Two Types of Modulation in Ornette Coleman’s Music:
“from the direction inside the musician” and “from listening to each other”

Masashi SASAKI

Introduction

Ornette Coleman (1930–) is an American saxophonist and composer. He lived in Los Angeles for most of the 1950s. There, he gave performances and polished his musical skill. In 1959, he moved to New York and made an exclusive contract with the jazz club The Five Spot. The moment he began performing at the club, he created a sensation—now known as the “Ornette Coleman controversy” in the jazz world. His innovative style of playing is called “free jazz,” and he is generally regarded as one of the pioneers of that style.

After his debut, many researchers and critics have pointed out some of the characteristics of Coleman’s music, including features related to tonality or modulation, such as “polytonality,”¹ “shifting to a secondary tonal center,”² and others. However, it is still not clear exactly how such modulations happen in Coleman’s music, even though many researchers have clarified what sort of modulations are found in it. Therefore, we will try to elucidate the origins of the modulations, not the modulations that happen as a result of Coleman’s playing.

Bassist Charlie Haden (1937–), who has played with Coleman from the early days of his career until today, said the following about Coleman’s music:

Technically speaking, it was a constant modulation in the improvising that was taken from the direction of the composition, and from the direction inside the musician, and from listening to each other.³

Haden said elsewhere that, since the 1960s, Coleman and his collaborators have not respected the composition during the improvisations.⁴ Therefore, we can say that their modulations instead arise substantially from “the direction inside the musician” and “listening to each other.”
The purpose of this paper is to clarify how modulations happen in Coleman’s music. In Chapter 1, we discuss modulation taken “from the direction inside the musician” in terms of Coleman’s musical theory, Harmolodics. In Chapter 2, we discuss modulation taken “from listening to each other,” considering some relations between sounds. Through these discussions, we will tap the essence of Coleman’s music.

1. Modulations taken from the direction inside the musician

Coleman has put forward the idea of Harmolodics, which he describes as his musical theory for improvisation and composition. According to Coleman, Harmolodics means “transposing any sound whatsoever into your own playing, without having to give up your own identity in the process.” “Transposing” here is a musical term concerned with tonality or modulation, so here we can suppose that Harmolodics has something to do with Coleman’s way of modulation. In this chapter, we discuss his way of modulation in terms of this theory of Harmolodics.

However, we now find difficulty in defining Harmolodics. Coleman first referred to Harmolodics in the liner notes of Skies of America, which was released in 1972. Since then, he has stated many times over that he is going to publish a complete theory or description of Harmolodics, but this has never been done. Nor has it been clearly explained anywhere by Coleman himself or by anyone else. Therefore, we can get to know the concept and its implications only from fragmentary statements made by Coleman and his sidemen.

These statements also cause serious difficulties. They contain a lot of explanations using musical terms, but some of them include many incomprehensible parts. This incomprehensibility is caused by a “misinterpretation” that Coleman had in his childhood (but, later, this same misinterpretation led him to create his Harmolodics).

People who negatively evaluate Coleman’s Harmolodics often do so on the grounds of these contradictions or confusions in his statements. First of all, however, we should test the validity of his statements in their original context. In this chapter, we try to decipher Coleman’s allegedly incomprehensible statements and grasp his intended meaning.

1-1. Harmolodic modulation

First of all, where did the idea of Coleman’s Harmolodics come from? He explained that
this idea is based on a misinterpretation of musical scores in his boyhood. Coleman taught himself the saxophone from a primer, so he misunderstood the reading of a musical score.

I remember thinking, as the book said, the first seven letters of the alphabet were the first seven letters of music, ABCDEFG.7

But, in general, the syllable names ‘do, re, mi, fa, sol, la, si,’ in Romance languages, correspond to CDEFGAB. That is to say, the notes in (Figure 1) were named ABCDEFG by Coleman.

![Figure 1: A Difference in Naming Notes](image)

This is generally a mistake.

As mentioned above, a childhood misinterpretation led to the development of what Coleman calls “Harmolodic modulation.” This is a method of modulation by the free changing of clefs. Coleman explained it as follows:

Skies of America is based on the four clefs, bass treble, tenor and alto. The writing is applied to Harmolodic Modulation, meaning modulate in range without changing keys.8

Here we should focus on the term “clef.” Let us see (Figure 2).

![Figure 2: Clef (in General)](image)

There are three clefs. A clef is a musical symbol. If any clef is placed on one of the lines at the beginning of the staff, it indicates the name of the note on that line. This line serves as a reference point by which the names of the notes on any other line or space of the staff may be determined.

For example, The G-clef assigns the note G to the second line. Therefore, the position of C is fixed like in the left part of (Figure 2), and the note in this position is named C. (However, young Coleman named this note A). The F-clef assigns the note F to the fourth
line. Therefore, the position of C is fixed, like in the center part of (Figure 2). The C-soprano-clef assigns the note C to the first line. Therefore, the position of C is fixed, like in the right part of (Figure 2).

