

# TONAL AND RHYTHMIC STUDIES IN THE INTERNATIONAL JAZZ CULTURE

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**Abstract.** *Jazz musicology mostly dealt with the history of its evolution, forgetting the musical process which generated it. Born by the interference of the folkloric African-American modal with the cultured Western tonal and rhythmic system, the jazz process developed empirically and amateurish at first. Then it became professional by musically training composers and performers in higher education, jazz reaching thus nowadays high standards, comparable with those of the contemporary, cultured music.*

**Keywords:** *Jazz, tonal, rhythm*

## 1. INTRODUCTION

Jazz music was shaped in a process that has been going on for about a century, in the course of which the music of the African American community, oligochordal and pentatonic in nature and having a supple and diverse rhythm, suffered the “aggression” of Western European tonal-functional music.

The phenomenon started at the end of the 19<sup>th</sup> century, when African Americans started to play European instruments (i.e. the trumpet, trombone, tuba, clarinet, guitar, banjo, piano) and also assumed the European repertoire (military marches, quadrilles, polkas, and so on) and the tonal-functional harmony. Formed in this fashion, the orchestras (*marching-bands*) would play this repertoire at various folk events [1].

Certainly, the African Americans’ playing technique, which was acquired in an amateurish fashion, as well timbre and rhythm, “leaned” slightly towards the spirit of African music.

The merging of African music (work songs, Negro spirituals, blues) with the tonal-functional music and harmony took place in the first third of the 20<sup>th</sup> century (1890-1930) in the styles ragtime, New Orleans, Dixieland, and Chicago. It was during this period (c 1910) that the piano was also introduced, which, due to its technical capabilities, especially from a harmonic and rhythmic point of view, would play an overwhelming role.

The crystallization of the jazz style was accomplished after 1930 through the generalization of the *Swing* phenomenon, which represented the so-called classical period (Swing Era, Golden Age). Then followed the evolution towards modern jazz (1940-1970), through the styles bebop, cool, and free. The bebop style lends speed and trepidation to the rhythm; the cool style calms the discourse, while the free style borrows the principles of the aleatoric trend of art music, the rhythmic flow abandoning meter and measure, until only a relatively coordinating pulsation remains.

During the contemporary period (i.e. after 1970), the jazz phenomenon spread to national areas (including the Romanian school) in the shape of *Ethno Jazz* and came closer to symphonic jazz, resulting in new rhythmic systems (like the aksak). In the meantime, the fusion of jazz and rock led to the obsessive repetitions (ostinato patterns) of some rhythmic units, especially in the case of the percussion and bass instruments that keep the tempo.

It may be said that contemporary jazz, having adapted the electronic techniques, has definitively become part of the general professional creation and performance technique, preserving only its availability for improvisation [2].

## 2. TONAL SYSTEMS IN JAZZ MUSIC

### 2.1. TONAL SYSTEMS IN MELODY

Jazz music was born out of the impact between the African Americans' oligochordal and pentatonic melodies and the Western European tonal-functional melody and harmony, at the end of the 19<sup>th</sup> century and the beginning of the 20<sup>th</sup> century. The phenomenon consists in the diatonic and chromatic intercalation of tonal-functional elements based on the two prevailing anhemitonic pentatonic scales of African American jazz.



For example, in this melody the B sound insinuates itself as a leading (functional) note for the C sound in relation to B flat as a natural sound of the 2<sup>nd</sup> pentatonic scale.



*N.B. The B natural from the descending melodic formula can also be interpreted as C flat, thus a superior leading note for B flat, in the spirit of slope attraction. [3]*

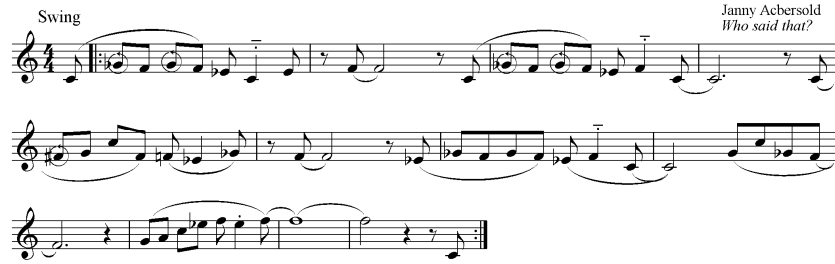


Because of the functional “pressure,” secondary/fluctuating notes<sup>1</sup> are also introduced, as is the case of the D and A sounds in this melody, a phenomenon that arises out of the necessity for a C “scale.”

