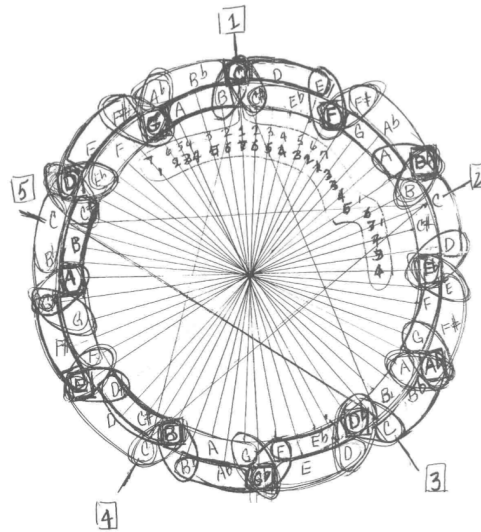


John Coltrane's 26-2: A Neo-Riemannian Analysis



Handwritten illustration by John Coltrane given to Yusef Lateef in 1967 who reproduced it in his book *Repository of Scales and Melodic Patterns* (1981).

In 1960 saxophonist John Coltrane released his album *Giant Steps* and, in doing so, unveiled the results of harmonic experiments he had been undertaking over the previous three or four years. He had been working with the trumpeter Miles Davis who was himself experimenting with modal harmony inspired by theorist George Russell (Ratliff 2007, 45); Coltrane, however, was going in a different direction influenced by studying third based harmony at the Granoff Music School in Philadelphia (Demsey 1991, 11) and by using Nicolas Slonimsky's 1947 book *Thesaurus of Scales and Melodic Patterns*. Pianist McCoy Tyner claims that "the Slonimsky book was in Coltrane's possession constantly" (Demsey 12) around this time and two of the examples found in it, which are based on the equal division of the octave into major thirds, bear a striking resemblance to the second half of the title track of *Giant Steps* (Slonimsky 1986, introduction vi & 40). This track showcases the principal outcome of Coltrane's harmonic interests at this time: a cyclical chord progression which tonicizes chords a major third apart from one another, now known to jazz musicians as 'Coltrane Changes'. As well as composing this piece which is designed entirely around the

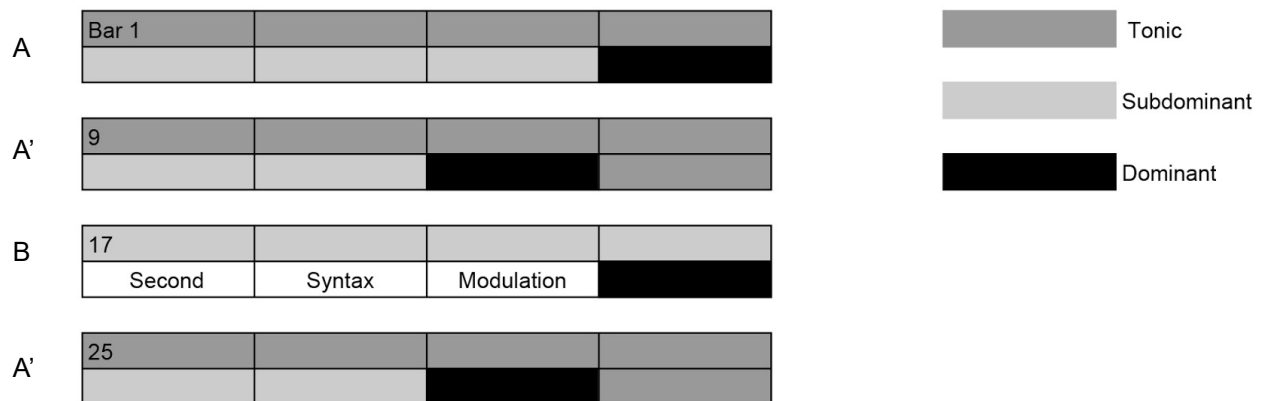
cycle, he applied these changes to more familiar settings, often using it in the reharmonisation of standard songs and in the creation of 'contrafacts' (new melodies written over the harmony of an established piece). Ben Ratliff says that Coltrane "used the *Giant Steps* changes as a moveable device, to create new tunes based on standards" (52).

