

A semiotic approach to jazz improvisation

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Abstract

Semiotic theory and cognitive science offer ways to redefine musical analysis across the barriers of tradition. In this essay an analysis of a famous jazz solo is used as a paradigm example. Musical expression is seen as embodied, musical phrases as internalized gestures and musical form as a cognitive map of a virtual space in which the musical “play” is unfolded.

Fakebooks and real practise

The advent of bebop in the 1940s marked a significant change of the improvisational strategy in jazz¹. In early jazz and swing the improvisation unfolded from the melodic form, but in bebop - and beyond – improvisation found its foundation in the harmonic structure of the piece: “the changes”. In order to express yourself fluently inside the new jazz idiom, you had to become an adept in music theory and develop the ability to design harmonic structures that would promote the type of improvisation you were looking for. The reharmonisation of well known tunes was introduced as part of the working-schedule for a jazz musician, and, as a long range result of this, the most widely shared tunes today exist in a broad variety of manifestations, in which the harmonisations differ to a larger or smaller degree reflecting the personal style of the designer.

This development has led to the existence of a profuseness of fakebooks, where many songs appear in different harmonisations, depending not only on which recording has been transcribed, but also on the musical philosophy of the transcriber. Consider the following four harmonisations of the A-section of Sonny Rollins’ classic “Oleo”, which harmonically is a simple “I Got Rhythm”-structure (see Example 1). The differences presented here reflect varying approaches to improvisation on an 8-bar A-section of a Rhythm-structure in Bb, ranging from the simplistic prescription in *Jazz Fakebook* to the detailed two-chords-to-a-bar notation of *The Real Book* and *The New Real Book*.

Example 1

The Colorado Cookbook	Bb	Cm7 F7	Bb	Cm7 F7	Bb7	Eb7 E°7	Bb	Cm7 F7
Jazz Fakebook	Bb	./.	./.	./.	./.	./.	./.	./.
The New Real Book	Bb6 Gm7	Cm7 F7	Bb6 G7	Cm7 F7	Bb6 Bb7	Eb6 Ebm6	Dm7 Gm7	Cm7 F7
The Real Book	BbΔ G7	Cm7 F7	BbΔ G7	Cm7 F7	Fm7 Bb7	EbΔ Ebm6	BbΔ G7	Cm7 F7

¹ See for instance Deveaux 1997, Gillespie 1979.

We see that different notations can point to the same underlying structure, which in three of the four examples given here includes a move to the subdominant level in bars 5 and 6.

Here we are dealing with a dynamic phenomenon. In Chomskyan terms we could speak of a surface structure, represented by the written chords, and a deep structure, the implied instruction to “vamp” in Bb². This raises a number of questions concerning the dynamic interrelationships between the different structures involved, not least the remarkable fact that most musicians, without further thought, would identify an AABA-structure built from any of the tokens met in Example 1 as a set of “Rhythm-changes”. So we see that Rhythm-changes could be many things, and could be interpreted in many different ways.

The purpose of this study is to show how a semiotic approach can throw some light on this phenomenon. For this writer *semiosis* simply means the production of meaning, and the expressive act of jazz improvisation will be viewed as a semiotic process³. We shall see how the harmonic “text” - meaning the written chords – can be approached as a simple sign structure, and that such a procedure will disclose a dynamic relationship between form (the sign), content (the object) and expression (the interpretant). Developing the content structure – the dynamic object of the sign – we shall then investigate its narrative aspect, based on the assumption that the metric and harmonic foundation of the chorus represents a simple story, which is being told repeatedly by different voices, under differ-

² A vamp is a simple 2-bar structure circling around the tonic chord; its simplest form would be Bb-Gm7-Cm7-F7. Vamping can also refer to the extension of the form, for instance in an introduction to a piece (ex: vamp until cue).

³ The use of the terms ‘semiotic’ and ‘cognitive’ in this essay derives from the method called cognitive semiotics, which is being practised at Center for Semiotics in Aarhus <http://www.hum.au.dk/semiotics/> The fields of semiotics and cognitive science overlap when meaning-production is seen as a cognitive process.

ent circumstances, emphasizing different points and articulated in varying spectres of mood, tempo and intensity.⁴

The dynamics of articulation

Before proceeding further it will be necessary to offer some comments on the Chomskyan principles of generative transformation, which have been applied to music by Lerdahl and Jackendoff⁵. Chomsky's theories have been under attack from cognitive scientists in recent years for a number of reasons⁶ (the question of innate language competence and the existence of a Language Acquisition Device being one important issue)⁷. As this paper deals with music, not language, I shall not venture into this discussion. I merely wish to point out that two of Chomsky's contributions, which are also central for Lerdahl and Jackendoff's Generative Theory of Tonal Music (GTTM), will be useful in the present discussion. First, the idea of a deep structure that can be accessed from the surface structure through a specific set of rules, has found wide application. (In fact this idea is not unique for Chomsky, as a similar notion can be encountered in for instance Greimasian narratology, as we shall see.) Secondly, it has been shown through detailed analyses how a similar set of rules for the generative transformation of the intentional substance of the deep structure to the articulated expression of the surface structure can be developed for tonal music⁸. The GTTM and other related work demonstrates that the interrelationships between chords can be interpreted on a number of levels. However, I do not believe that

⁴ The sign theory of Peirce and the generative theory of Chomsky will be treated as common background without further introduction. For an introduction to these topics see for instance Monelle 1992.

