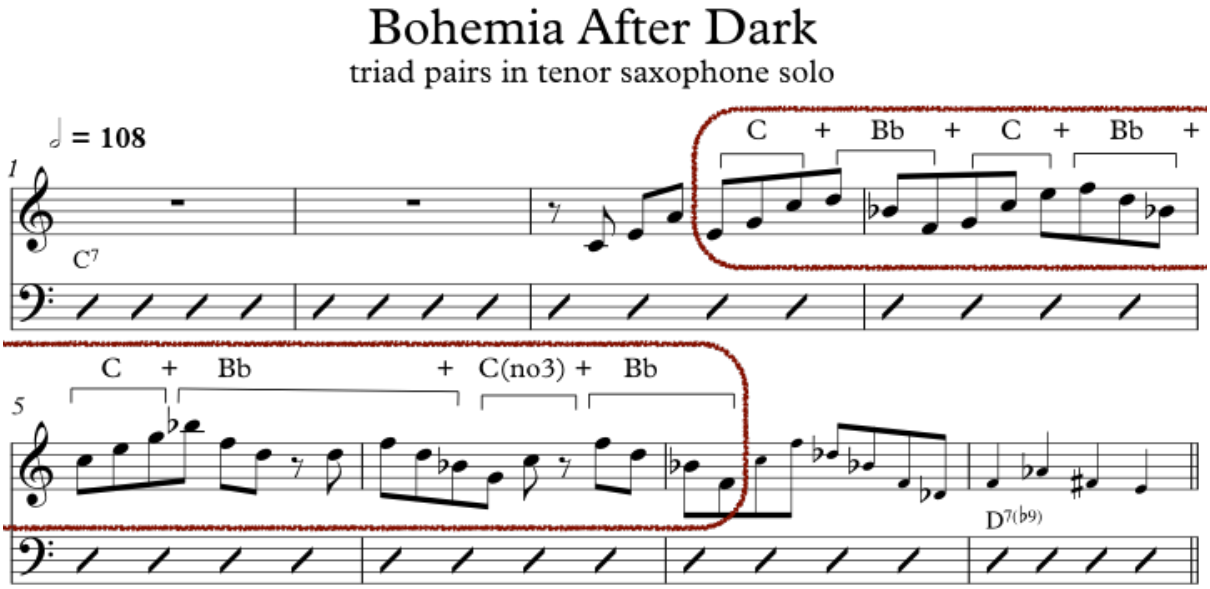
[ex 3.5.2.10 – harmonic major derivations: a major and an augmented triad at a minor second apart (Weiskopf 2009:21)]

The next fragment of eight bars from my tenor saxophone solo in a recording of my composition "Master Slow Feet" (2015) shows my application of triad pairs.
Instead of grouping two triads on top of the D7 chord in bars 1–2, I group three triads. The triad pair E+D, superimposed on the D7 results in the tonal color of $D7^{\#11}$, while the triad pair C+D evokes the sound of $D7^{sus4}$. Apparently the slow straight rhythmic groove of this tune allowed me the opportunity to combine both ideas.
In the line in bars 3–6 the triad pair E+D is played over both the Bm7 and again over the D7 chord. As superimposed on Bm7, these triads define the tonal color of the B Dorian mode. In bars 5–6, the triad pair C and D again follows the superimposition of the triad pair D+E on D7, just as in the first line.



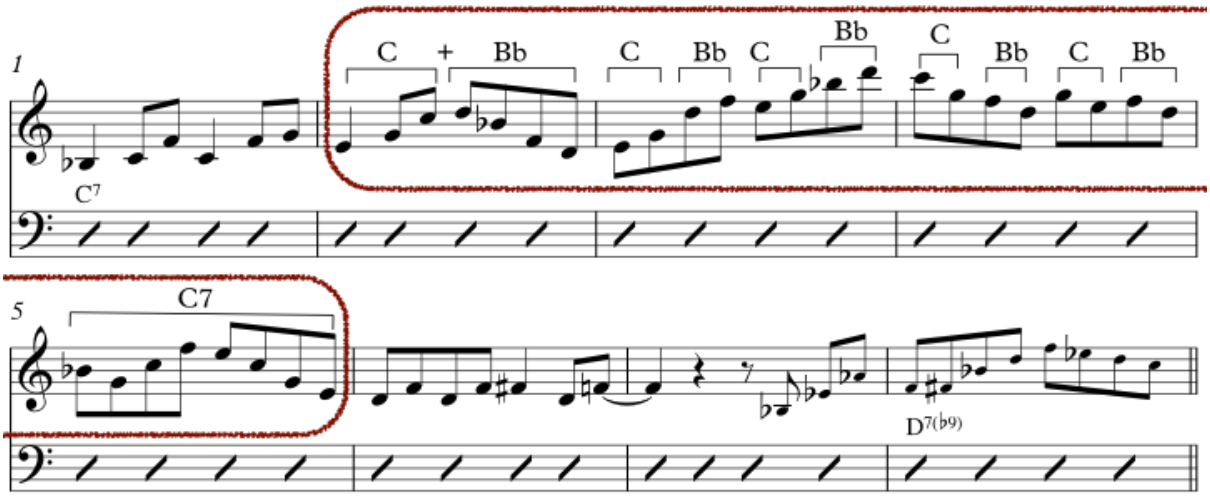
[ex 3.5.2.11 "Master Slow Feet" – fragment tenor saxophone solo]

The following example shows my application of triad pairs in the B-sections of three solo choruses on Oscar Pettiford's "Bohemia After Dark". The transcription shows a development in my operations with the triads. The line in bars 3–7 is an exemplary illustration of turning the tonal color of the C7 chord into $C7^{sus4}$, by playing the triad pair C+Bb in alternating positions and directions.



[ex 3.5.2.12 "Bohemia After Dark" – fragment tenor saxophone solo in first B-section]

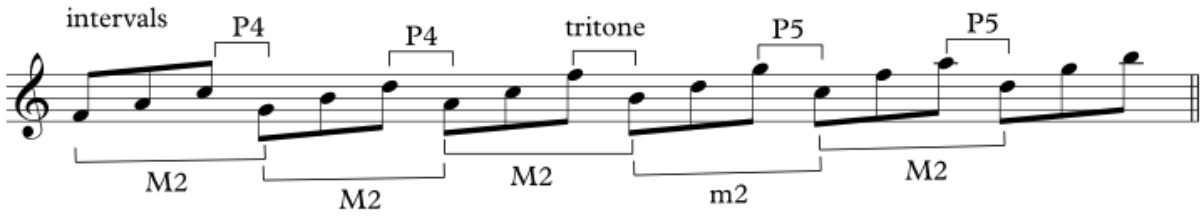
Then, the line in the B-section of the next chorus, as shown in bars 2–5, shows a variation on Weiskopf's model. Here the triad pair C (first inversion) +Bb (second inversion, the third is repeated) is followed by a series of four pairs of dyads that can be considered incomplete C and Bb triads. The effect is the same as with the triad pairs in the previous example: the original C7 sound is obscured, and in this case delayed to bar 5, where a diatonic melodic pattern confirms its original tonal color.



[ex 3.5.2.13 "Bohemia After Dark" – fragment tenor saxophone solo in second B-section]

3.5.3 Twelve-tone techniques

In Weiskopf's approach, a succession of intervals is defined by the internal structures of the four diatonic triads in prime form and inversions. His model does not specify the intervals between the trichords that result from his triad operations. For instance, looking once again at example 3.5.2.2 above, the intervals inside the F and G major triads are major and minor thirds and perfect fourths, as a result of their positions in prime form, first and second inversion. However, the intervals between the first notes of the triads, four major seconds and one minor second – and those between last and first notes of the triads– two perfect fourths, a tritone and two perfect fifths – are not taken into account. However characteristic the sounds of these additional intervals are, they just occur by accident, as an interesting "bycatch" after the arrangement of the triads.

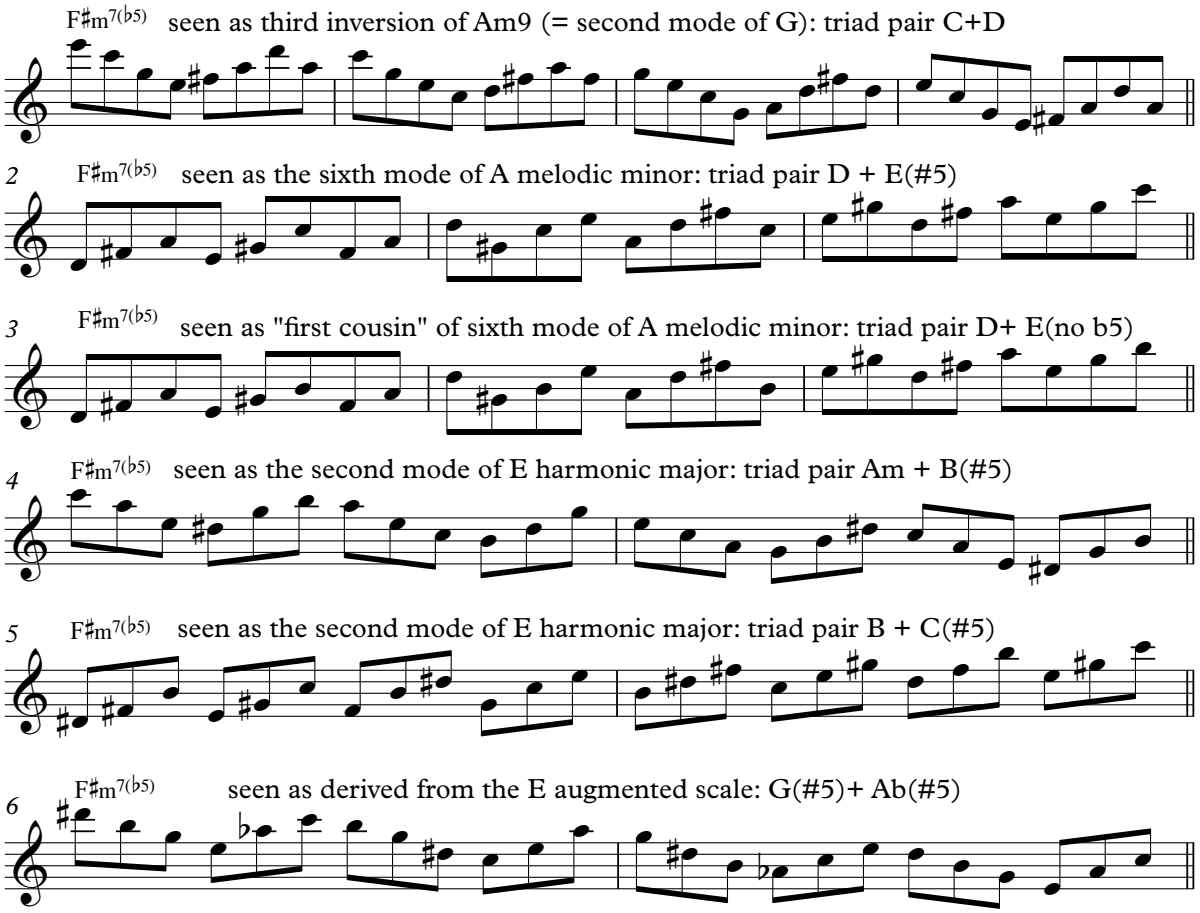


[ex 3.5.3.1 – intervals resulting from triad pair operations]

In contrast to Liebman's non-tonal superimpositions, Bergonzi's intervallic approach, and Garzone's triadic chromatic approach, Weiskopf's method is intended to create tonal superimpositions on chord changes. That is why it should be considered as an advanced chord-scale approach rather than as a technique to deliberately play outside the chord changes. Thus, at first sight, there are no intended elements of twelve-tone theory or operations in his method. However, Weiskopf's ways of manipulating diatonic triad pairs helps the improviser to create lines with characteristic shapes, with high densities of texture and with intentionally vague harmonic colors that according to Liebman could be considered as twelve-tone characteristics. Furthermore, although Weiskopf's triad pairs match the scales from which they are derived correctly, he also manages to create an amount of harmonic vagueness by gradually obscuring the underlying harmonic content as the triad patterns become "more advanced".