One such contrafact was *26-2*, written and recorded in 1960 but not released until 1970, based on the tune *Confirmation* written fourteen years earlier by the pioneering saxophonist Charlie Parker. This paper will analyse *26-2* principally from the standpoint of Neo-Riemannian Theory (NRT), seek to draw parallels between Coltrane changes in the piece and Richard Cohn's notion of hexatonic systems (1996), and assess the effectiveness of NRT as tool for analysing this composition.

Confirmation follows fairly standard harmonic conventions for jazz of the era: it is tonal and most of the chords can be satisfactorily explained using roman numeral analysis. At first glance the only elements of *Confirmation* and *26-2* that seem obviously related are the number of bars (32), home key of F major and overall A-A'-B-A' structure, however, closer examination reveals two defining features of the earlier composition which are retained in the later piece, despite the thoroughgoing reharmonisation. Firstly, the tonic ([T]), subdominant ([SD]) and dominant ([D]) structural landmarks occur at the same points in both pieces leading to the result that, at a background level, *26-2* operates in first syntax notwithstanding the frequency of chords borrowed from harmonically distant keys. Analysing complex passages such as the first four bars of either piece as prolongations of [T], [SD] and [D] may seem overly simplistic but this claim has strong support. In jazz parlance the most common type of prolongation is known as 'back-cycling'; Joe Pass, guitarist and contemporary of Coltrane, explains that a "way to add harmonic interest to a chord pattern is to "back-cycle" through the order of dominants (cycle of fifths)" and he gives examples including one which is almost identical to the first five bars of *Confirmation* (Pass 1986, 9). This sequence, known as 'Bird Changes' (Charlie Parker was often referred to as 'Bird'),

also appears at the start of Parker's later tune *Blues for Alice* (1951) which is a twelve bar blues; a ubiquitous song form in jazz in which a multiplicity of variations are used to add interest to the traditionally static [T] of the first four bars before moving to [SD]. In 26-2 it is clear that Coltrane is also 'back-cycling', albeit through a different cycle, and drawing our attention to the change to [SD] in bar 5 for reasons discussed in further detail below. The second important characteristic of both pieces is found in bars 21-24 which is the only passage from *Confirmation* left untouched by Coltrane in 26-2. These bars are a $ii^7-V^7-I^{maj7}$ sequence in the key of D^b major; a major third down from the tonic key of F major and, therefore, a brief moment of second syntax behaviour present in the parent composition. This might suggest why Coltrane left it intact as well as providing a possible reason for having chosen this piece as a basis for his own; it is a small nod in the direction of third based harmony which Coltrane then developed fully in his composition. Example 1 shows the background structure shared by both pieces.

Example 1 [T], [SD], [D] and second syntax regions in the background of *Confirmation* and 26-2.



The brevity of the [D] regions means that extended prolongation is not possible; indeed, Coltrane limits himself, as does Parker, to the standard jazz cliché of preceding V^7 with ii^7 . The B-section does, however, feature a second syntax prolongation of a secondary dominant which is discussed below. The real harmonic interest in the A-sections of 26-2 is

found in the prolongation of [T] and [SD] by means of the Coltrane changes cycle. The cycle is a sequence of major seventh chords descending in major thirds, each preceded by its V^7 chord. The root notes of the major seventh chords therefore follow a T_4 -cycle which is identical to an augmented triad. Example 2 shows the complete progression from F, which does not appear in 26-2 in this unbroken form.

Example 2 'Coltrane Changes'

$F^{maj7} \rightarrow A^b7 \rightarrow D^b_{maj7} \rightarrow E^7 \rightarrow A^{maj7} \rightarrow C^7 \rightarrow F^{maj7}$

(Enharmonic equivalence is assumed in keeping with standard NRT practice)

Sections of the cycle are used to prolong most [T] and [SD] regions of 26-2; the number of chords used depends on the amount of prolongation necessary in each part. Example 3 shows the first four bars where all but the last step of the cycle is used to prolong [T]; as it is about to return to its point of origin it diverts into a ii^7-V^7 in the key of B^b in order to propel the harmony towards the [SD] region.

Example 3 Bars 1-4 of 26-2

In the following four bars, given in example 4, only half of the cycle is used, this time starting from B^b ([SD]) before giving way to a cycle of fourths leading to C^7 ([D]).