⁵ Lerdahl and Jackendoff 1996 (1983).

⁶ See for instance Lakoff and Johnson 1999.

⁷ The question under debate is, whether babies are born with some device - like a tape recorder or an electronic dictionary - embedded in the brain, or if they have to invent everything from scratch every time.

⁸ Lerdahl and Jackendoff 1996 (1983). Strunk 1979 and Steedman 1984 have applied similar ideas to the analysis of chord structures in jazz.

there exists a fixed set of rules in the musical substance nor in the human mind / brain, which guides the process of transformation through predetermined channels. Rather, building on my own experience as a jazz musician and on that of others I have performed with, it is my conviction that such a transformation is a fluid as well as a dynamic process, and that it is an integrated part of the jazz musician's creative ability and choice of stylistic approach.

Blues and the abstract truth

Let us look at another example: the blues. The blues form can be varied almost indefinitely and still be a blues. Even across genres like rock and jazz the form will be consistent and self-explanatory: 3 x 4 bars, where you move to the subdominant in bar 5-6 and touch upon the dominant in bar 9-10. Tied to the idea of the blues is a specific flavour of phrasing and a surprising tonal flexibility: even on top of a sophisticated schema of many changes (like the Parker-example below) it is still possible to play the same few notes derived from a simple blues scale, like for instance (in C) C-Eb-F-G-Bb, and it will sound great as long as you can maintain the anticipation of an eventual return to the basic tonality.

Example 2

Hendrix	C7	F7	C7	C7	F7	F7	C7	C7	G7	F7	C7	G7
Parker	Cmaj7	Bm7 E7	Am7 D7	Gm7 C7	Fmaj7	Fm7 Bb7	Em7 A7	Ebm7 Ab7	Dm7	G7	C Am7	Dm7 G7
Coltrane	C7	F9	C7	C7	F7	Bb7	Eb7	Ab7	G7	F7	C7	C7
Mingus	C7 Bb7	C7 Bb7	C7 Bb7	C7 Bb7	Ebm7 Ab7	Ebm7 Ab7	C7 Bb7	C7 Bb7	Am7 D7	Gm7 C7	Fm7 Bb7	C

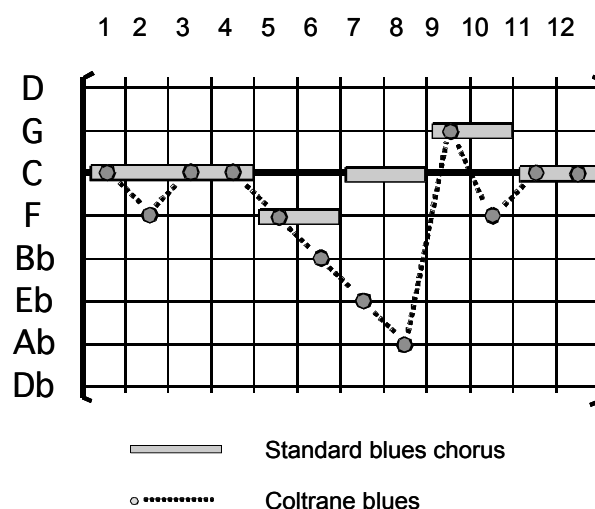
Example 2 presents four different interpretations of the blues structure⁹ (in order to facilitate comparison they have been transposed to the key of C). They appear to be very different, but they are all interpretations of the same basic structure. This basic blues

⁹ The examples are derived from: Hendrix's version of "Let the Good Times Roll"; Parker's "Blues for Alice"; Coltrane's "Some Other Blues" and Mingus' "Nostalgia in Times Square".

structure is presented graphically in example 3, where it is represented by horizontal boxes outlining a path through a two-dimensional musical space, where time runs horizontally from left to right, while the tonal dimension runs vertically, and is given as a continuum of the cycle of 5ths with the tonic, in this case C, in the zero position.