Now, what about Harmolodic modulation? Let us see (Figure 3).

In the left place, we can see a note on the third space without any clef. You put this note, in due order, on G clef, F clef, and C soprano clef. If you play these written notes, for example on a piano, they will actually form a melody like (Figure 3). This is the Harmolodic modulation. It is the method of moving a certain note from one clef to another in order to yield various names.

Coleman said that he uses this method not only to compose but also to improvise. One player can make a melody by successively changing various clefs, like in (Figure 3). More players can make a chord by simultaneously using various clefs, like in (Figure 4).

In general, after having picked up one clef and decided the order of staff notation, we place various notes in that order. However, Coleman reverses this process. After having picked up one note, he places it in the various clefs, which decides the order of staff notation. It seems that Coleman’s misinterpretation of correspondence of notes to names led him to recognize that the connection between note and name is not fixed and does not correspond one to one.
1-2. Parallel harmony

Moreover, he misunderstood the method of transposing. Coleman played the alto saxophone mainly from the beginning of his career. Yet, his job required him to play the tenor saxophone. Ornette recalls the experience of returning to the alto saxophone after two or three years of concentrating on the tenor saxophone.

the things that I was playing on the tenor, when I played the alto I thought I didn't have to change keys: The things I played on tenor worked on alto.  

If we interpret "the things that I was playing on the tenor" in Coleman's statement as "the sounds that I was playing on the tenor," we can't play the sounds on alto sax without changing the key. For, the saxophone is a transposing musical instrument.

Let us see (Figure 5). This illustrates the mechanism of transposing.

This is the melody, "Happy Birthday to You". The way playing these notes in B♭ tenor sounds like, is shown in (Figure 5). (Focus on the difference between key signature in score for B♭ tenor and one in sounding pitch). This happens because the tenor saxophone transposes by a minor seventh. A transposing instrument is a musical instrument for which written notes are read at a pitch different from sounding pitch. For example, in the B♭ tenor sax, its pedal tone is B♭, so that alto sax can play most easily in Key B♭. Therefore, Key B♭ in sounding pitch is transposed to Key C in written notes. For, we can see written notes most easily in Key C, so that we can play them most easily.

In order to play the same sounds on alto sax, not on tenor sax, we must re-write the notes like (Figure 5). Pedal note of Tenor sax is different from one of alto sax. Therefore, if we try to play the same sound, their key signatures and the position of notes also differ. In this case, tenor's score is written in Key C, alto's score is written in Key G. (Focus on the difference between key signature in score for tenor and one in score for alto). Hence, his
statement that “the tenor is the tonic of the alto” is incoherent, if we interpret “the things that I was playing on the tenor” in Coleman’s statement as “the sounds that I was playing on the tenor.”

Nevertheless, this unusual interpretation led to his unique idea for a musical method, which is playing one note on various instruments, including transposed and non-transposed instruments. Coleman described it as “the total collective blending of the transposed and non-transposed instruments using the same intervals.” Haden calls this way “parallel harmony,” so we will follow his terminology.

Let us see (Figure 6). This is the unison of the alto & tenor sax.

In general, unison means that the musicians are playing the same sounds simultaneously. Therefore, in order to play in unison, we have to rewrite the notes for transposed instruments. For instruments in E♭, we must give three sharps to the key signature and rewrite the note by major sixth up. For instruments in B♭, we must give two sharps to the key signature and rewrite the note by major second up. On this rewritten notation, Alto & Tenor sax can play a unison sound.

Now, what about Parallel Harmony? Let us see (Figure 7).

There are some notes constructing the melody, “Happy Birthday to You” without a key signature. Playing them through the alt & tenor sax creates sounds like the right part of (Figure 7). This is Parallel Harmony. It is the method of playing the same note on some instruments to realize various sounds.
In general unison, some instruments play the same sound at the same time, so that we must rewrite the notes properly for transposed instruments. But, Parallel Harmony means some instruments playing the same note at the same time, so that we will realize various sounds transposed through any instruments.

A little while ago in this section, we said that if we interpret “the things that I was playing on the tenor” in Coleman’s statement as “the sounds that I was playing on the tenor,” his statement “the tenor is the tonic of the alto” is incoherent. However, if we interpret “the things” not as “the sounds” but as “the notes,” his statement is coherent. His unique logic of transposition seems to be a source of this parallel harmony.

1-3. Modulation through keys

In addition to Harmolodic modulation and parallel harmony, Coleman’s music has a method of modulating for composition and improvisation. Bassist Jimmy Garrison, who played with Coleman in the early 1960s and knows his way and ideas well, explained it as follows:

integral part of it [ = Harmolodics] is that you take a note like C: C can be the tonic of [Key] C; it can be the major third of [Key] A♭; it can be the fifth of [Key] F; it can be the ninth of [Key] B♭. Knowing that any note can be a part of a whole spectrum of notes, you train yourself to think in that manner and as a result you come up with melodies you didn’t know existed.\(^1\) (* contents in [ ] added by writer).