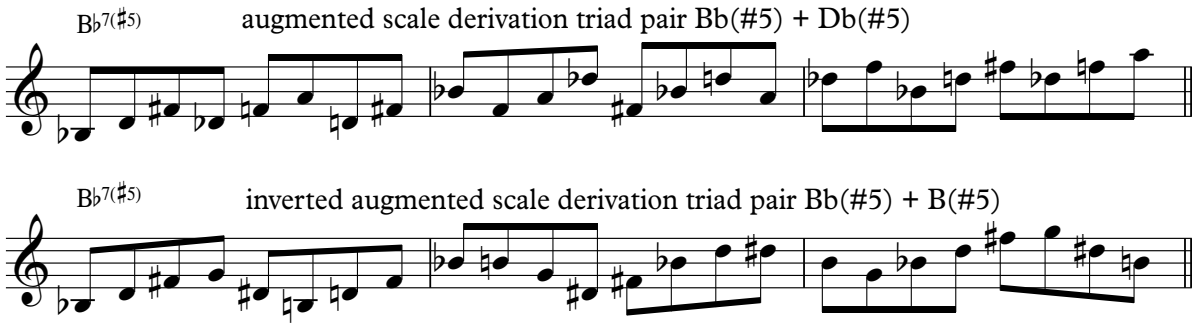
For instance, of the six examples of triad pairs derived from half diminished chords the first and fourth sound the most inside because the triad pairs include the root, the minor third, the flatted fifth and the minor seventh of the F#m7^{b5} chord. The second has the major ninth instead of the more common flatted ninth. The third triad pair misses the flatted fifth of the chord and the fifth triad pair misses the minor third. As a result of the

absence of these characteristic notes, these triad pairs sound outside the expected F#m7^{b5} tonality. The sixth triad pair is derived from the E augmented scale that does not imply the root or the minor third of the tonality, but it implies both the flatted ninth and the major ninth instead. As a result, this triad pair sounds pretty much outside but still has a discernable relation to the underlying chord.



[ex 3.5.3.2 – triad pairs sounding from inside to outside F#m^{b5} (Weiskopf 2009: 13,14)]

In the last example, Weiskopf's strategy offers an interesting solution to make a Bb7$^{\#5}$ chord sound more interesting than by simply playing a whole tone scale over it. By superimposing the augmented scale (b$^{\flat}$, d$^{\flat}$, d, f, f$^{\#}$, a) or the inverted augmented scale (b$^{\flat}$, b, d, e$^{\flat}$, f$^{\#}$, g) he creates alternatives that sound more outside the chord.



[ex 3.5.3.3 – triad pairs derived from augmented scales (Weiskopf 2009:16)]

3.5.4 Evaluation

Compared to the authors discussed earlier in this chapter, Weiskopf's publication is exclusively addressed to performing improvisers. His approach is useful as a step-by-step method to extend one's improvisations beyond conventional linear improvisation, because it guides the reader from the most inside to the more outside sounding triad pairs.

Between Garzone's triadic chromatic approach and Weiskopf's pairs of triads, there are more differences than similarities. Garzone's approach depends largely on the performer's informed intuition and stands far away from Weiskopf's didactical approach of arranging triad pairs. For the coupling of his triads, Garzone principally uses minor seconds. Weiskopf uses four intervals, coupling his triad pairs by intervals of a minor second, a major second, a minor third and a tritone apart. Due to this difference, there are only two overlaps between the two: Weiskopf's harmonic major derivations (one major and one augmented triad, a minor second apart) and his inverted augmented scale derivations (two augmented triads, a minor second apart) could also result from applying Garzone's method.

In the context of my research into developing improvisational techniques beyond the conventional chord-scale approach, I am principally interested in the possibilities of Weiskopf's method to create, in Liebman's terms, a certain harmonic vagueness. Despite its obvious connections to the functional harmonic fabric, it can serve as an effective tool to start making "educated steps" outside the stated chords. I experience this both in my own practice as with the students in my classes of saxophone improvisation at Codarts University of the Arts. However, the fact that this technique facilitates the improviser to create approved melodic lines just by playing variations of the same six notes implies the danger of a mechanical approach. "Remembering" the right triad pair might prevail over

"actually hearing" its musical meaning in relation to the underlying harmonies. But again, considering the aim of my research to help improvisers sound outside the chords, this drawback seems less momentous. From experience, I have noticed the advantage of this tool to evoke a tonal color that suggests an outside effect, while at the same time I "trust" that there is a plausible connection with the underlying harmonic structure. It is hard to cut my roots in chord-scale improvisation.

3.6 Jerry Bergonzi (2006). *Hexatonics*. Advance Music.

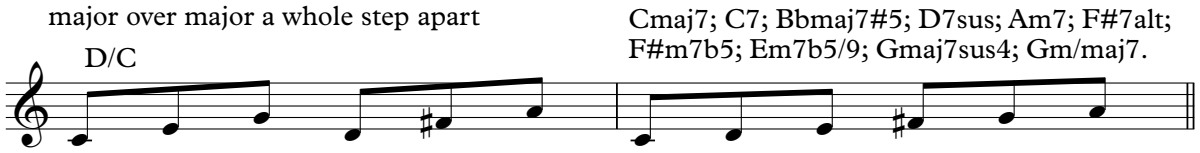
3.6.1 Theory

In *Hexatonics* (2006) Bergonzi displays his method of creating melodic devices by combining two triads that do not have any common tones. His system looks similar to Weiskopf (2009), but there is one major difference. In contrast to Weiskopf, who derives his triad pairs from existing diatonic scales and church modes, Bergonzi defines his collection of sixteen triad pairs and hexatonic scales simply as "the ones that are practical for the improviser and composer" (Bergonzi 2006:6). His collection is randomly ordered along the tonalities of his combined triads (major, minor, and augmented) and the distant intervals between them (major second, minor second, minor third, and tritone). Again, just as with his intervallic system elaborated upon in subchapter 3.3, Bergonzi exposes a relatively simple device generating unlimited possibilities. And again, the suggested operations are related to the musician's informed intuition rather than to a comprehensive theoretical concept. As a consequence, it is left to the discretion of the individual artist to decide which tonal references can be associated to which triad combinations.

3.6.2 Practical applications

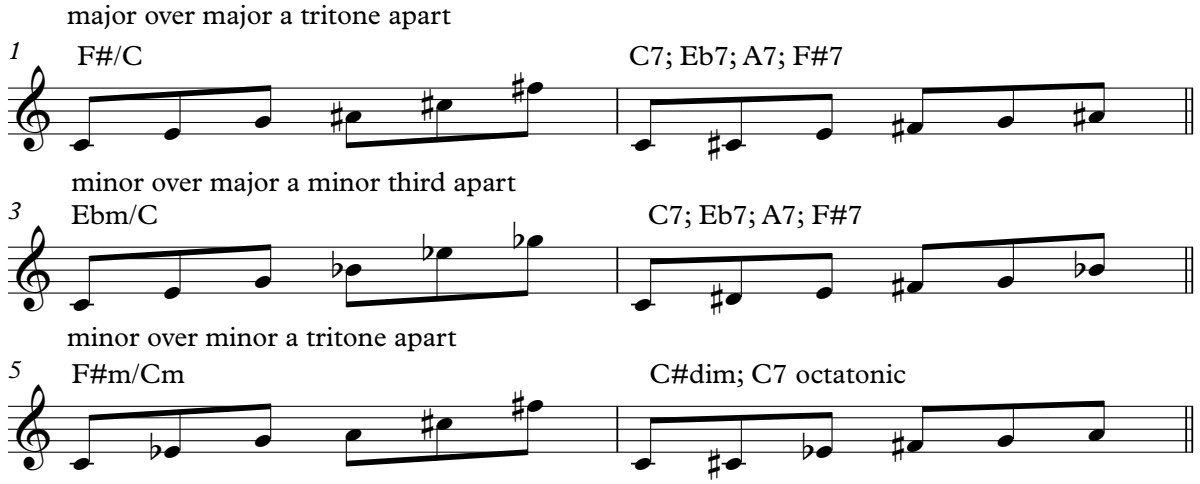
Bergonzi categorizes his collection of sixteen hexatonics along the tonal qualities of their triad pairs and the intervals between them. To each category, he adds a résumé of the various chords that they are supposed to match.

For instance in the next example, in the category "major over major a whole step apart" he puts a D major triad over a C major triad (D/C). In the first bar these triads are put in succession, and in the second bar they are intertwined to form a hexatonic scale. The chords that Bergonzi considers this hexatonic refers to are written above the bar.



[ex 3.6.2.1 "major over major a whole step apart" (Bergonzi 2006:9)]

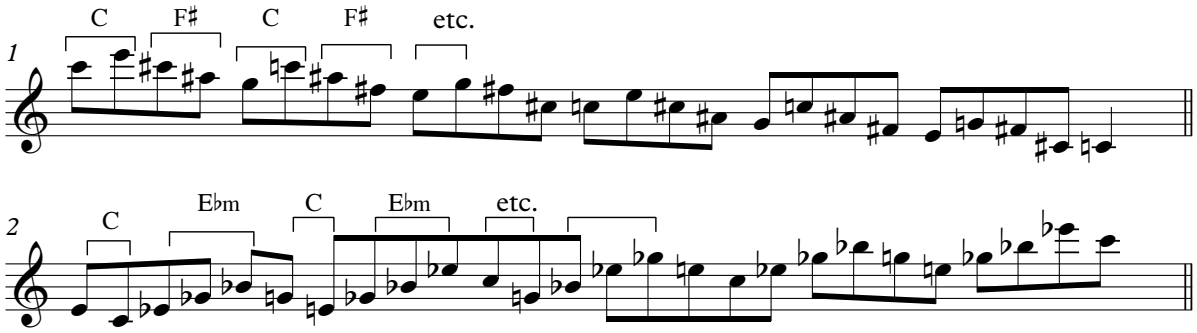
The next example illustrates how diversity results from Bergonzi's approach, taking a variety of triad pairs as a point of departure instead of just picking two triads from an existing scale as in Weiskopf (2009). The triad pairs in bars 1, 3, and 5 sound really different but, as the chords written above bars 2,4, and 6 indicate, they all refer to the C octatonic scale.