A graphic representation like this is an example of what I would call metaphorical visualisation of musical material, which is quite common. It is based on what cognitive science calls “mappings” between properties in different domains, and facilitates the understanding of complex information, much the same way that metaphors in language do¹⁰. In this case, the vertical presentation of bars as numbers on a line is derived from a mapping between ‘time’ and ‘movement’ (compare the linguistic metaphor ‘timeline’). The vertical presentation of tones is similar to the metaphoric idea of scales, where the tones are pictured as steps on a ladder (compare the Italian word ‘scala’ which means staircase), and the mapping is based on the idea that ‘high-is-up’ and ‘low-is-down’. The embedding of the musical experience in a quasi-physical space is tied to the whole idea of embodiment of musical meaning, which I have dealt with elsewhere¹¹.

Example 3



¹⁰ For a thorough discussion of this phenomenon see Zbikowski 2001.

¹¹ Kühl, 2002; Kühl, under prep.

In example 3 we can compare the path of the basic blues structure to the path marked by the Coltrane-blues. Although the two paths clearly differ, their claim to similarity is based on the fact that they coincide at three salient points in the virtual space represented¹²: bars number 1, 5 and 9. It seems, then, that metrical considerations are powerful in musical thinking. We can compare the variations of the blues with a game, in which you move along a given route, but the rules only command you to touch on 3 specific places at 3 specific points of time: the rest of the time you can take a deviating route if you wish to do so.

Musical form can then be understood as a cognitive map in the brain¹³, which in a metaphoric or symbolic way outlines a path through a virtual space. Stylistic conventions and personal preferences provides the map with a set of rules for specific actions at specific times, at the same time leaving the subject, who is travelling along the path, free to deviate from the shortest way between points, and to choose his own manner of locomotion limited only by conventions and preferences. This is a rich approach, which opens many new ways of explaining differences in genre, style, culture etc., but for the present we shall limit ourselves to the discussion of jazz improvisation. The kind of map employed here I shall call a Metric/Harmonic frame (M/H frame) for improvisation, and it will be dealt with in more detail below.

Reharmonisation

In chord based jazz improvisation the variability of the musical form is tied to the disciplines of chord substitution and reharmonisation. At this point I wish to introduce

¹² Note that the same can be said of the other two pieces in ex. 3, if, in the case of the Mingus blues, we consider the Ebm7-Ab7 in bar 5 as a substitution of F (it is derived from an F minor scale), and the Am7-D7 in bar 9 as a substitution for G.

¹³ Hutchins 1995.

some of the methods that jazz musicians have developed for the reharmonisation of given chord structures. I intend to apply these rules as analytical instruments in the context I have developed. The GTTM, and similar analytical methods, are limited in their approach, as they only concern themselves with the receptive or perceptive side of musical meaning production, leaving out the productive side. I wish to argue that such a theory cannot be complete, if it does not consider how music was conceived of in the first place, and here jazz improvisation seems to provide a better template than music, which was written down a long time ago.

Looking again at example 4 we see that instead of the usual path through two bars in F followed by two bars in C and on to G (two positions in the cycle of fifths in the sub-dominant direction), Coltrane draws an alternative path, which involves four positions on the cycle of fifths in the dominant direction: F7 to Bb7 to Eb7 to Ab7, where the penultimate chord, the Ab7, is only one half step from the target, the G7 in bar 9. The Ab7 can then be reinterpreted as a tritone substitution for the dominant of G7, and with this elegant move we arrive at the target on time.

This is one example of reharmonisation creatively used. Another example is the Mingus-blues, where the F7 in bars 5-6 is substituted with an Fm7 (a common enough switch called modal interchange¹⁴), which is subsequently substituted with the Ebm7-Ab7 construction. Likewise in bars 9 through 11 Mingus substitutes the G7 to F7 to C7 of the basic blues structure with a sequential device similar to the one Coltrane employed. Starting on Am7-D7 in bar 9 (substituting the G7 with its IIm7-V7) it follows the sequential logic through Gm7-C7 in bar 10 (touching on the G root reinforces familiarity, but is not essential for the device to work), and on to Fm7-Bb7 in bar 11. This delays the arrival of the

¹⁴ On this and other theoretical issues see Nettles and Graf 1997.

tonic chord, and substitutes the expected tonic in bar 10 with another common substitution: IVm7-bVII7 instead of IIm7-V7.

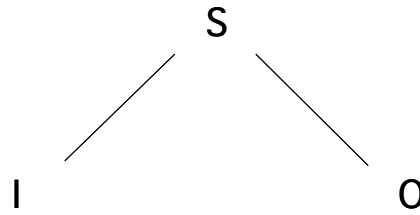
Jazz improvisation is full of devices like these, and furthermore, they tend to work in both directions. For instance a simple rule for substitution says that when we meet with two bars of a V7 chord, we are free to substitute the chord in the first of these bars with a IIm7: V7-V7 can become IIm7-V7 (the metrics can even be varied, just as long as you end up on the V7). Similarly we could say that the chord sequence IIm7-V7 could be read as V7-V7. Another substitution rule allows you to introduce a dominant chord, when a tonic chord takes up ample space: IΔ7-IΔ7 becomes IΔ7-V7. This could similarly be reversed this so that the construction IΔ7-V7 could be simplified and seen as IΔ7-IΔ7 (and here, too, the metrics are variable).