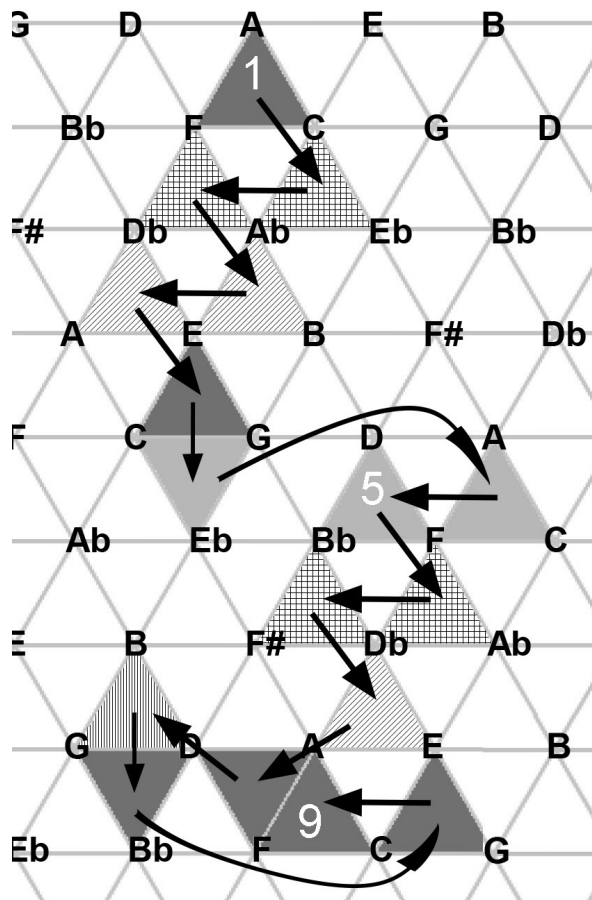
Example 4 Bars 5-8 of 26-2

Given that 26-2 is a product of harmonic rather than melodic experimentation, it would have been possible for Coltrane to get the entire cycle into both of these extracts without compromising the underlying structure or seeming forced. The C^{m7} in bar 4 could have been F^{maj7} thus completing the cycle and maintaining a natural sounding transition to [SD] with $F \quad F^7 \quad B_b$; likewise, bars 7-9 could read: $D^{maj7} \quad F^7 \quad B_b \quad C^7 \quad F^{maj7}$. It might be reasonable, therefore, to ask why he did not choose to do this. Both of the cadences produced by these alternative versions ($I^{maj7}-I^7-IV^{maj7}$ & $IV^{maj7}-V^7-I^{maj7}$) are common sequences found in blues, folk and jazz pre-1945 but are very uncommon in jazz contemporary to Coltrane which might help to explain these decisions. Also, the clear first syntax underpinning at the background level suggests that Coltrane is trying to maintain a balance between tonal and symmetrical patterns.

As suggested above, 26-2 offers further support for the reading of bars 1-7 as prolongations of [T] and [SD], and this is due to the use of Coltrane cycles. The cycle beginning on F in bar 1 is paralleled, at first, by that which starts on B_b in bar 5 indicating that both passages have a similar structural role. However, these two instances of the cycle tonicize the notes of different augmented triads giving each section a distinct auditory identity in a similar manner to the way we hear [T] and [SD] sections of a straightforwardly tonal piece. Example 5a shows the foreground of bars 1-9 plotted on a tonnetz clearly showing first syntax cadences and second syntax cyclical harmonic movement along two distinct hexatonic axes; sevenths have been omitted in line with standard NRT practice. Although this diagram plainly demonstrates the harmonic foreground, it is misleading insofar as it fails to identify the functional relationships between the [T] and [SD] chords in bars 1, 5 and 9. Example 5b attempts to address this difficulty whilst still showing both syntaxes by presenting a middle ground comprised only of the initial chord followed by chords which are tonicised by a preceding V^7 . The D minor chord is performing two overlapping functions: it is i preceded by its V and also ii followed by V of C major, which does not resolve to its tonic.

This way of outlining the passage also has the advantage of being commensurate with the way jazz musicians often perceive harmony as sequences of 'key centres' expressed in V-I's and ii-V-I's as an approach to improvisation.

Example 5a Harmonic foreground of bars 1-9. Bar numbers are shown in white, adjacent chords with similar shading indicate a tonal relationship.