[ex 3.6.2.2 – triad pairs referring to the C7 octatonic scale (Bergonzi 2009: 117, 281,247)]

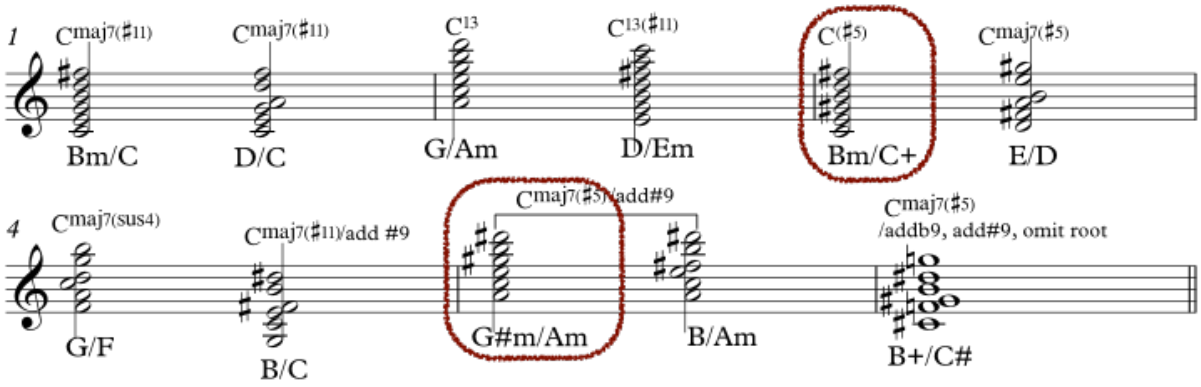
Concerning the phrasing of his triad combinations, Bergonzi also manages to create more diversity than Weiskopf (2009). In order to avoid an abundance of three-note groupings or four-note groupings in which one of the pitches of the triad is repeated, he creates four-note groupings with fragments of two notes from the triads as illustrated in the first

line of the example below. The second line shows how he creates five-note groupings by skipping a note in one of the triads.



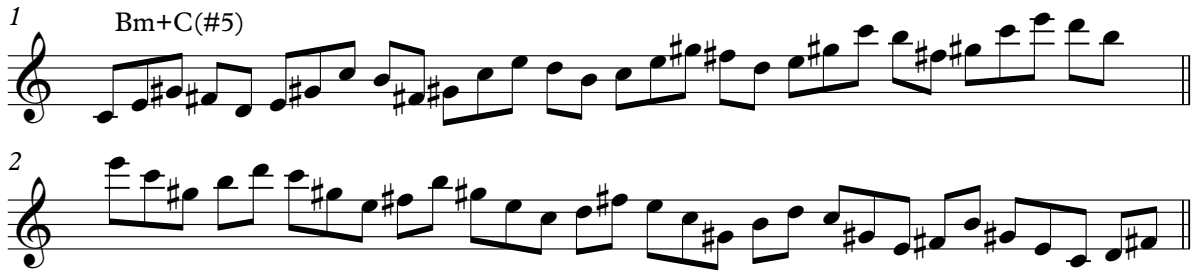
[ex 3.6.2.3 – alternatives to three-note groupings (Bergonzi 2006: 124, 282)]

In the context of my research goal to create improvisational patterns that sound outside the chords, I consider a reverse application of Bergonzi's model to be more fruitful. Instead of Bergonzi's associating a single combination of triads to a variety of possible chords, I suggest to map a variety of triad combinations that could be associated to a single chord. I would for instance, take a single major chord and map the vertically stacked hexatonics in which (according to Bergonzi) this chord is identified, ordering them from more inside to more outside the sound of the basic chord. The next example shows this in a succession of C major chords arranged in increasing complexity. Below the staff are the triad combinations that according to Bergonzi refer to these chords.



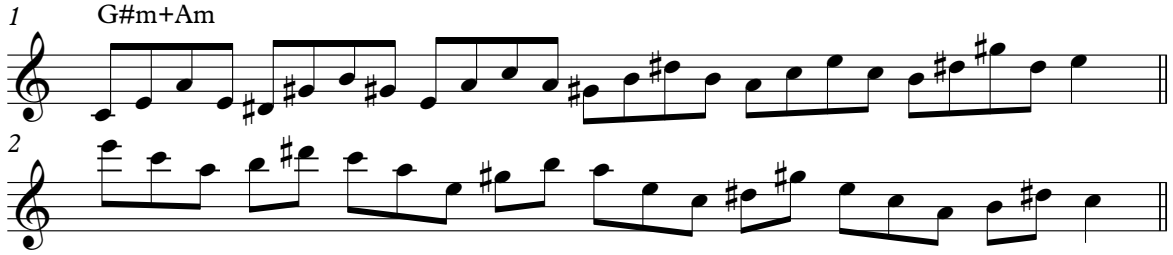
[ex 3.6.2.4 – Cmaj chords resulting from stacked triad pairs]

The two highlighted chords above are illustrated in the following examples. The first illustrates two variations of triad pair Bm+C$^{\sharp 5}$, superimposed on C major. Both lines contain five-note groupings constructed with three notes of the C$^{\sharp 5}$ triad and two notes of the Bm triad in alternating ascending and descending directions.



[ex 3.6.2.5 – variations of triad pair Bm+C$^{\sharp 5}$ (Bergonzi 2006:276)]

In the second example the superimposition of triad combination G#m+Am manages to create an even more outside sound.

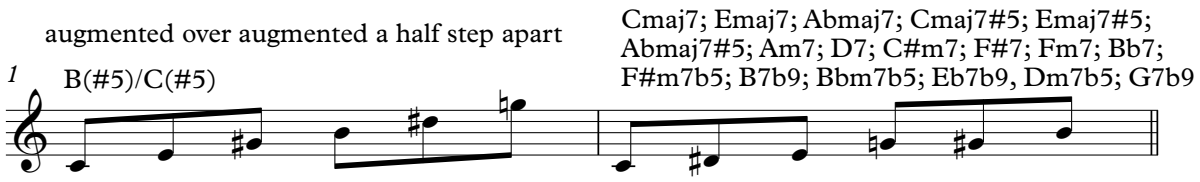


[ex 3.6.2.6 – variations of triad combination G#m+Am (Bergonzi 2006: 276)]

Both examples illustrate how Bergonzi's method serves to create diversity in superimpositions with triad combinations.

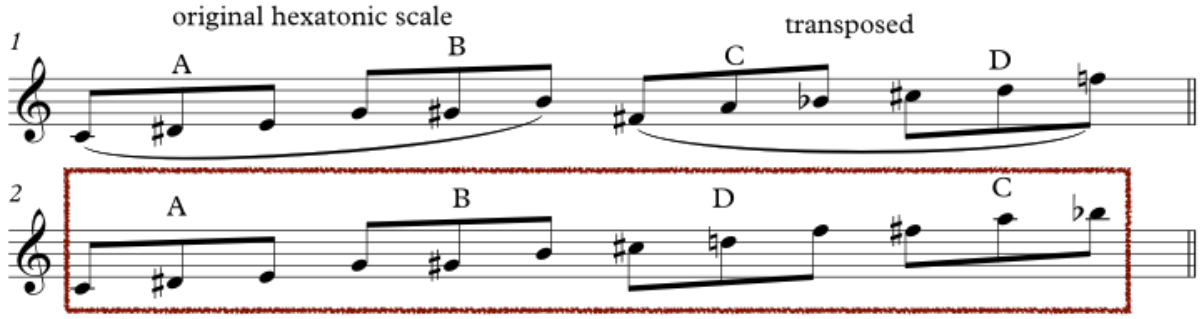
3.6.3 Twelve-tone techniques

Although Bergonzi does not discuss any relations to twelve-tone techniques, some of his patterns can be considered as one half of a twelve-tone row. The next example shows his category "augmented over augmented a half step apart". Due to its symmetry, it refers to a number of chords arranged at distances of major third intervals.



[ex 3.6.3.1 – "augmented over augmented, a half step apart" (Bergonzi 2006:91)]

By transposing its hexatonic scale up a tritone and adding the resulting scale to the original one, the twelve-tone row in bar 2 is derived. It consists of three triads with the same interval structure of a minor second and a minor third.



[ex 3.6.3.2 – transposition of hexatonic scale completes a twelve-tone row]

This, and other types of twelve-tone techniques will be discussed in detail in chapter 4.

3.6.4 Evaluation

After what has been said about Garzone (2009) in subchapter 3.4 and about Weiskopf (2009) in subchapter 3.5, I cannot disagree with Bergonzi considering triads as "incredibly strong melodic devices. They are easy to think of and combining them is an accessible task for the soloist" (Bergonzi 2006: 6). In my experience, it is the diversity of Bergonzi's suggested triads, rather than the related hexatonic scales that is most valuable here. Treating the hexatonic scales as separate objects risks a reduction of not only the accessibility but also the effectiveness of this method. Because they can easily be identified as fragments of existing diatonic, octatonic and whole-tone scales they contain the danger of emphasizing obvious tonal elements instead of moving beyond them.

In contrast to Weiskopf's presenting his method as a strategy to modernize the techniques of the improvising performer, Bergonzi advocates his method as a tool not only suitable for improvisation, but also for arranging, and composing. Experience with application by my students and myself has proven it to be a valuable improvisational tool, offering the improviser freedom of choice as to how and when it should be applied to the underlying harmonies. Moreover, it also incorporates an advanced chord-scale approach that can be very effective in creating outside sounding patterns on pre-given chord symbols.

Thus, by these various options to move beyond the limits of tonality, Bergonzi's method relates very well to the subject of my research. Weiskopf's *Intervallic Improvisation*, by its focus on finding triad pairs in familiar diatonic scales and church modes, could serve as a pre-stage for Bergonzi's *Hexatonic's,* creating a more varied sense of harmonic vagueness. But just like Weiskopf, Bergonzi's model also contains the danger of a rather mechanical approach, namely by playing the combinations one has studied by muscle memory instead of actually hearing them in the actual moment. Therefore, these steps outside the pre-given chords should always go hand in hand with patient and conscious ear training. The same might go even more so for another method enriching the (composing) improviser's palette to be reviewed in the following chapter: O'Gallagher's application of twelve-tone techniques in improvisation.

3.7. John O'Gallagher (2013). *Twelve-Tone Improvisation. A Method for Using Tone Rows in Jazz.* Mainz: Advance Music.

3.7.1 Theory

O'Gallagher's publication connects twelve-tone applications to jazz improvisation. His method is based on the system of Schat's Tone Clock. This analytic model consists of 12 twelve-tone rows, each of them constructed by sets of similar tri-chords types. The twelve-tone rows are interrelated because they share common interval connections. In chapter 4 applications of the theory of Schat's Tone Clock will be discussed in detail.