Rules for reharmonisation demonstrate the fluidity of a set of changes for the performing jazz musician. We shall study this phenomenon more closely, using a specific Charlie Parker solo as an example. The improvisational act will be seen as a signification process, in which the given changes (the Harmonic Text) constitute the sign. Reharmonisation and chord substitution are instrumental in a semiotic process, which yields what in Peircean terms is known as the interpretant (the Actualised Version) and the dynamic object (the Metric/Harmonic Frame)¹⁵. The three elements of the Peircean sign structure have by other semioticians been understood as similar to Form, Expression and Content¹⁶.

¹⁵ It may be noted that my understanding of the sign structure is in variance with that of Tarasti and others, who provide a connecting line between I and O. I am convinced that there can be no relation between the interpretant and the object except through the sign – otherwise what do we need signs for?

¹⁶ See for instance Hjelmlev 1961.

Example 4: The Peircean sign structure



The musical sign: the Harmonic Text

Some of the oldest surviving examples of bebop were recorded at a session in Los Angeles in 1946, with a Charlie Parker-led group including a very young Miles Davis on trumpet. The session produced a number of classical Charlie Parker solos, including the famous alto-break in “A Night in Tunesia” and the piece we will discuss here, “Ornithology” (see example 5). We shall approach the discussion from the level of the Harmonic Text.

Example 5

Ornithology Benny Harris/Charlie Parker

The musical score for "Ornithology" is presented in six staves. The key signature is one sharp (F#) and the time signature is 4/4. The score includes various chords and rhythmic patterns, such as eighth notes, quarter notes, and triplets. The chords are: Gmaj7, Gm7, C7, Fmaj7, Fm7, Bb7, Eb7, Am7(b5), D7, Gm7, D7(#9), Bm7, E7, Am7, D7, G, D7, Bm7, E7, Am7, D7, G, E7, Am7, D7.

The musicians involved in the session were all well acquainted with the changes for “Ornithology”, as it is based on the standard “How High the Moon”. It is extremely unlikely that they would be playing from leadsheets or written chords: they would simply know the song. But, as discussed earlier, knowing the song does not mean sharing the same concept of the harmonisation of the song. Just as was the case with the Rhythm-structure, several possible interpretations exist; in fact most fakebooks today provide deviating harmonisations of “Ornithology”. Nevertheless, in order to be able to play well together, the musicians must have had one particular harmonisation in mind, with the possibility of minor deviations at strategic points. This mental picture would be a reharmonisation of “How High the Moon”, involving a number of applications of one of bebop’s most important devices: the II-V-I progression. Such a shared notion of a set of changes to use for improvisation I shall call the Harmonic Text (HT)¹⁷, the text that is to be collectively interpreted. I have reconstructed the changes of “Ornithology” in example 5 above.

The musical interpretant: the Actualised Version

In the solos, the HT is being interpreted in a personal way. Leaving aside for the present investigation the melodic gesturing of the improvisation and other musical parameters¹⁸, we shall concentrate on some of the harmonic deviations from the text. The first 16 bars of Parker’s solo are shown in example 6 below.

¹⁷ Because it could have been written down.

¹⁸ For a study of the melodic gestures in “Ornithology” see Kühl, under prep.

Example 6

Parker's solo in Ornithology

The musical notation for Parker's solo in Ornithology consists of four staves of music in 4/4 time. The first staff starts with a G chord and contains a triplet of eighth notes. The second staff starts with an F chord and contains a triplet of eighth notes. The third staff starts with an E7 chord and contains a triplet of eighth notes. The fourth staff starts with a Bm7 chord and contains a triplet of eighth notes. The chords are: G, Gm7, C7, F, Fm7, Bb7, E7, Am7(b9), D7, Gm, D7(#9), Bm7, E7, Am7, D7.

Parker does not follow the HT slavishly, but performs an online reharmonisation following a number of substitution rules. The harmonic variations are shown schematically in example 7 below.