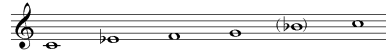


Similarly, a pentatonic sound, based on the functional principle, can attract a superior leading note (F will attract G flat) and G will then attract F sharp (see the encircled sounds).

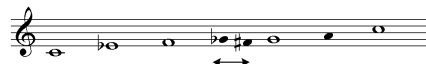
<sup>1</sup> called “pieni” in Romanian. According to Constantin Brăiloiu’s *Dictionary of Musical Terms* (Editura Științifică și Enciclopedică publishing house, Bucharest, 1984, p. 377), “the term, indicating secondary and fluctuating sounds, was adopted from the Chinese modal theory.” (translator’s note)



Thus, in the case of the basic pentatonic scale:



through the introduction of leading notes G flat (G flat-F) and F sharp (F sharp-G) and of the secondary/fluctuating note A, the scale will become:



The shaping of melodies is thus made under the pressure of the tonal-functional *harmony*. In the harmonic context (of the type C major) with the natural sounds E and B, the pentatonic melody maintaining the “minor” elements (E flat, B flat) and the F sound becoming F sharp (as a leading note for G ), a “compromise” is reached, which results in a powerful melodic expression, theoretically (emotionally) expressed through what will become the *blue scale*, comprising these sounds which lend the melody a deeply nostalgic expression.



The sounds E flat and B flat are thus “minor” sounds of the pentatonic scale in relation to the major harmony of the three functions of the major tonality



which will impose E natural and B natural, and to which F sharp is added as a leading note for the dominant, respectively from the chord of the counter-dominant



Thus, chromatic (major-minor) contrasts are created between the sounds of the melody and the sounds of the harmony, with strong expressive effects.

The melodic evolution in the following stages follows the path of tonal functionality, with a predilection for the minor tonalities, which contain the pentatonic minor third (E flat), but adopt however steps 6-7 (A, B) altered in an ascending (melodically minor) fashion.



The “nostalgia” of the minor step (B flat) is kept, sometimes reaching the limit of a two-thirds sound (B natural-B flat) like this song in G major, which results in an apparently false, ambiguous third (minor-major), when intoned in saxophone style.

Michael Brecker  
Delta City Blues



The process of adopting the tonal-functional principles in the case of the jazz melody continues up to the addition of the chromatic total based on leading notes for every sound of

the C scale, in which the original pentatonic background can still be felt diffusely (sounds with +).



Because of the professional musical instruction of composers and performers, after the 1960s, the primordial melodic specific (“Negro”) character fades, and the melody will adopt an intense chromaticism as well as inflexions and modulations (both diatonic and chromatic).

Bill Dobbins  
*Blues for Barry*

*Medium Fast Bebop*

Trompetă  
Trombon 1  
Trombon 2

Once jazz (ethno jazz) became a worldwide phenomenon, all the tonal-modal syntheses with the respective folklore opened up. Here is an example of the implication of Romanian folk chromaticism:

Johnny Răducanu  
*Doamnă*

Lento: 1 takt = 5"

\* N.B. Note the modal formulas specific to Romanian music

In the ethno jazz stage, the melody however still preserves elements of modal “purism” in synthesis with the tonal-functional system, transparent through the “music hall” character, namely repetitions, sequences, etc., consistent with the style of jazz.

At the same time, however, the interference with the tonal systems of European art music of the 20<sup>th</sup> century occurs. As the 1970s draw nearer, this process will lead to the disappearance of the melodic idea (theme), which is stifled by an aggressive and violent sound, equivalent to noise, and thus its tonal or modal concept is no longer perceptible.

At this point, jazz enters the same stage as all European art music, and namely the aleatoric stage, in which the process becomes metatonal [4].

## 2.2. TONAL SYSTEMS IN HARMONY

As in the case of melody, jazz music adopts, in its initial stages, the Western European tonal-functional harmony, but only at an *amateur level*, so that, consequently, the easiest thing to do was to include in the major tonality the three functions: tonic-subdominant-dominant.

Irving Berlin  
*The International Rag* (fragment)

The consequences of applying this functional pattern (which will ultimately also include the counter-dominant) were the following three:

1. The major third of the major tonic chord (E) came in collision with the pentatonic third (E flat)



2. The leading note (B) as a third of the dominant collided with the natural pentatonic sound (B flat)



3. The involvement of the counter-dominant also included the presence of its major third (F sharp), creating a chromatic step between the pentatonic natural sound (F) and the new leading note (F sharp)



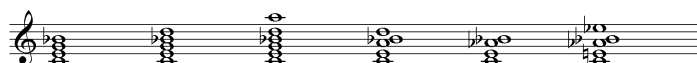
The chord stock of jazz music was thus formed on the basis of the triadic conception of the tonal-functional harmony, with chords formed via superimposed thirds, which also extend all the way to the seventh, the ninth, the eleventh, and even the thirteenth, to which are “added” notes either from the elements of the modal stock (which is preponderantly oligochordal and pentatonic) of “Negro” melodies or from those of the tonal-functional stock (natural or altered).