O'Gallagher transfers Schat's compositional system into a practical tool for the improviser. As the theoretical background for his trichord and row operations he briefly

discusses Anton Webern's use of derived rows based on trichords and his trichord transformations: inversion, retrograde, retrograde inversion and transposition. He recommends the first operation, transposition, as the key technique to get familiar with the trichords and their inversions, with the triad combinations and with the rows as a whole. The other three he considers "operations composers typically applied to twelve-tone rows." Of these, retrograde is more familiar to improvising performers – as the descending way of playing traditional scales and modes – than inversion and retrograde inversion, which are more current in composer's practices. O'Gallagher's connection with twelve-tone techniques is also obvious by his terms and definitions such as pitch (note); set (a collection of pitches either ordered or unordered); tri-chord (any set or segment of 3 pitches); tetrachord (any set or segment of 4 pitches, in traditional jazz harmony known as a seventh chord); prime form (the fundamental form of a trichord, a set of trichords or a row from which all variations are derived, in traditional harmony called root position); rotation (a cyclic permutation of either pitches or sets in which the first pitch of a set is moved to the last positions or the first set is moved to the last position of the set order, in traditional harmony called inversion).

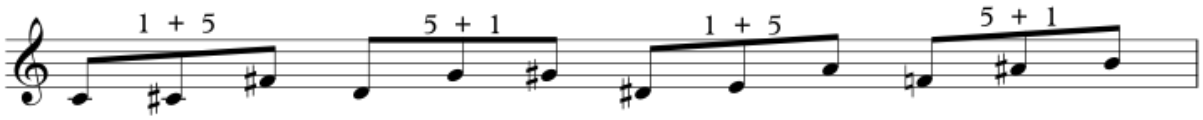
Despite these connections to the domain of twelve-tone composition O'Gallagher explicitly discards the basic rule that rows should be careful not to imply any kind of traditional harmonic movement. Moreover, the student is advised to use his method creatively and to not limit himself exclusively to the twelve-tone system, because, according to O'Gallagher, any combination of tri-chords can generate a musically valid statement without necessarily using a twelve-tone row. With this he confirms the observation of Wuorinen that, in the current state of twelve-tone practice, the main determinants of musical coherence are "the ordered successions of intervals" and that "even twelve-ness […] cease[s] to have the fundamental significance [it was] once thought to possess" (Wuorinen 1994:8).

O'Gallagher presents his devices as practice tools "to help the ear create interesting sounds." His exercises are intended to train the ear to a new way of hearing harmonic and intervallic space, as an addition to the linear improvisation skills that are taught in traditional jazz education. The goal of this method is to expand the reader's melodic content and understanding of interval relationships. Working with his exercises would enable a musician to recognize the distinct sound of each tri-chord and its corresponding row in the same way he recognizes harmonies from major and minor scales. O'Gallagher claims that although his method can be approached as a tool that generates musical lines and chords that are not related to traditional music theory, it can also be applied to functional harmony. The way his exercises are arranged represents this duality.

The three main elements in O'Gallagher's method are intervals, trichords and twelve-tone rows. These rows consist of four tri-chords and the tri-chords consist of two intervals.

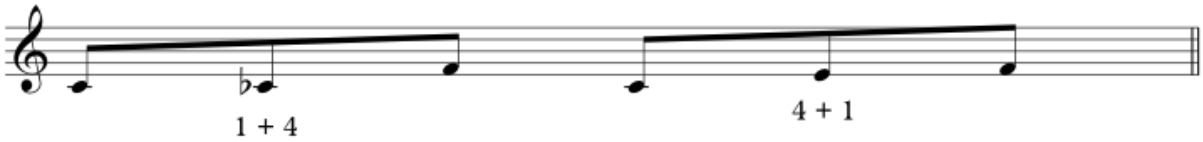
The sizes of the intervals in the trichords range between a minor second and a perfect fourth. They are indicated by figures: 1 means a minor second; 2 a major second; 3 a minor third; 4 a major third; and 5 a perfect fourth. Each trichord is marked by the two figures of its intervals – the smallest interval first –, connected with a plus sign.

For example, interval 1+4 means a minor second, followed by a major third; for instance c–c♯–f♯. The twelve-tone rows each consist of four members of the same trichord family, arranged in such a way that a complete twelve-tone row results. For instance, of the four trichords of the 1+5 family in the twelve-tone row below, the first and the third display the order 1+5. The second and the fourth trichord display the order 5+1.



[ex 3.7.1.1 – twelve-tone row 1+5 and 5+1 (O'Gallagher 2013:24)]

O'Gallager's method discusses all trichords in five steps. First he lists the trichords in their prime forms, first and second rotations, followed by a survey of all possible combinations of two trichords. Seven tri-chords are non-symmetric, with different intervals between the three pitches: 1+2; 1+3; 1+4; 1+5; 2+3; 2+4 and 3+4. They are presented in two versions. The first starts with the smaller interval followed by the larger interval. The second goes the other way around.



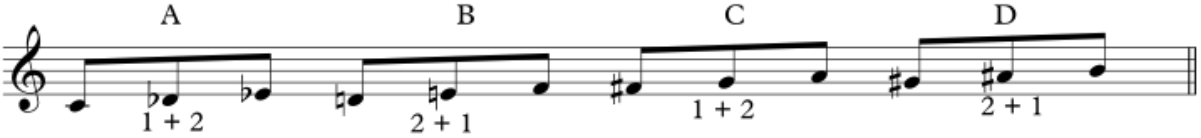
[ex 3.7.1.2 – trichord 1+4 and 4+1 (O'Gallagher 2013: 97)]

The remaining five trichords are symmetric and contain the same distances between the pitches: 1+1; 2+2; 3+3; 4+4 and 2+5; the first four are presented in only one version because rotation doesn't change their intervallic structure.

[ex 3.7.1.3 – trichord 4+4 (O'Gallagher 2013:244)]

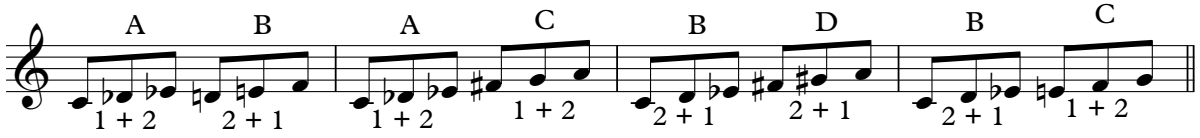
Trichord 2+5 is an exception. O'Gallagher considers this a symmetric trichord because its first rotation turns the non-symmetric 2+5 into a symmetric 4+4.

Next O'Gallagher constructs trichord combinations from the row. In the following example the trichords in row 1+2 are ordered as A B C D.



[ex 3.7.1.4 – row 1+2 (O'Gallagher 2013:50)

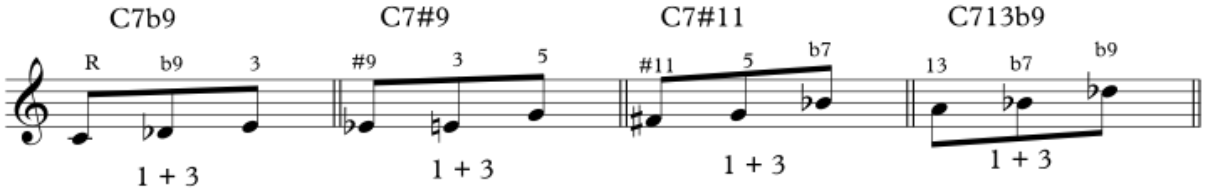
From this row, the following trichord combinations can be derived: A+B; C+D; A+C; B+D; B+C; and D+A. In the resulting six-note patterns displayed in the following example, each pattern is transposed to start from the root note c. Trichord combinations C+D and D+A are left out because, as a result of this transposition, they would sound exactly the same as combinations A+B and B+C.



[ex 3.7.1.5 – combinations of trichords 1+2 and 2+1 (O'Gallagher 2013: 37-39)]

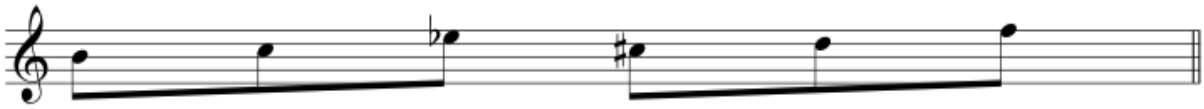
After the exposition of all trichords, O'Gallagher thoroughly discusses their diatonic applications in three steps. First, he superimposes single trichords as chord voicings over all 12 tones as bass notes and attributes the appropriate harmonic qualities as chord

symbols to each of them. Next, he superimposes single tri-chord and combined tri-chord applications that fit the chord tones and tensions from the associated modes on the "common chord types" Gm, C7 and Fmaj7. The next example shows tri-chord 1+3 in prime form and in three transpositions, fitting respectively the modes of C mixolydian b2; C blues; C Lydian b7; and C half-whole tone diminished.



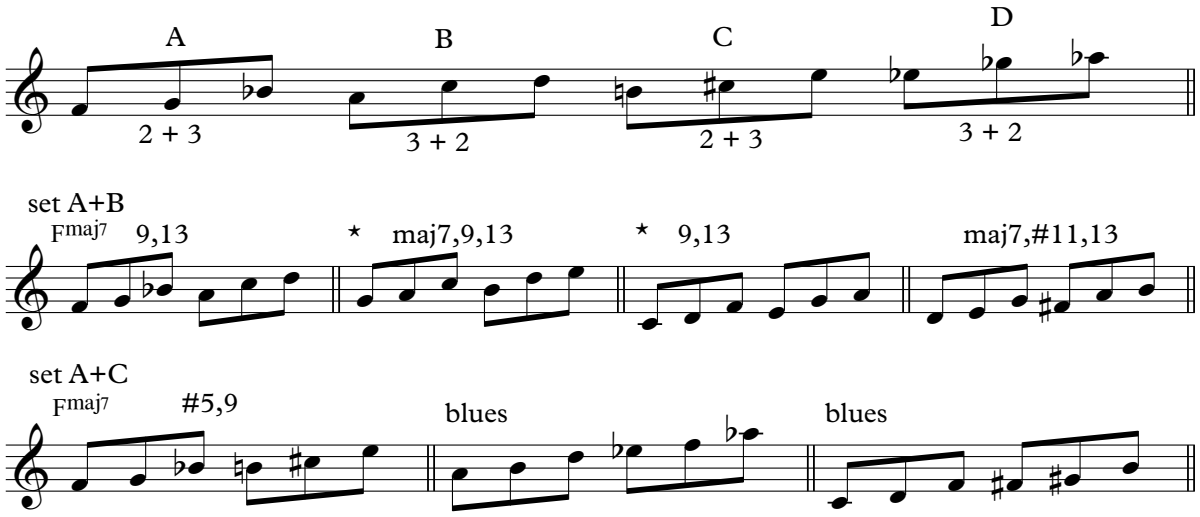
[ex 3.7.1.7 – single trichord 1+3 over C7 (O'Gallagher 2013:84)]

As his third step, O'Gallagher superimposes all possible sets of two trichords on each of the three common chord types. Many of the diatonic applications of these sets depend on the ear of the performer. They can contain a mixture of inside and outside trichords, for instance the next example, superimposed on Gm. To my ears it sounds as a $D7^{b9b10}$ chord, with a pull to Gm.