Example 7

Interpretant	D7 G	G	Gm7 C7	Gm7 C7	F	Bbm FA9	Fm7 Bb7	Fm7 Bb7
Sign	GA7	GA7	Gm7	C7	FA7	FA7	Fm7	Bb7

Interpretant	Eb9	D7(b13)	D9 Gm	D7b9b13	Bm7	Bm7 E13	Am7 D13	Am7 AbΔ7
Sign	EbΔ7	Aø D7	Gm	D7(#9)	Bm7	E7	Am7	D7

In the first bar we encounter one of the rules we met earlier, that when we have a I chord we can substitute it with the progression V7-I. In bars 3-4 we meet the other rule discussed earlier, which says that a V7 can be substituted with a IIm7-V7 and vice versa; or in other words that the metrics of the IIm7-V7 progression can be treated quite freely. The Bbm in bar 6, which serves as a passing chord, is another common substitution of F

with the IVm of F. And in bars 7-8 we meet the free rhythmical treatment of the IIm7-V7 progression. In bar 9 the Eb Δ 7 is substituted with a Eb7, a substitution called modal interchange, where chords with the same root but with different primary scales¹⁹ are considered interchangeable. The principle of modal interchange again applies to the substitution of D7 with D7(b13) in bar 10, while at the same time II \emptyset is omitted according to a now well known principle. Bars 11 through 16 provide more examples of the two rules of the interchangeability of I, IIm7 and V7. In bar 16 the Ab Δ 7 provides stability for a melodic chromaticism, while at the same time combining a tritone substitution (Ab7 for D7) with a modal interchange (Ab Δ 7 for Ab7).

So we can see that all the “changes of the changes” that Parker employs are well within the common practise of bebop. Taken as a whole they represent an actualised surface structure expression of the potential form of the Harmonic Text. There exists, however an even deeper content level, which semiotically is seen as the object of the sign. We shall now explore this possibility further.

The musical object: the Metric/Harmonic Frame. Harmonic properties

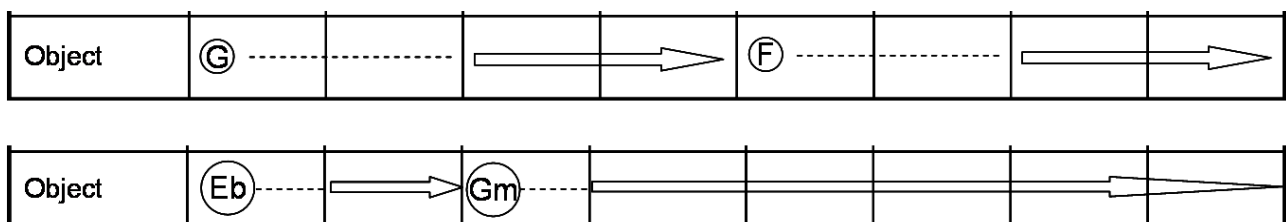
In our discussion of the different blues harmonisations earlier in this text, we were introduced to the idea of a virtual map, which outlines a timed route through a virtual space (see example 3). What I am saying now is that such a map becomes the dynamic object of the semiotic process of improvisation. The sign is the harmonic structure of the piece on a specific level (the Harmonic Text). The interpretant is the harmonic variation of this structure as articulated online (the Actualised Version). The object of the signification process or semiosis is the mental representation or the cognitive map of a route through a virtual physical space.

¹⁹ The primary scale is the scale which is thought to best fit the sound of the chord, see Nettles and Graf 1997.

Such a map will have a number of properties, which we shall explore in more detail below. However, the very existence of it is tied to the fundamental idea that musical meaning is embodied, as we have touched upon earlier in this discussion. (It should perhaps be emphasised that although I name the cognitive map as the object of the improvisation, this is in a strictly Peircean way and does not imply that such a map is the purpose of musical expression – there are several layers of meaning in play!)

The cognitive map as a dynamic object guides or frames the improvisation according to a number of metric and harmonic properties, which is why I call it the Metric/Harmonic frame (M/H frame). Let us start with the harmonic properties of the map, and let us look once more at example 3. Here the harmonic properties of the standard blues chorus were symbolised as blocks of two or four bars length, while the Coltrane-blues moved along a different pathway, which pointed out the tonic chord in bar 1, the subdominant in bar 5 and the dominant in bar 9. This contrast exemplifies a marked stylistic difference between a rock-blues and a bebop-blues. Where rock musicians don't give much thought to the possibilities of the dominant chord, bebop musicians excel in exploring ways to move from one chord to another: this is what the IIm7-V7 progression is all about.

Example 8



Example 8 shows us the M/H frame for the first 16 bars of "Ornithology". The salient points, harmonically, are the G in bar 1, the F in bar 5, the Eb in bar 9, the Gm in bar 11 and the G in bar 17 (not shown here). These are some of the necessary indicators of the form, identifying this piece as "Ornithology" / "How High the Moon" and none other.

Following each of these points there is a period, marked as a dashed line, where we harmonically stay in the same area (see also example 9 below, where the full structure of the first 16 bars is given). The stable period typically takes up half of the time between one point and the next, the other half showing a prolonged arrow, which indicates a movement towards the next point (the exception being the long “turnaround” before moving into the second half of the chorus). Such a movement I referred to above as one of the characteristic strategies of bebop, where musicians negotiate the change from one chord to the next through various means, mainly centred on setting up directional tension or dissonance, which will lead tonality in a specific direction (the IIm7-V7 progression and everything that can be derived from it). In jazz there has been a huge effort towards creating a large variety of ways to prepare or “set up” a chord shift, not only through chord substitutions, but also through the use of alternate scales (e.g. altered and diminished scales) and melodic devices.