Here is a table of chords:

### 1. Major (dominant) chords

- a. With a seventh, a ninth, and added notes

a) Cu septimă, nonă și note adăugate



- b. With a seventh and other altered notes

b) Cu septimă și alte note alterate



## c. With an altered fifth

c) Cu cvintă alterată



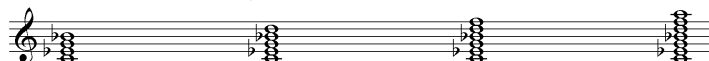
## d. With a major seventh, a ninth, an eleventh, and a thirteenth

d) Cu septimă mare, nonă, undecimă și terțdecimă

**2. Minor chords**

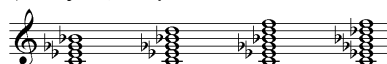
With a seventh, a ninth, an eleventh, and a thirteenth

Cu septimă, nonă, undecimă și terțdecimă

**3. Diminished chords**

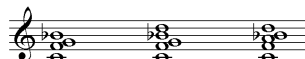
## a. With a seventh, a ninth, and an eleventh

a) Cu septimă, nonă și undecimă



## b. With other alterations or added notes

b) Cu alte alterații sau note adăugate

**4. Chords with added sounds, sevenths, and ninths**

It can be noted that the chords are based both on the major third of the major chord (tonal-functional) and on the minor third of the pentatonic system. Then comes the superimposition of the perfect, diminished, and augmented fifth, respectively. Consequently, the four types of triad follow (major, minor, diminished, and augmented). Sevenths, ninths, elevenths, and thirteenths will be added on the same principle of superimposing major and minor thirds. Out of the inversion of these chords result seconds based on the “added notes” principle.

It must be pointed out, though, that the “added” sounds come rather from the piano practice of jazz performers who, oftentimes, out of a certain technical “convenience,” kept fingers 2-3 and 4-5 almost stuck together, hitting two adjacent keys (thus major or minor seconds). Even the thumb (digit 1) could hit a second. All these seconds, upon a strict harmonic analysis, may appear as chords with inverted sevenths, ninths, elevenths, or thirteenths. This harmony “sounds” sufficiently discordant but its fundamental diatony, stemming from the oligochordal and pentatonic scales in association with the diatonic scale and the triad, will appear permanently, creating agreeableness.

During the ethno jazz stage however, although the harmony still preserves chords based on triads (with a seventh, a ninth, and added notes), the chromaticism of these chords becomes much evolved, gradually eliminating any tonal concept, so that during the free jazz (aleatoric) stage, it adopts any superimposition of sounds (cluster type).

One can note a parallelism between the evolution of tonal systems in jazz and the evolution of European art music in the course of the 20<sup>th</sup> century, as performers (and composers) become more and more skilled, more professional.

### 3. THE RHYTHM OF JAZZ MUSIC

The study of the jazz rhythm proper begins with the stage when the Afro-Americans' melody (work, spiritual, blues) becomes the content of the chant (vocal and instrumental). This process will stretch from the end of the 19<sup>th</sup> century to the first third of the 20<sup>th</sup> century (c 1890-1930).

The four styles (ragtime, New Orleans, Dixieland and Chicago) practiced during this period were formed, from a rhythmic point of view, through the embodiment of the "Negro" rhythm into the measure and tempo of some European town dances.

Thus, the rhythmic characteristics of ragtime and New Orleans consist in imposing a regularity pulsation called *beat* (time unit), which will be sustained by the rhythm section of the orchestra (consisting of percussion, banjo or guitar, and piano) and which consists in the stressing of divisions 1 and 3 (*two beats*) in a 2/2 measure.



The Dixieland and Chicago styles will move these accents onto divisions 2 and 4.



The metric pulsation adopts a *tempo* which is usually the marching tempo or the tempo of the dance steps out of which these styles were shaped.

Against this ostinato background, the melody, especially that of Negro origin, will have a rhythm with a wide variety of rhythmic formulas, which, using the legato between formulas, could pass over the bar, "floating" over the stereotypical (metro)-rhythmic pulsation.