[ex 3.7.1.8 – combined 1+3 trichords superimposed on Gm (O'Gallagher 2013:85)]

As to the diatonic application of his trichords and combinations of trichords on common chord types, O'Gallagher's method is able to define levels of dissonancy by manipulating the trichords. The next example illustrates diatonic applications of the trichord 2+3 on Fmaj7. The first line shows row 2+3 and 3+2 in prime form. The second shows a succession of combinations of prime form and transposed trichord combinations A+B (2+3 and 3+2). The ones marked with an asterisk are the most important in defining the sound of the chord. In other words, they sound the most inside. The second line shows combinations of set A+C. The interval of an augmented fourth between the initial notes of the trichords cause these combinations to sound more outside.



[ex 3.7.1.9 – diatonic applications of trichord 2+3 on Fmaj7 (O'Gallagher 2013: 151)]

Only after his extended discussions of the trichords and trichord combinations from each row does O'Gallagher display its complete form, its steering trichords and the number of unique transpositions, i.e. the number of transpositions that is possible before the row repeats itself in another key. To some of the rows he also connects their characteristic tonal colors, such as diminished or augmented, or a color that suggests the sound of any of Messiaen's modes of limited transposition.

Finally, he discusses the related or embedded rows. These rows are constructed with the so-called steering trichords that are found by grouping the first notes of the trichords in the basic row. Five of the non-symmetric rows and two of the symmetric rows can appear in different orderings that are related to different steering trichords. The reader is advised to use these relationships first in compositions and then later in improvisations. I will come back to the issue of the steering hours in chapter 4.
The following table summarizes the trichords, their number of possible constructions, the number of unique transpositions, their steering trichords and their tonal colors.

type of trichord	number of constructions	type of steering trichords	tonal colors	number of unique transpositions
Non symmetric rows				
1+2; 2+1	1	2+4	partial dim 1/2-1; dim 1-1/2	6
1+3; 3+1	2	2+3; 5+1	symmetric at tritone; 2 symm augm scales at a whole step dist	6
1+4; 4+1	3	2+2; 2+4; 3+3	augmented; Messiaen 4th and 5th mode of lim transp	12; 6; 3
1+5; 5+1	1	2+1	various; Messiaen 5th, 4th; partial dim scales; quasi blues sound	12
2+3; 3+2	1	4+2	pentatonic; quasi blues scale; Messiaen 4th (truncated)	6
2+4; 4+2	3	1+3; 3+1; 4+1	whole tone scale; augmented; resolving strength	12
3+4	2	2+2; 2+4	conventional triads in unconventional orderings; V7alt-i inside hexachords	12; 6
2+5	3	1+2; 2+4; 3+3	fourth chords	12; 6; 3
Symmetric rows				
1+1	1	3+3	chromatic scale; harmonically undefined; cluster chords	3
2+2	2	1+5; 3+3	whole tone scale; two incomplete major scale at tritone distance	6; 3
4+4	6	1+1; 2+1; 5+1; 2+3; 3+3; 3+2+1	augmented	4; 4; 4; 4; 4; 4
3+3+3	1	1+1	diminished	1

[ex 3.7.1.10 – table of trichord characteristics]

3.7.2 Practical applications

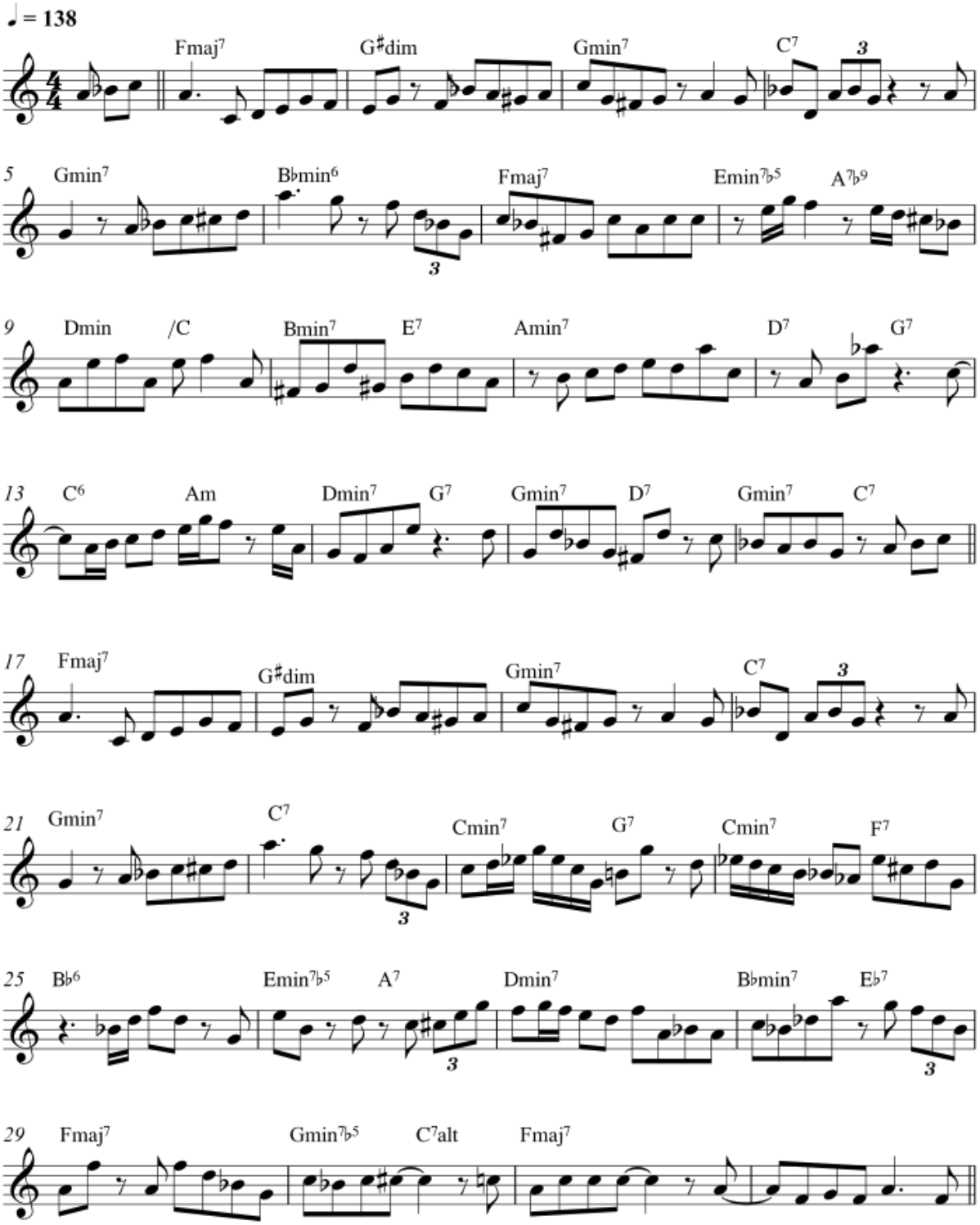
The analysis of trichord types in a melodic and harmonic context as discussed by O'Gallagher in his introduction inspired me to apply a trichord reduction on Charlie Parker's "Quasimodo" and to redistribute the pitches in random permutations and intuitive rhythmic phrasings, while I kept to the original chords. Next I re-harmonized Miles Davis' "Tune Up" by superimposing a new chord structure based on a succession of 1+5 trichords on the original chord changes.

The following three examples illustrate my trichord operations as applied to "Quasimodo". The first example is the lead sheet for tenor saxophone in Bb. The second example is my trichord analysis of the theme. The third example shows the lead sheet of "Quasi Mad Though", my re-composition of "Quasimodo" on the basis of this trichord analysis.