Before leaving the harmonic properties of the M/H frame we shall take a note for later use. When you play through the changes for “Ornithology” you experience a constant shifting back and forth between on the one side a stable harmonic level – the G, the F etc. – and on the other side a movement towards the next stable tonal level (the arrow), or in other words between a harmonic state and a harmonic event. This observation will be useful when we are going to discuss the narrative aspect of the chorus. Before doing this, however, let us look at the metric properties of the M/H frame.

Example 9

Interpretant	D7 G	G	Gm7 C7	Gm7 C7	F	Bbm FΔ9	Fm7 Bb7	Fm7 Bb7
Sign	GΔ7	GΔ7	Gm7	C7	FΔ7	FΔ7	Fm7	Bb7
Object	Ⓞ	-----	====>	====>	Ⓞ	-----	====>	====>

Interpretant	Eb9	D7(b13)	D9 Gm	D7b9b13	Bm7	Bm7 E13	Am7 D13	Am7 AbΔ7
Sign	EbΔ7	Aø D7	Gm	D7(#9)	Bm7	E7	Am7	D7
Object	Ⓞ	====>	Ⓞ	-----	-----	-----	-----	-----

The musical object: the Metric/Harmonic Frame. Metrical properties

The metrical properties are at least as important for guiding the improvisation as the harmonic properties, but because of their apparent simplicity they are often overlooked in a discussion of jazz improvisation. They constitute the ground not only for a chord based approach to improvisation, but also for a melody based approach like we meet in so called swing music, which is one reason why swing and bebop musicians could mutually benefit from playing for instance "How High the Moon" / "Ornithology" together. You could say that the metrical properties measure out the distances; they quantify the route, while the harmonic properties qualify it. Or, to put it differently, the metric properties determine when to proceed, while the harmonic properties tell you how to proceed.

The thirty-two bars of "Ornithology" subdivide into two 16-bar segments, and these subdivide once more into four 8-bar segments. The first and the third of these are similar, which is why we call it an ABAC-form. Let us take another look at example 9, which shows the first of the two 16 bar segments, the A and the B. The A is nicely symmetrical, as

it subdivides into two similarly shaped 4-bar segments one whole step apart, and these again subdivide into roughly two bars of state and two bars of event. Counting 2-bar units we get a simple progression of STRONG-weak-Strong-weak²⁰. This repeats itself in the second A, with the one exception that this time you know it is the second time around, you know that you did this once before and that this time you are going on in a different direction than the first time (although inept musicians often negotiate their way from chord to chord, expert musicians know exactly where they are at any given moment).

The second half of the two 16-bar segments, the B and the C, are not symmetrical. They do not subdivide into two 4-bar segments as naturally as the A's do. They could both subdivide into four bars + four bars as well as into two bars + six bars, where the first 2-bar segment (which is identical for B and C) is like a diminished version of the 4-bar segments in A: the state/event shift compressed into half the space. What's more, at this place we meet with a significant point of formal contrast between the B and the C: the Gm in bar 11 vs. the G in bar 27. We are returning to the tonic chord (in C) or to its minor "sister" (in B) at a point, which holds an unstable position in the metrical grid that was established in the A-section. The point of return, the third of the 4 bars, is felt to be less strong than the first of the 4 bars, where we hit the point of greatest contrast to the tonic, the Eb. Not only has the metrical balance been upset, but the subdivision is ambiguous, as the bars 11-12 in B and 27-28 in C could belong to the group before them as well as to the group coming after them.

The rest of the 16-bar segments (AB and AC) is spent in regaining the metrical equilibrium, and in establishing the tonic chord in a more convincing way. Hence the long turnaround in B, which leads straight into two bars of G in the next A-section. And hence the two 2-bar turnarounds at the end of C. Notice here the doubling of the harmonic

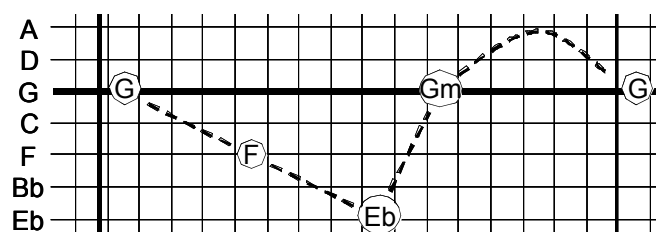
²⁰ For a discussion of the impact of the strong-weak paradigm on harmonic architecture see once again Nettles and Graf 1997.

rhythm. And notice especially the perhaps most prominent contrast between the B and the C: the G in bar 31. Where the B-section uses 4 bars to prepare the jump into G at the beginning of the second A, the C-section “hits home” 2 bars before the end, allowing the soloist and everybody else a breathing space to ease out of the chorus and prepare for the next.