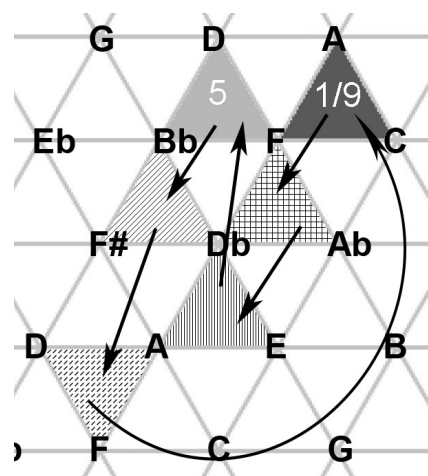
Bars 1-3: Coltrane cycle along F Db A axis

Bars 4-5: ii-V-I cadence in Bb

Bars 5-6: Coltrane cycle along Bb F# D axis

Bars 5-9: Cycle of fourths leading to ii-V-I cadence in F

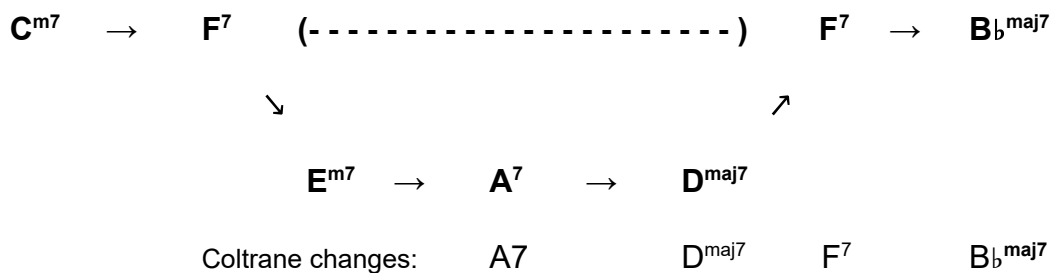
Example 5b Middle ground tonicisations in bars 1-9.



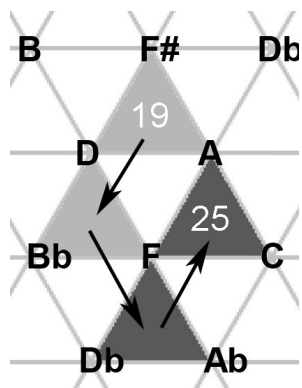
In common with most standard A-A'-B-A' songs, the final bar of A' differs from that of A by resolving to [T] rather than ending on [D]. In order to achieve this, Coltrane makes the root movement of a major second from B_b^{maj7}, which establishes [SD] in bar 13, to A_b⁷ from which begins a cycle of Coltrane changes finishing on F at the [T] region in bar 16. Arguably, this completes and resolves the Coltrane changes left unfinished in bar 11. In contrast to the A-section, the Coltrane changes featured in A' are all along the same hexatonic axis.

Example 6 shows how the first four bars of the B-section (17-20) contain a ii⁷-V⁷-I^{maj7} in the [SD] key with a second syntax prolongation of the V⁷. From the F⁷ the progression moves, via a complete ii⁷-V⁷-I^{maj7} in the key of D major, back to F⁷ and then continues to the expected B_b^{maj7}. One consequence of this is to produce another Coltrane changes passage from the A⁷ in bar 18 through to the B_b^{maj7} in bar 20, which completes the cycle along this axis begun in bar 5. This parallels the way that the cycle along the other axis is started in bar 1, interrupted and then arrives back to its starting point in bar 16.

Example 6 Harmony in bars 17-20 showing prolongation of F⁷ by tonicization of D and resulting Coltrane changes sequence.



As has already been stated, Coltrane used bars 21-24 of *Confirmation* as they were in his composition, probably due to the fact that the tonicization of D_b followed by the structural [D] fits into the third based harmony of 26-2 without modification. The B-section, along with its ultimate resolution back to [T] can be summarised as two pairs of ii⁷-V⁷-I^{maj7} progressions a major third apart from one another with each pair belonging to a different hexatonic axis. Example 7 shows the I^{maj7} relationships on a tonnetz.



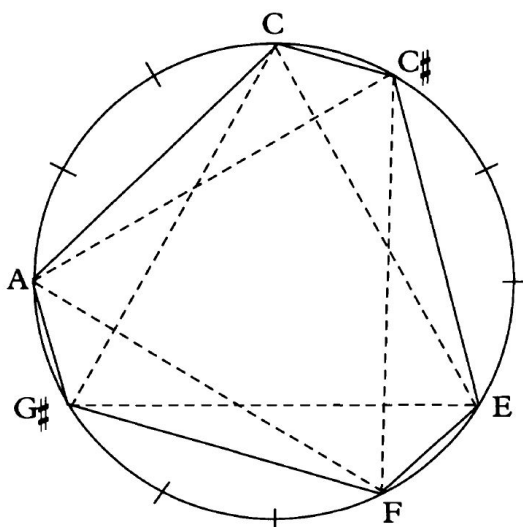
Example 7 Tonicized chords in the B-section. Light shading: bars 17-20, dark shading: bars 21-25.