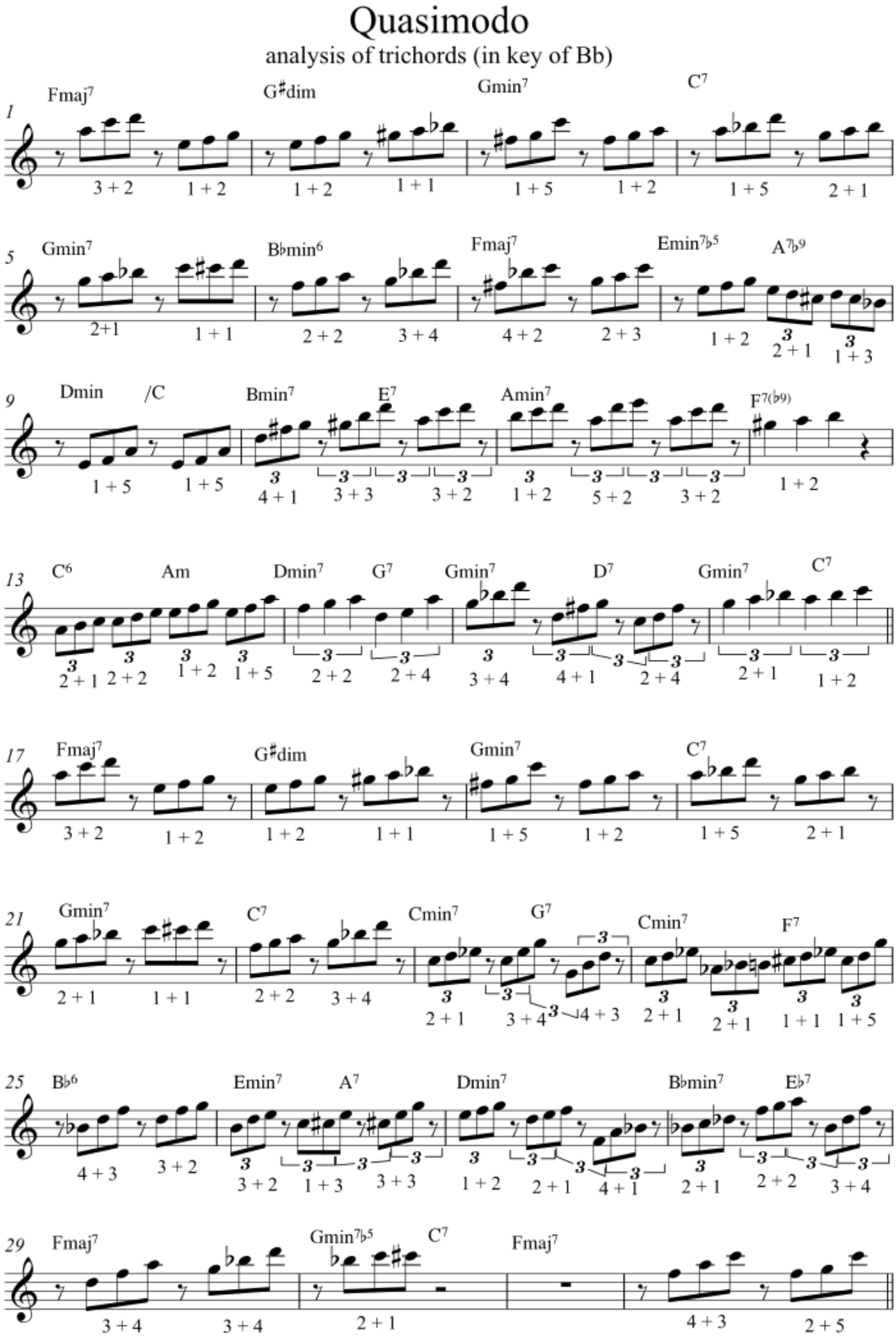
Quasimodo

theme transposed to Bb tenor saxophone

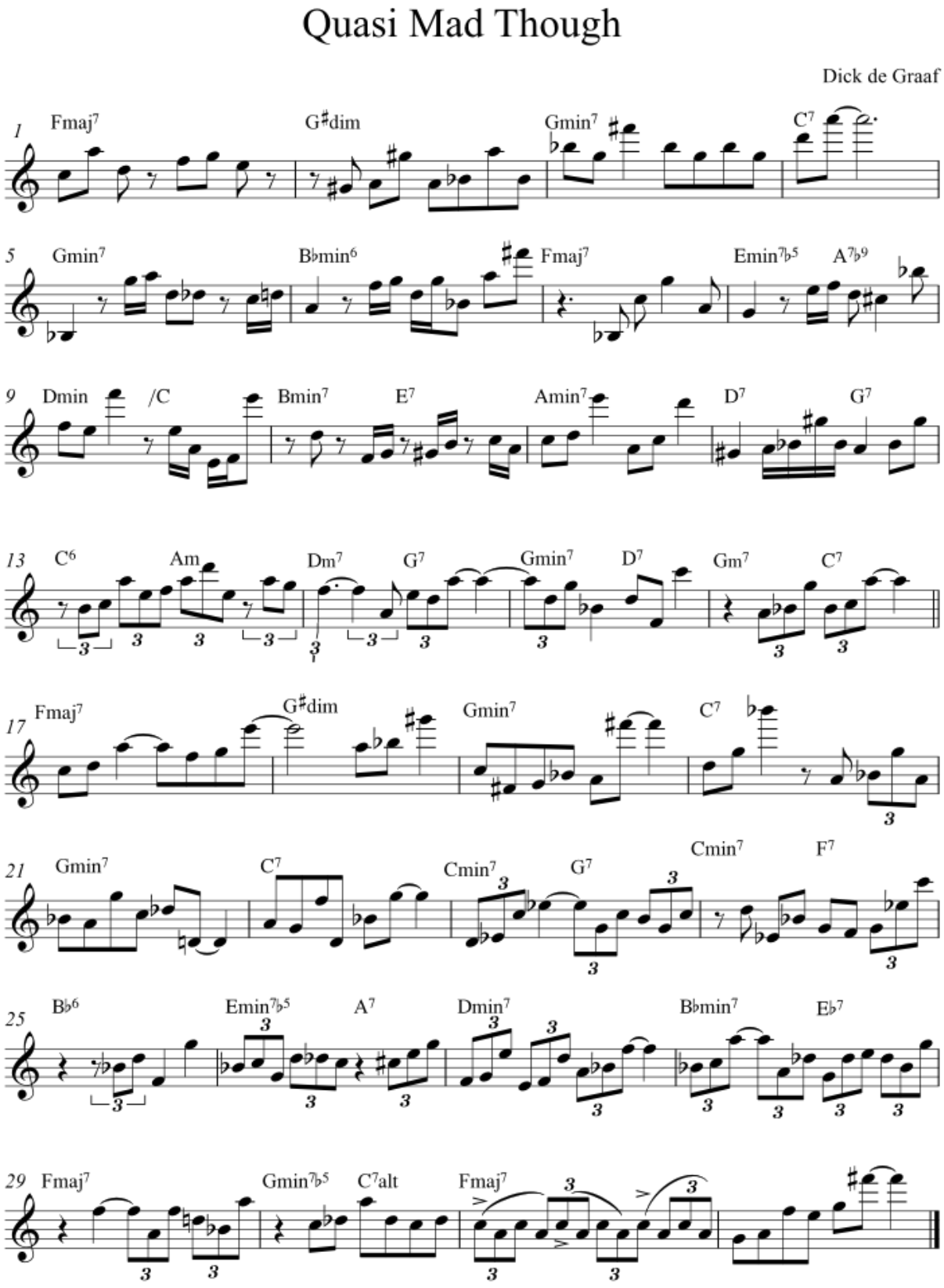
Charlie Parker



[ex 3.7.2.1 "Quasimodo" (Charlie Parker) – original theme (Bb-insturments)]

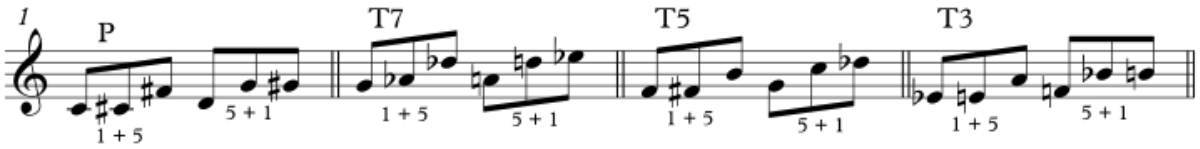


[ex 3.7.2.2 – trichord analysis of "Quasimodo"]



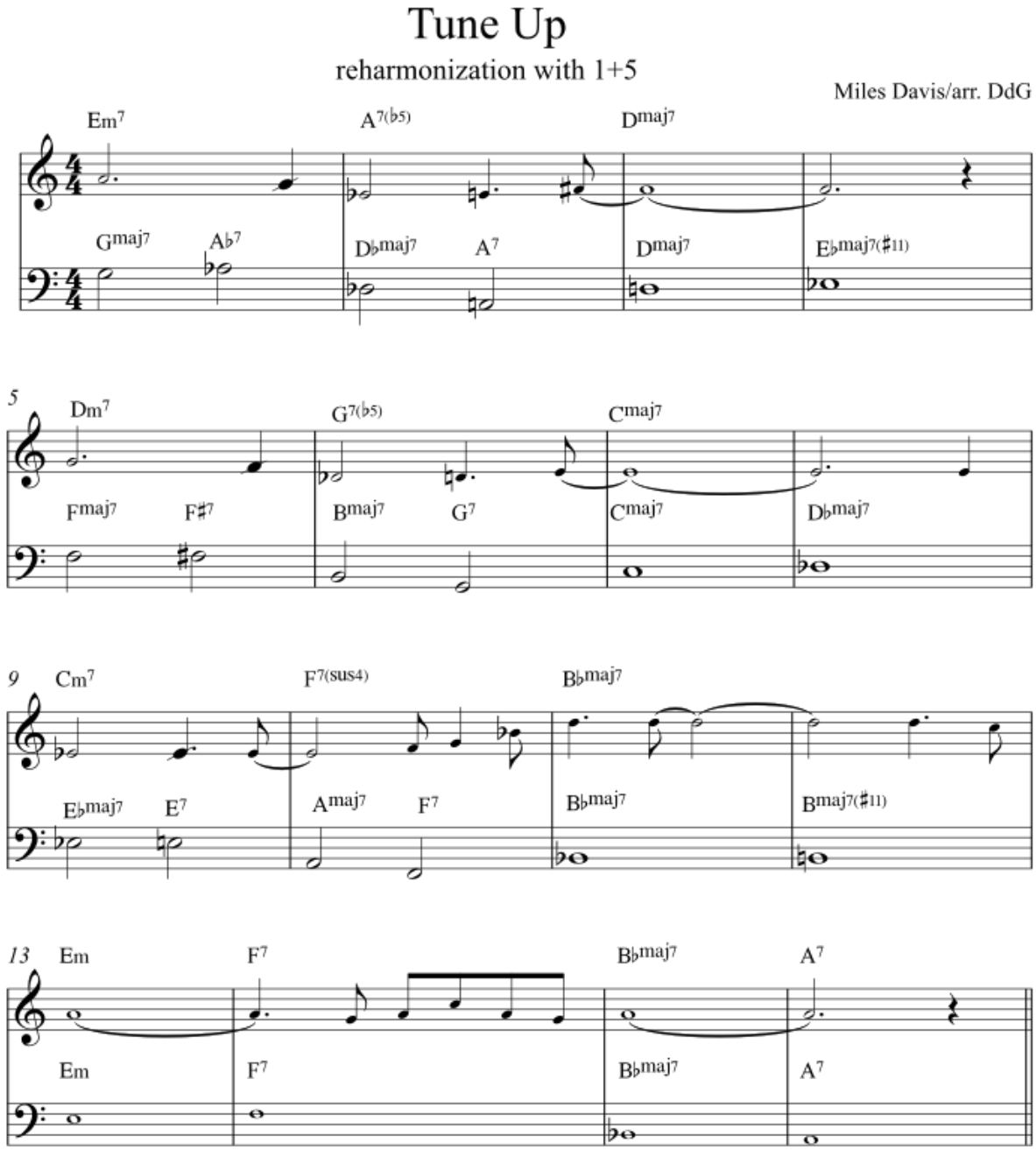
[ex 3.7.2.3 – re-composition on the basis of tri-chord analysis of "Quasimodo"]

The next example shows my application of trichords to reharmonize the chord changes of the jazz standard "Tune Up" (Davis) by superimposing combinations of trichord 1+5. The following line shows how the prime form (P) of trichord combination A+B from the 1+5 row is transposed by T7 (a perfect fifth), T5 (a perfect fourth) and T3 (a minor third). In my re-composition, the pitches resulting from these operations become the root notes of the new chord changes.