The narrative pathway

We have so far explored the HT as a sign structure and the improvisational act as a semiotic process through which meaning is unfolded from the sign. And we have argued that the content structure of the sign, the dynamic object, can be understood as – I shall even venture to claim that it is experienced as – a journey through physical space, or at least as a mental representation of such a journey. We are speaking of a cognitive map, representing a route through a virtual space, which - in the case of bebop²¹ - takes the form of an M/H frame, guiding or framing the improvisation. Finally, we have compared this phenomenon with a children’s game that has a set of rules concerning times, places and ways to perform, along with a considerable amount of freedom to play. What we need to do now is to explore the narrative aspects of the content structure of the dynamic object: the journey-as-story.

Example 10



In example 11 I have positioned the M/H frame of “Ornithology” in a grid like the one used for the basic blues structure in example 3. As you can see the manner of repre-

²¹ Presumably such a cognitive map can take on various forms dependent on cultural and stylistic factors.

sensation is similar to the way the Coltrane-blues was represented, reflecting the improvisational strategy of the bebop musician. It is easy to interpret this as a map of a route through space. But how will this be understood as a story?

The simple answer to this question is found in cognitive science, where it is held that even the simplest constellations are interpreted by the mind as stories²². Anything that you can narrate is a simple story: pouring milk into a cup; going to the supermarket; tying your shoelaces. Simple stories are single events that lead from one state to another, a process that can be metaphorically understood as moving from one place to another. So a harmonic structure that begins in the tonic key, moves to someplace else and finally returns to the tonic will be a story – one of the good ones that can be told again and again (hence the room for variations!). Cognitive scientists, semioticians and others believe that human beings always create stories, and that we have an innate drive to understand everything that happens to us and in the world by incorporating it into a narrative framework. This is what understanding means: to insert single events into a larger context.

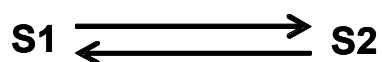
That was the simple answer. The more complex answer involves the narrative theory of the French semiotician A.-J. Greimas²³. He claimed that a narration has a surface syntax, a deep syntax, and a narrative core. The narrative surface syntax is the unfolding of the story as we meet it; the deep syntax involves the unfolding in time of the central issue or narrative core; and the narrative core consists of the dynamic relations between two oppositional terms: black > < white; night > < day; good > < evil. The way films are told is a good example of this. A film has a beginning, a middle and an end. The beginning moves from a state of equilibrium to the introduction of a conflict (an opposition), which is often personified (black hat-white hat). The middle develops a number of dynamic constellations of this conflict along with a way to resolve it. And the end creates the solution and

²² Mark Turner 1996, Lakoff and Johnson 1999, and Imberty 2001.

²³ Greimas 1979. For an introduction to narrative theory see Monelle 1992.

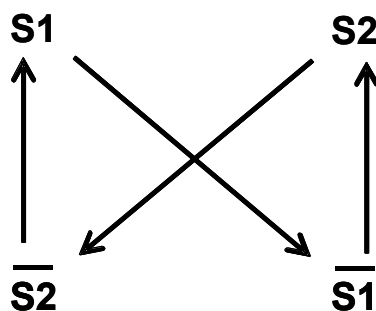
brings us to a new state of equilibrium. Such a structure represents the unfolding of the narrative core into a deep narrative syntax, which again is transformed to surface syntax in the actual telling of the story. According to Greimas and his associates and followers this whole dynamic complex of narrative surface, deep syntax and core is present in all forms of art. (Even in experimental works of art that consciously try to defy it, it is still there in a counterfactual form, because we, the spectators, are looking for it)²⁴.

Example 11



In its most abstract form the narrative core is an opposition between two contradictory terms or subject conditions: S1 and S2 (see example 12). However these two terms also exist in their negated form: not-S1 and not-S2, which leads to a constellation of four terms called the semiotic square. This unfolds in time as a deep syntactic structure of the narrative (see example 13).

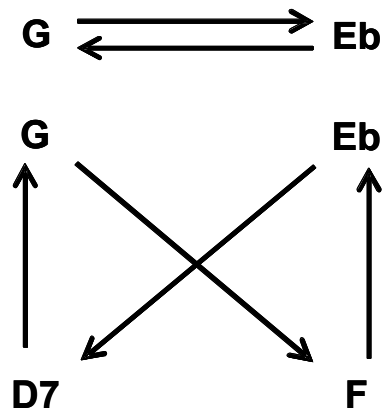
Example 12



“Ornithology” operates harmonically in an opposition between the tonal levels of G and Eb. If we insert the information of the narrative pathway of “Ornithology” into the semiotic square, we get the following rendering of harmonic cycle:

²⁴ Compare the famous statement of French director Jean-Luc Godard. To the question, whether he believed that a film should have a beginning, a middle and an end, he answered: “Yes, but not necessarily in that order.”