Even this accompaniment (staccato, squared), in performance, acquires a certain buoyant character, creating the impression of "swinging" and "floating."

The style of the following stage - called *Swing* - will perfect the rhythmic character of jazz. Now the two vertical layers stand out even more prominently: the rhythm section and the melodic section.

The rhythm section evolves from the usage of the 2 stressed beats to the 4 stressed beats phase and the usage of the 2/2 time signature instead of the 4/4.



Even within the rhythm section, different instruments can invent diverse rhythmic formulas, based on beats however and within the limits of the measure. Thus, new and complex structures will appear, which oftentimes create series of phrases of 2 or 4 measures, repeated either by one instrumentalist, by a group, or by the entire section (called a riff), this being the foundation for an improvisation soloist, or even for the exposition of themes (melodies).

The new measure (4/4) and the new stressing of beats favors the tempo, which becomes more lively.

Thus, the *Swing* style becomes a new way of using rhythm, keeping at the same time the former styles' spirit of relativizing the "squareness" of the discourse.

It is only fit at this point to solve the "enigma" of the jazz rhythm, which, in everyone's conception and sentiment, is specific and detached from the rhythm of all other music genres.

In order to solve the enigma, we have to regard jazz from the perspective of the following two aspects:

- a) the technical aspect
- b) the performance aspect

a) From a *technical* point of view, the rhythm of jazz is a *giusto* rhythm. It uses the same elements of rhythm as any other music, namely: (1) time values, (2) intensities, and (3) tempi [5].

1. As far as time values are concerned, the jazz rhythm does not have system restrictions (the jazz rhythm is not a separate *system*). The time values are those obtained on the basis of the divisionary principle, especially the binary division (except the triolet) and binary cumulation. Rhythmic formulas are based on a binary beat unit, usually the

quarter note (♩).

A certain specific feature would be the extensive use of the syncope and off-beat, by which it exceeds the measure bar and sometimes creates (inconsistently, however) “oases” of *giusto*-syllabic or aksak rhythm.

2. The *intensities* (stresses) are placed inside the meter and have a certain *periodicity* (specific to the symmetry of the dance rhythm system), which the rhythm section keeps in a very strict way, regardless of the other stresses that the melody may bring (syncopation, melodic stress, timbre, prosody, and dynamic stresses, etc.) and by which it may appear that it oversteps metric squareness. In truth, within the large frame of the musical phrases, metric organization (usually 4+4) is usually respected by the melody, also, or even at the level of the measures, by the formation of certain melodic-rhythmic *motifs* as well as through melodic-harmonic cadences usually occurring on the strong metric beats.

Consequently, as far as the jazz rhythm is concerned, one cannot note an outstanding specificity, not even from the point of view of the stresses.

The dynamic stress, frequently used by the melodic section, always in a surprising manner, and often on the short time values of unstressed parts, will have a very important and somewhat specific role. Since these stresses are usually also perceived as part of the rhythm in other musical genres, they are wrongly considered as being specific only to jazz.

3. The beats used in jazz were - in the four initial styles - the beats of the dances that it adopted (with some differences in speed among the four styles). With the adoption of the Swing style and then of the styles of the middle period (bebop, cool, free), although the tempo becomes a special concern, the speed of beats falls within the fundamental principle of movement, and namely Slow (c 50-100 beats), Medium (c 110-170 beats), Fast (c 170-200 beats), and Up (200-240 beats). The beats of jazz music thus belong to the *giusto* rhythm.

## CONCLUSIONS

In conclusion, from a technical point of view, the rhythm of jazz doesn't surpass the general principles of the rhythm concept of tonal-functional music.

The real rhythmic peculiarity of jazz, though, is born during *performance*. During this process the three component parts of rhythm (time values, intensities, and beats) enter a subtle *relativity* which defies the passing of physical time and creates the feeling of imponderability, of a temporal balancing.

The time values become vaguely determined, being imperceptibly extended or shortened, and compensate for each other in order to respect the meter or phrase, on the basis of the very general pulsation, which excludes rigor. Rhythmic formulas (made up of time values) are sung with great tolerance as far as the exactness of the divisionary relations is concerned, thus in a non-eloquent way, creating the impression of a certain gap between the vertical planes.



The favorite rhythmic formulas are off-beat and syncopation, which, through their specific nature, create a kind of “faltering” in the unfolding of the time values. If these formulas are put in contrast to a superimposed plane, and in this fashion the complementariness of the planes is accomplished (see the example above), then their effect will be intensified. Superimposed rhythmic planes – usually the plane of the rhythm section with that of the soloist – may create a sensation of “faltering” fluency also through the metric disorganizations that are created in a vertical plane.