The final A' (bars 25-32) is identical to bars 9-16. One possible interpretation of the background of 26-2 could be that the entire piece represents one complete Coltrane cycle and bars 2-29 are a prolongation of the initial F. This view might be supported by the fact that the cycle begins in bar one and diverts before completion; the same cycle is then taken up from the A_b in bar 29 and follows through to its conclusion. Thus, this interpretation is a way to see the complete cycle present in the piece and views the entire composition as representing a 'composing out' of the Coltrane cycle. Although there is something intuitively appealing about this level of unity, it does not hold up in the face of the underlying and pre-existing tonal basis on which 26-2 is built. There is a clear sense of being located in the F major key centre, but between its tonal landmarks it tracks an often symmetrical path through chromatic pitch space which temporarily causes "a suspension of tonal gravity" (Schachter and Salzer qtd. In Cohn 11). Describing a passage from Brahms, Cohn says that it has "a role to play in the larger [tonal] context of the movement as a whole" but it "does not follow the logic of Classical harmonic progression ... Nonetheless the progression does have an exquisitely patterned logic." (13); a description which could accurately be applied to the sections of 26-2 which bridge the tonal landmarks.

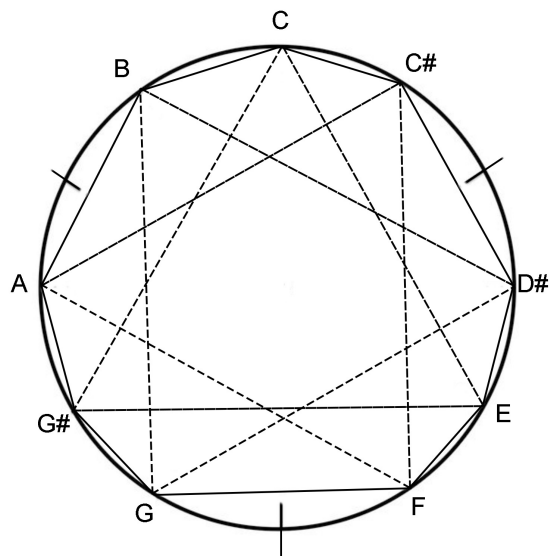
Cohn's discussion of hexatonic systems in his paper *Maximally Smooth Cycles, Hexatonic Systems, and the Analysis of Late-Romantic Triadic Progressions* provides a benchmark for a more in-depth discussion of Coltrane changes and, as such, can assist in an analysis of 26-2. Cohn draws our attention to the symmetries of pitch-class set Forte number 6-20 (hexatonic systems) in his Fig.2 which is given in example 8a below. He points

out that hexatonic systems have a strictly repeating interval pattern of semitone/minor-third and that they can be “partitioned into two adjacent T_4 -cycles” (18). The similarity between this and the octatonic scale (pcs 8-28), which has a semitone/major-second interval pattern and two adjacent T_3 -cycles, is his justification for using the label ‘hexatonic’. In his 2003 article *Nonatonic Progressions in the Music of John Coltrane*, Matthew Santa argues that Coltrane changes (pcs 9-12, without sevenths) can be thought of as ‘nonatonic systems’ in the same way, however, the differences and similarities between 6-20 and 8-28 do not find parallels in the ways that these sets compare with 9-12. Rather, 9-12 operates like two overlapping 6-20 systems because it is characterised more by its three adjacent T_4 -cycles than it is by the number of pitch-classes it contains. This would suggest that it is better to think of Coltrane changes as a type or variation of the hexatonic system. The side by side comparison of 6-20 and 9-12 in examples 8a & 8b shows the symmetry inherent in both pitch-class sets as well as the importance of the T_4 -cycle to each.