[ex 3.7.2.4 – transpositions of A+B from row 1+5]

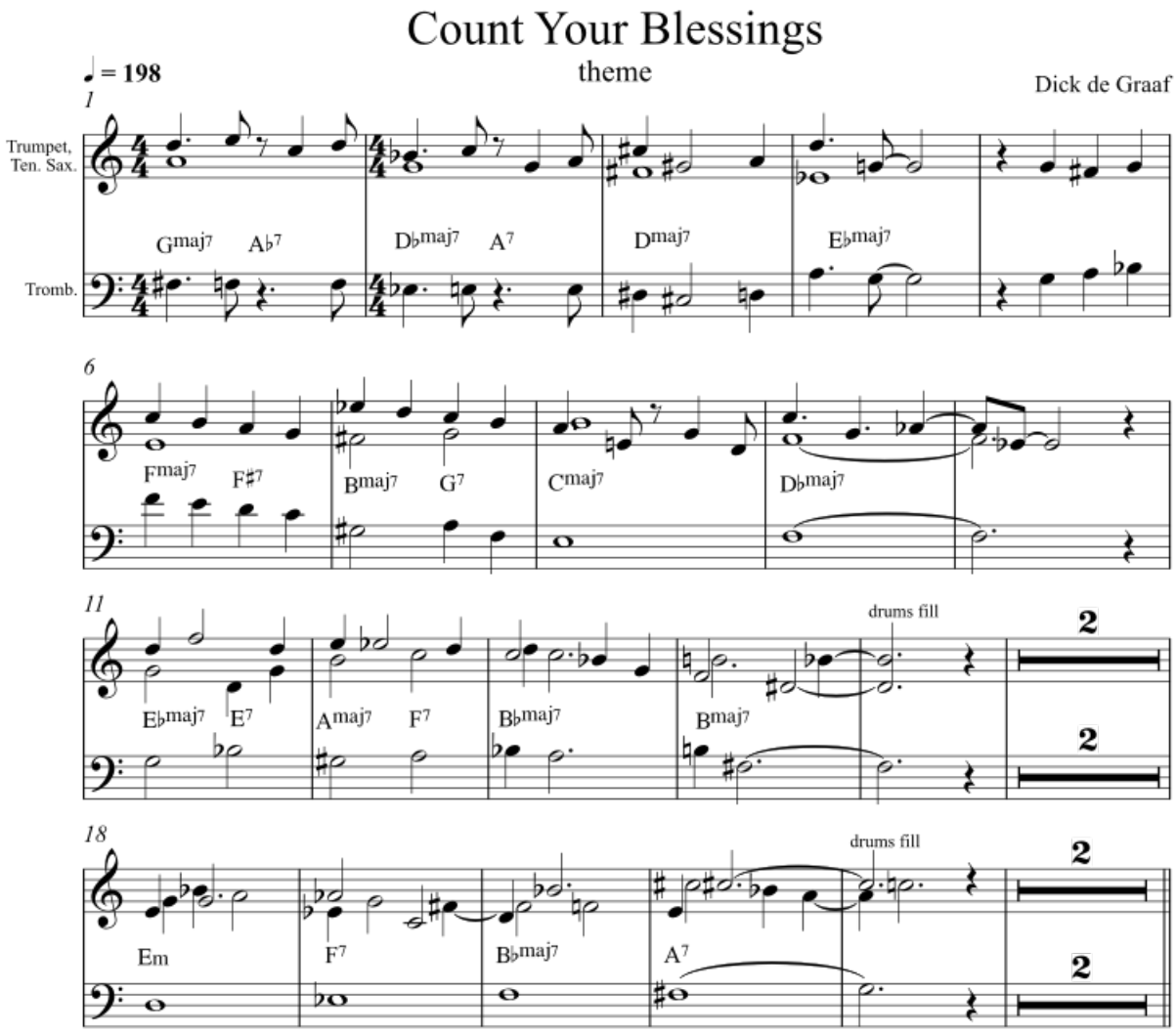
In the next example the upper staff shows the original melody and chords, the lower my superimposed harmonies. The notes in the original melody that conflict with the new accompanying chords are crossed.



[ex 3.7.2.5 "Tune Up" (Miles Davis) – reharmonization with combinations of trichord 1+5)]

The following example displays my composition "Count Your Blessings" in an arrangement for tenor saxophone, trumpet, trombone, bass guitar and drums. The upper staff shows the trumpet and the tenor saxophone melodies. The lower staff shows the trombone part. In between the staffs are the basic accompanying chords that also serve as chord changes for the solos. I imagine that, just as with the concept of "Coltrane changes", tenor saxophonist John Coltrane's superimposed chord structures on ii-V-i

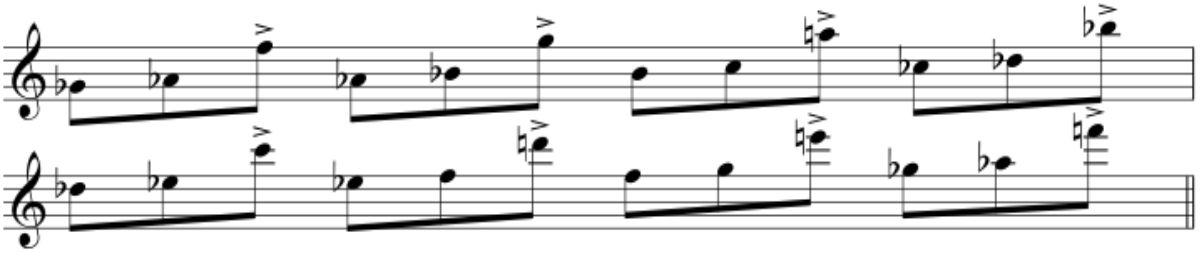
cadences, my chord changes derived from the fifth hour can be used alike to add a fresh sound to these conventional chord changes. This application of the Tone Clock serving as a bridge between dodecaphony and tonality can be considered a useful technique to help improvisers enriching their artistic palette.



[ex 3.7.2.6 "Count Your Blessings"]

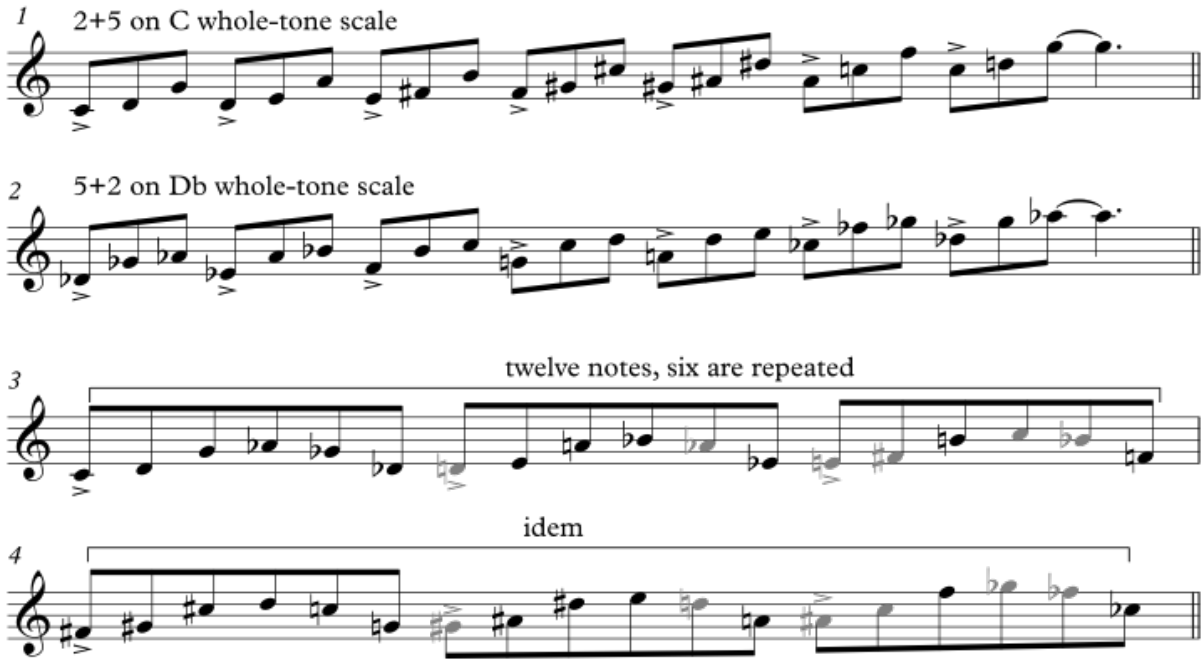
The following applications of trichords and rows in a tonal context, are examples of operations that quickly became part of my personal improvisational language. The first is based on row 1+2. Because of the combination of the sound of a major second between the first and the second note and the sound of a major seventh between the first and the third, I became attracted to the first rotation of row 1+2 as an operation to embellish pitches, groups of pitches and complete scales. The next example shows the embellishment of the scale of F major. All trichords are constructed as a first inversion of

1+2. As a result of this intervention, the scale is represented in the top notes while the lowest notes form the scale of Gb major.



[ex 3.7.2.7 – row with 1+2 R1, embellishing the scale of F major]

The second example shows my application of the trichord 2+5 in combination with two whole-tone scales. In bar 1 the trichord 2+5 is placed on every degree of the C whole-tone scale and in bar 2 the trichord 5+2 is placed on every degree of the Db whole-tone scale. By merging these two scales and by alternately playing the trichords in ascending and descending directions the row in bars 3–4 results. This row contains two twelve-tone rows, each with six notes repeated. These repeated notes, marked in grey colors, together form the C whole-tone scale. With its high density, this scale pattern lacks an obvious tonal reference, making it an attractive pattern to be superimposed on using a multitude of pre-given or imaginary chord changes.



[ex 3.7.2.8 – twelve-tone pattern of trichord 2+5 combined with two whole tone scales]

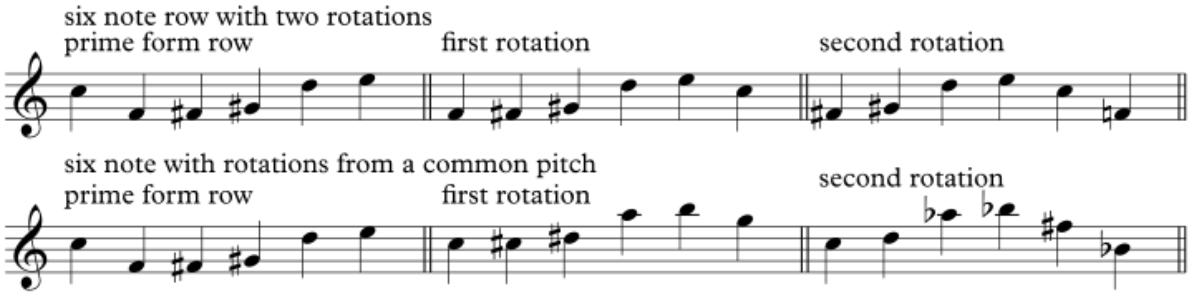
3.7.3 Twelve-tone techniques

In contrast to Liebman's treatise on chromatism, Bergonzi's systematic intervallic method, Garzone's chromatic triadic approach, and Weiskopf's and Bergonzi's applications of triad pairs, O'Gallagher's method is explicitly based on twelve-tone techniques. Both in his examples and in his practical instructions, he thoroughly addresses the twelve-tone operations of transposition, rotation and extension. For example, he advises to apply the following seven exercises to every type of trichord as follows. (O'Gallagher 2013:36) I have marked the appropriate techniques between parentheses.

1. Practice root position trichords chromatically in various directions [transposition].
2. The same with first rotation trichords [rotation, transposition].
3. The same with second rotation trichords [rotation, transposition].
4. Practice longer patterns of each trichord using all rotations [rotation and extension].
5. Practice trichord rotations from common tones [rotation, transposition].
6. Practice freely combining the various transpositions and rotations [rotation, transposition].
7. Practice all two trichord combinations using all transpositions [transposition, extension].

Furthermore, in his exposition of row 1+2 he demonstrates retrograde, inversion and retrograde inversion as "basic operations on the row" (O'Gallagher 2013: 52) listing all possible combinations of two, three and four trichord combinations from the row and outlining comprehensive row exercises.