Therefore, the rhythmic values created out of them and their metric inclusion in a linear - but especially in a vertical - plane contribute substantially to the perception of the musical flow as slightly “destabilized,” thus creating the feeling of a natural flow, like the flow of nature.

The stresses (intensities) are the “soul” of the jazz rhythm, and they represent its most dynamic element.

The first stresses are those practiced by the rhythm section of the Swing style, and namely the metric stress, extended over all 4 beats. It is obvious that these are dynamic stresses having, however, a “heavy” character. All beats are heavy and so the sensation of a certain slowness (even in the case of the more lively tempi) sets in.

However, within the rhythm section, which imposes the ostinato, the different instruments can create on their own new rhythmic formulas, within which they can place different dynamic stresses, creating in this fashion a background laden with a multitude of stresses.

Over this background the (vocal or instrumental) melody, with its variety of accents (among which the most active is the prosodic one), is also superimposed, and it is often in contrast to the rhythm section (especially as a basic pulsation).

In this fashion, the sound reception perceives a globality comprising the disparate events (including the contrast), producing the emotional psychic state of a general flow in one riverbed (like a river).

The tempo – the speed of the progression, is the aspect which, in the performance process, provides in a decisive manner the *general* character of jazz, which falls into the giusto category. In jazz there is no free tempo (*rubato*).

But in the process of the performance, it is precisely the *rubato* elements that are being exploited: without eliminating the metric pulsation process, the beats are imperceptibly *delayed*, which creates a sort of swaying, creating the sensation of floating, of advancing in a swinging manner, of a non-coerced organization, on the border between giusto and *rubato*. Consequently, the rigor of the pulsation and thus also that of the tempo are being permanently perturbed, which also induces an affectation of the exactness of the values.

It is the melodic section that has the most active role in creating the impression of *rubato* (especially the melismatic one), section whose melismatic and ornamental “wreaths” seem not to fall within the metric constraints, seemingly floating freely over the basic pulsation of the rhythm section, without observing the stresses of the latter. Certainly, in the case of larger frames (phrases, incisions, periods), the improvisational melody submits to the organization, and especially its cadences coincide with the metric tempi or accept even symmetric rapports among its segments, and even the asymmetries manifest themselves by relating to the basic ostinato.

But the *rubato* feeling sets in in the process of reception.

This kind of *rubato* can be found in slow and medium tempi.

In the case of fast tempi the phenomenon is reversed, everything is more rapid, everything is rushed, all of the attacks seem to be anticipatory, the rhythm section simplifies its rhythmic formulas to a sketch, based on tempi (quarters or eighths). The stresses are reduced in number, and only the syncopated and off-beat stresses are kept, only at the level of

the tempi. The melody (or melodies) “slides” hastily, engaging the whole melodic-rhythmic process in its (apparently disorganized) rush, but keeping strictly to the basic pulsation, even seemingly anticipating the tempi. The effect is one of biological (and psychic) incitement and is capable of causing violent manifestations (especially if the musical production is also associated with movement and a display of lighting effects, etc.).

Therefore, the tempo (slow, medium or fast) plays a very important role in the rhythmic process, which, in association with the intonations (the melody), produces that character of singing/performing that fundamentally establishes the specificity of the jazz phenomenon: instability and incitation. In essence, the *character* of jazz music must be viewed in relation to its *functionality*, namely, the creation of a state of intense excitation of the biological-instinctual nature in the area of eroticism. Certainly, modern jazz tends towards a certain “intellectualism,” however without breaking the connection to the biological element and the instinctual component, which ensures its specificity in comparison to other musical genres. This is proven by the fact that over-intellectualized jazz productions produce an attitude of partial or total indifference on the part of the listeners.

Returning to the general issues of rhythm, we must emphasize the fact that, from the point of view of the rhythmic systems, jazz initially used the divisionary (and cumulative) rhythmic system in uniform measures (usually the 4/4 measure). Then, in the 1960s, it started to adopt other measures as well, such as 3/4, and then 5/4.

In conclusion, it may be said that the rhythm of jazz, being a giusto rhythm, includes, in the process of its historical evolution, all the giusto systems (divisionary, dance rhythm, syllabic-giusto, aksak) and also uses all the manifestations of these systems, such as time values, rhythmic formulas, stresses, tempi.

The rhythm of jazz gains a very profound specificity during *performance* because of the “leaning” of the giusto elements towards a totally particular *rubato*, based on a very deep feeling that it expresses: that of a vital eroticism and instinctual force.

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