Example 8a Cohn’s pcs 6-20 diagram (19)



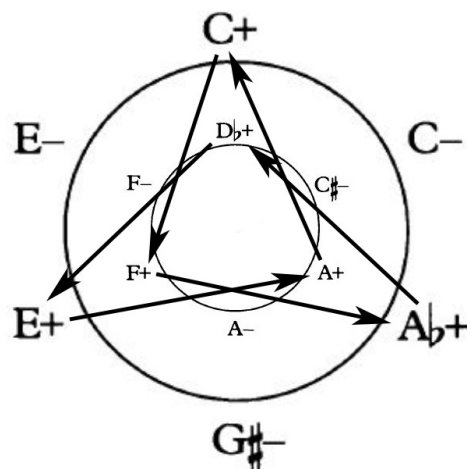
Example 8b pcs 9-12



Broken line triangles indicate T_4 -cycles (augmented triads)

Cohn's conception of the 'hyper-hexatonic system' is illuminating here as it draws attention to the relationships between the four possible different hexatonic systems, each of which represent an axis on the tonnetz and are labeled Northern, Southern, Eastern and Western by Cohn. The Coltrane cycle used in the first 4 bars of 26-2 uses triads taken from Cohn's Northern and Eastern hexatonic systems combined, which are related in the hyper-hexatonic system because they share half of their pitch-classes. These two systems are combined in a strictly patterned way such that it can be said that Coltrane changes are forging "generative paths through the hyper-hexatonic system" (Cohn 25), albeit only half of it. This relationship and symmetrical movement between the Northern and Eastern systems is shown in Example 9 which tracks the Coltrane changes beginning on [T] in bar 1 taken to their conclusion. The incomplete cycle which starts on [SD] in bar 5 follows a comparable path between the Southern and Eastern systems; this emphasises the point made earlier that the [T] and [SD] regions in the first 8 bars are delineated by the different pitch-classes used.

Example 9 Coltrane changes mapped onto half of Cohn's hyper-hexatonic system. The Eastern system is shown inside the Northern.



Because each step of Coltrane changes passes from one hexatonic system to another it is not maximally smooth; another way of illustrating this is to point out that it is a

PR/RL cycle and, therefore, uses only compound transformations. However, Cohn points out that “without exception, voice-leading between triads in neighbouring systems is more efficient than between triads in complementary systems” (25). As Cohn’s system is arranged like a standard compass, the Northern/Eastern and Southern/Eastern pairings used in 26-2 are ‘neighbouring systems’; ‘complementary systems’ are those at opposite compass points. The symmetrically patterned voice leading of Coltrane changes leads to an aural experience which Santa claims “communicates the same feeling of seamlessness that one experiences when listening to Cohn’s hexatonic system.” (16)

When discussing NRT’s potential as analytical tool for jazz, Sara Briginshaw claims that “Jazz music is particularly well suited to [NRT’s] specific techniques as the genre exhibits similar behaviours to those of the Romantic period, including a daring shift from tonality and a focus on common-tone preservation” (2012, 84). While I broadly agree with this statement its weakness is its failure to identify what type of ‘Jazz music’ it is referring to; there would be little to be gained from a NRT analysis of most jazz pre-1945 as “[t]he first few traces of the dissolution of conventional tonality began to show a couple of years after the initial phase of bebop in some jazz forms of the fifties” (Berendt 1984, 179). Coming, as it does, a decade or so after the bebop era, 26-2 is one of the earlier pieces in jazz which can benefit from a NRT approach because it transgressed the jazz conventions of its time by containing passages featuring “a strict pattern of pitch-class transposition through chromatic space” (Cohn 25). However, any comprehensive analysis of the piece must give sufficient weight to its tonal elements: the background harmonic architecture, the presence of cycles of fourths and the structure of Coltrane changes itself which, although symmetrical, is characterised by a series of dominant-tonic relationships. The duality of tonal and third based harmony is at the heart of 26-2 so the analytical techniques most appropriate for it will be those which are able to reconcile these two approaches and describe how they operate together. The combination of NRT with a standard tonal analysis offers this possibility and

the tonnetz is a valuable tool for displaying the second syntax of Coltrane changes vertically along side the horizontal first syntax harmony.

The most significant area of research necessary for a deeper understanding of this piece is the integration of seventh chords into the NRT picture, which typically assumes “the a priori status of consonant triads” (Cohn 12). Work has been done in this area by Adrian Childs (1998), Julian Hook (2007) and others but little of it specifically caters to the needs of the jazz analyst. A more in-depth discussion of the role of parsimonious voice leading in 26-2 is also warranted. Coltrane was not the first jazz composer to use third related harmony but the influences which lead him to the cycles in 26-2 demonstrate that it was “a ‘jazz’ take on the ‘classical’ idea” as well as “a ‘jazz’ idea too” (Goodheart 2001, 87).

Word count (excluding diagrams): 2949

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