Compared to Bergonzi, Garzone and Weiskopf, the performer who wants to become familiar with O'Gallagher's operations will have to spend substantially more time and effort mainly on the typical composer's operations that are suggested. For instance, the following rotation from a common pitch – referred to as "one technique by Stravinsky and other composers to develop a row" (O'Gallagher 2013:6) - is an interesting addition to the technique of mere transposition to get familiar with the trichords, but it takes time before a composer's operation like this will pop up spontaneously in an improvised line.



[ex 3.7.3.1 rotations from common tones (O'Gallagher 2013: 32,33)]

3.7.4 Evaluation

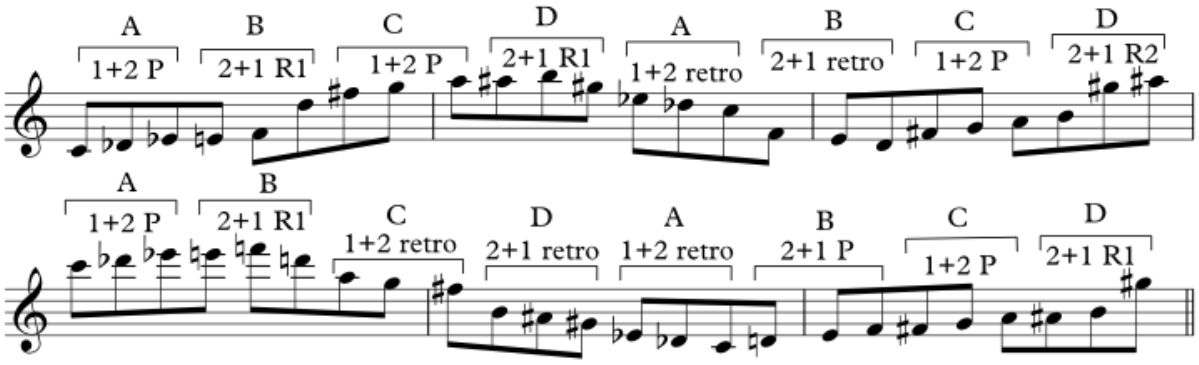
As a composing improviser O'Gallagher created a method for twelve-tone improvisation based on the analytic model of the Tone Clock that was designed by Schat, a twentieth century composer of modern classical music with no connections to jazz and improvised music. The relationship between composition and improvisation based on this actual model is however missing in O'Gallagher's book; he mainly addresses the improvising performer. The act of composing is merely mentioned as a pedagogical tool to learn to apply the trichords, their combinations and their variations. His advice to examine the relationship between the rows, by applying them first in compositions, before they are transferred into improvisations is quite open-ended. Furthermore, although the players of chordal instruments are advised to "play these trichord exercises as simultaneities as well" (O'Gallagher 2013:70,96), the polyphonic application of the method is also given few attention.

As to the aesthetic aspect of his approach, I consider it an inspiring tool that enables a performer to create infinite quantities of interesting sounds by manipulating a relatively small number of basic intervals, rows, and operations. It helped me to deepen my hearing and understanding of interval relationship, as a useful addition to my existing skills. Because of the large number of detailed examples, O'Gallagher's book can be considered a thesaurus of operations with trichords and related rows. "Whether it works" depends on the artistic motivation of the individual artist who wants to find out "how it works" for him.

One could argue that the melodic lines that result from applying O'Gallagher's complex operations don't always allow the informed listener to clearly identify the distinct trichords and trichord combinations. I assume that O'Gallagher's preferred audience has a level of experience with listening to complex music, by which it is able to appreciate his twelve-tone approach as an interesting way of playing outside the beaten tracks of jazz improvisation. However, particularly in the initial stage of mastering these techniques of intervallic improvisation, performers should be able to hear and play the distinct trichords clearly before they start blending them with members of the other trichord families.

Unfortunately, the implications of the predominant three-ness as a result of the trichord manipulations are not given attention in his book. The same goes for the directions of the lines. Although in the summary of trichord exercises the student is advised to practice the trichord and its inversions in various directions, it is striking that the exercises are basically written in ascending directions. Only at the end of the exposition of row 1+2

does O'Gallagher display examples of trichord combinations in both ascending and descending directions. For instance, in the next example he creates a melodic line using the trichords from row 1+2 in alternating directions. The connections between the trichord sets are made by using the next closest neighboring tone and continuing the direction of the line. There are a variety of rotations in this line that follow the set pattern ABCD repeatedly (O'Gallagher 2013:67).



[ex 3.7.4.1 – trichords from the row in various shapes (O'Gallagher 2013:54)]

In addition to the five publications discussed earlier in this chapter, O'Gallagher's book offers a new perspective on playing outside the chords that highly meets my motivation to undertake this research project. With his pragmatic approach of an analytical model related to twelve-tone music, he introduced an alternative approach to intervallic improvisation, in the form of a detailed and systematic device with clear playing rules. His method is applicable both in twelve-tone as in tonal contexts. Thereby, in the improvisers' "backpacks" it can be both connected to, and stored alongside their existing knowledge and practices. Because O'Gallagher's publication combines the characteristics of a thesaurus with those of a didactical method, it offers the student multiple directions towards the selection of his personal applications.

My analysis of O'Gallagher's method showed three major problems. First, as I already mentioned before, in the practical applications of his twelve-tone approach, composing and arranging don't receive as much attention as improvisation. Second, the excessive collections of tonal references of all trichords and trichord combinations illustrate the drawback of presenting entire numbers of options in the form of a thesaurus. Because these patterns are not related to musical examples, for less experienced readers they will look like barely meaningful patterns that display a more theoretical than practical quality. Third, and more importantly, O'Gallagher did not offer clear solutions for a major rhythmic problem with his trichordal approach: the overwhelming three-ness, or more

precisely: the predominant presence of three-note groupings. These problems will be addressed in chapter 4.7.

3.8 Comparing the models

The authors of all six publications reviewed in this chapter express a variety of motivations to help (composing) improvisers learn new musical techniques. The effectiveness of their methods depends on the attitude of the students. Liebman expresses that an exploratory attitude in his students is crucial. He compares their artistic motivation to extend their playing beyond the limitations of functional harmony to their response to contemporary music, favoring those who prefer the dissonant sounds of the music of the twentieth century above the ordered diatonicism of earlier periods. Bergonzi's remarks on the importance and value of the musician's intuition allowed me to propose the concept "informed intuition" in order to express that this "precious gift" can probably never be isolated from the knowledge the students have achieved through study, experience and taste. Garzone addresses the motivational issue in plain language, saying that his method should simply enable him and his students to improvise freely. Weiskopf presents his book as a response to the actual need of his students to learn how to improvise with intervals because they hear that many modern jazz artists do so. O'Gallagher aims at those students who are motivated to learn a new way of hearing harmonic and intervallic space.

As to the applications of twelve-tone techniques, all authors in one way or another present their personal strategies to create tone rows. The term tone rows is not used in the traditional sense of a set of twelve pitches with strict serial principles, but to express that these lines are not based on diatonic or modal scales, but on successions of pitches that are ordered by intervals. Liebman, Garzone and O'Gallagher mention their relations to twelve-tone techniques explicitly, while Bergonzi and Weiskopf only implicitly refer to these techniques by taking intervallic constructions of melodic lines as their focal points. All five authors leave it to the discretion of the individual musician to make his choices from their models.

Remarkably, all authors consider their models as an addition to existing chord-scale improvisation. Liebman and O'Gallagher emphasize the importance of substantial expertise in linear improvisation before making steps into their new areas. Just as Weiskopf, they are able to precisely define the relationships between their operations and the underlying chord structures. O'Gallagher's, Bergonzi's and Garzone's intervallic

approaches basically intend to not imply tonal references, but Bergonzi argues and Garzone demonstrates that their systems can not be seen as totally distracted from conventional functional harmony.

O'Gallagher even emphasizes that, although his system provides his readership with the tools to hear and think in the twelve-tone system, it should not be limited exclusively to twelve-tone usages. Thus, his model is meant, in Wuorinen's terms, to create interactions between content and order of pitches and intervals. Weiskopf assumes that learning intervallic improvisation will improve his students' linear improvisation. Bergonzi and Garzone are more in favor of an intuitive approach. Bergonzi loosely formulates that "everyone internalizes and applies concepts in a unique way and [his] system is wide open for interpretation" (Bergonzi 2000:7). Likewise, the performers applying his operations discussed in *Hexatonics* (2006) are expected to rely on their informed intuition in order to find their way through the wealth of possible melodic and harmonic possibilities with this actual method.

Liebman, Bergonzi, and O'Gallagher explicitly advocate didactical applications of their methods such as ear training, rhythmic development, and composition of individual exercises. Although in the context of the actual study I am mainly interested in the creative applications of these and of related approaches, I now take a moment to summarize my experiences with applying their models in my own practice as an educator.

Liebman's treatise supported my educational practice just like it had supported my playing skills. It served as a roadmap for the journey into the more advanced improvisational practice beyond the chord-scale approach. His analysis of this developmental process, his chromatic concepts of tonal and non-tonal superimpositions and his sketch of the parallels with the development of classical music through the ages served as an illustrative theoretical background. Bergonzi's intervallic approach appeared to work well in a small ensemble class when the students were asked to write short compositions using a collection of three intervals. All students took advantage of having this clear context as a point of departure. Because I left open how strictly they should apply the operations with the orders and directions of their selected intervals, the results showed a large variety of compositions. The approach served particularly well to accelerate their process of getting started with composing and arranging their notes. Bergonzi's model appeared easily accessible as a compositional device, but any spontaneous application in the improvised part caused serious problems to most of the

students. Small exercises constructed with random selections helped them to develop their awareness and hearing of the interval combinations.

The introduction of O'Gallagher's approach in my improvisation classes was met with interest, but also with suspicion. To some students, the thorough and comprehensive structure of this publication caused certain pessimism, because they felt that they should master his tone rows and trichords completely before they would be able to apply them to their everyday improvisational language. On the other hand, some of them easily got used to manipulating certain trichords and started using them in little compositions. Examples from my compendium of generative patterns from the Tone Clock, discussed in subchapter 4.7, helped them to blend some of the trichord techniques with their existing improvisational languages.

Regarding Garzone's chromatic triadic approach I can say nothing other than the students in my improvisation classes had a lot of fun with it. With its simplicity, it is a quick and suitable tool to make the students feel comfortable playing outside the chords. Moreover, we experienced that by repeatedly playing certain lines, tonal colors would emerge. Consequently, it also served as a demonstration of Liebman's concepts of linear tonality, tonal anchors and harmonic lyricism.

In my improvisation classes, Weiskopf's operations combining triad pairs from underlying scales and modes appeared to be the most accessible of all models in this chapter. Bergonzi's hexatonics served well as a next step after Weiskopf, resulting in more advanced trichord combinations evoking more ambiguous tonal colors.
Thus, apart from my own practical experiences with the actual methods, I have noticed how they have inspired my students to add them to their existing skills. I assume that this will apply even more so to the techniques I will be discussing in the following chapters.