Example 13



The core opposition between G and Eb unfolds in a cycled patterned movement. Something (a II_m7-V7) forces the subject to abandon the G position and move to F (not-G). Continued movement will logically lead to Eb (the oppositional term). In order to recapture the original state of equilibrium, the subject must bring itself to the dominant position, which means reaching the D7. From here the tension is released naturally, the subject is brought back to its original state and the cycle is completed.

Before leaving the topic of narrative theory and its application to music, it is worthwhile bringing another aspect to attention. We have dealt with the narrative core and the deep syntax, but it appears that even on the surface level a harmonic construction like “Ornithology” unfolds according to the principles of narrative theory. According to Greimas, the narrative surface syntax consists of a syntagmatic chain of, what he calls narrative programs. A narrative program (NP) is the basic unit of the articulated story, which unfolds in time through the linking together of NPs. An NP consists of two elements: an enunciation of doing, which controls an enunciation of state, or in other words an event related utterance and a state related utterance. During the discussion of example 8 and 9, we made a note of how the harmonic structure could be broken down to a succession of states, which were the harmonically stable parts, and events, the harmonically dynamic

parts, the dominant constructions which were in a manner of speaking in control of the succeeding states.

Conclusion

We have set out to approach jazz improvisation as a semiotic process, to explore the unfolding of the sign structure, and to investigate the content structure of the sign as a narrative pathway. During this procedure we have mainly concentrated on the chord changes, the material for traditional music analysis. But of course there are other parameters involved in the musical semiosis than the harmonic one. A more complete picture should not only include rhythm and melody, intensity, curve and timbre, but also factors as the sociocultural framing, which influences the personal expressiveness of the artist (the situatedness).

However, I hope that the material presented here has shown that a semiotic approach can provide a very rich approach. It can not only tell us something essential about the piece being investigated, but together with cognitive science it offers a range of tools that can help us to compare and bring to the foreground a number of distinctive stylistic features. It has long been held that musicology has too little to offer the analysis of jazz and popular music, and that the gap between analysis and the actual experience of the music is too great to make any real sense. Semiotics can help bridge that gap, and may lead us further towards musical meaning as a many-layered thing, which involves and expresses human experience in a very complete way.

Works Cited

Author unknown. Date unknown. *Jazz Fakebook*. Private circulation.

Author unknown. Date unknown. *The Colorado Cookbook*. Private circulation.

- Author unknown. 1988. *The New Real Book*. Petaluma, CA: Sher Music Co.
- Author unknown. Date unknown. *The Real Book*. Private circulation.
- Deveaux, Scott. 1997. *The birth of bebop: a social and musical history*. Los Angeles: University of California Press
- Gillespie, Dizzy. 1979. *To be, or not ... to bop: Memoirs*. With Al Fraser. New York: Doubleday.
- Greimas, Algirdas Julien, and Joseph Courtés. 1979. *Semiotique: Dictionnaire raisonné de la théorie du langage*. Paris: Hachette.
- Hjelmslev, Louis. 1961. *Prolegomena to a theory of language*. Madison: The University of Wisconsin Press.
- Hutchins, Edwin. 1995. *Cognition in the wild*. Cambridge, Mass.: MIT Press.
- Imberty, Michel. Innate Competencies in Musical Communication. In Nils L. Wallin, Björn Merker and Steven Brown, eds., *The Origins of Music*. Cambridge, Mass.: MIT Press.
- Kühl, Ole. 2002. Cognition in jazz improvisation. *Odense working papers in language and communication: The way we think*. No. 23 vol. 2.
- Kühl, Ole. Under prep. *Phrase, gesture and temporality: A cognitive perspective on jazz improvisation*.
- Lakoff, George, and Mark Johnson. 1999. *Philosophy in the flesh: The embodied mind and its challenge to western thought*. New York: Basic Books.
- Lerdahl, Fred, and Ray Jackendoff. 1996 (1983). *A generative theory of tonal music*. Cambridge, Mass.: MIT Press.
- Monelle, Raymond. 1992. *Linguistics and semiotics in music*. Chur, Switzerland: Harwood Academic Publishers.
- Nettles, Barrie, and Richard Graf. 1997. *The chord scale theory and jazz harmony*. Rottenburg: Advance Music.

Steedman, Mark J. 1984. A generative grammar for chord sequences. *Music Perception*. vol. 2 no. 1.

Strunk, Steven, 1979. The harmony of early bop: A layered approach. *Journal of Jazz Studies* vol. 6 no. 1.

Turner, Mark. 1996. *The literary Mind*. New York: Oxford University Press.

Zbikowski, Lawrence M. 2002. *Conceptualizing music: Cognitive structure, theory and analysis*. New York: Oxford University Press.