Haden calls this practice “modulation through keys”\(^1\), as will we.

Let us see (Figure 8). This describes what Garrison explains.

You see four notes of C (colored black), from the left sequentially posed in Key C, Key A♭, Key F, Key B♭. C is the tonic of Key C, so the interval between note C and the tonic is the perfect unison. A♭ is the tonic of Key A♭, so the interval between note C and the tonic is the major third. The same shall apply hereinafter. In All Key, the interval between note C...
and the tonic is changed in mutual relation to the Key.

We can explain more precisely in term of Scale Degrees. Let us see (Figure 9).

A scale degree is the name of a particular note of a scale in relation to the tonic. For example, the tonic is the first scale degree of the diatonic scale, which is a sequence of musical notes, comprising five whole tones and two semitones for each octave. In other words, a scale degree is the position or role in key.

From this view point, we can re-interpret the last quotation from Garisson as follows: When note C plays a role of the tonic in some key, this key is C. When note C plays a role of the mediant in some key, this key is A♭. When note C plays a role of the dominant in some key, this key is F. The same shall apply hereinafter. Like this, the Modulation through keys is the method of changing the degree of the fixed note in order to move the tonic.

In general, after having picked up one key or tonic, we assign each role of notes considering the relation to the tonic. But, Coleman reverses this process. After having taking one note and assigned a role of the note, the key is decided considering the relation to the degree of the note.

A similar process to modulation through keys is known as “reinterpretation” in classical music or “pivot turn” in popular music. These practices have the same structure, where the musician interprets something established as a pivot. In addition, Harmolodic modulation as seen in section 1-1 is the method of moving the same notes-as-written from one clef to another in order to yield various names, and parallel harmony as seen in section 1-2 is the method of playing the same notes on different instruments in order to realize various sounds. These two methods also have the same structure, although their contexts—clef or transposing instrument—are different from those of modulation through keys, reinterpretation, or pivot turn—changes of degree. Therefore, generalizing from this, we can conclude that Coleman’s Harmolodics includes these practices in order to cause modulations as a result of interpretations occurring inside the musicians.
2. Modulations taken from listening to each other

In the preceding chapter, we considered Harmolodics. To sum up, this term refers to the player’s internal operations on a certain note or name. When playing in this way, what note his playing is based on or what type of modulation he operates can be known only internally by the player himself. Hence, we cannot access a musician’s internal operations or internal order from the outside; we can perceive nothing but the sounds they externalize.

Then, would the members of Coleman’s ensemble just modulate their own notes each in their own way, while not knowing the other’s interior? Let’s listen to Charlie Haden. He talks about collective improvisation:

I am always waiting for Ornette to play a tonal center so I can contrast it or play with it to make it sound really good.\(^\text{15}\)

A “tonal center” in this quotation is literally a center note of tonality, which we have called the keynote or tonic. Musicologist Ekkehard Jost explained “tonal center” as follows:

His [Coleman’s] point of reference is not changes but a kind of fundamental sound, for whose focal tone the term “tonal centre” was coined in the jazz literature of the Sixties. As understood by present-day music theorists, tonality does not necessarily involve functional harmonic progressions; rather, it implies first and foremost a relationship to one tone. For that reason, Coleman’s music at this stage - and, generally speaking, later too - can be regarded as entirely tonal.\(^\text{16}\)

Jost adds, “It acts like an imaginary pedal point: Coleman’s melodies proceed from it.”\(^\text{17}\)

How is Haden able to know another’s tonal center? Or is it only his subjective impression? Through listening to the Coleman group’s performances, we can only get information from sounds (including of course those produced by Haden). In this chapter, we try to clarify what knowledge we can gain from sounds alone.

2-1. A horizontal relation between sounds

In order to answer this question, we consider the concept of semitone (or chromatic). A semitone is the smallest musical interval commonly used in Western tonal music. It is defined as the interval between two adjacent notes in a 12-tone scale (e.g. from C to C sharp).
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General musical theories teach us that if one scale is organized in the diatonic manner, the positions of semitone or a half step indicate the tonic. Diatonic is the way of organizing an octave of seven notes in a particular configuration. Let us see (Figure 10).

A seven note scale is said to be diatonic when its octave span is filled by five tones and two semitones, with the semitones maximally separated.

The natural minor scale and the church modes are also diatonic, but now we should narrow an argument down to the major scale. Here, what is the most noticeable for us is a kind of deflection; a diatonic scale doesn’t consist of notes disposed at even intervals. And this deflection of scale tells us which type it is, among 12 major scales.

Let us see (Figure 11).
For example, there are seven scales (C, D♭, E♭, F, G♭, A♭ & B♭ major scale) containing F. There are two scales (C & G♭ major scale) containing F & B. From this time forward, if we take any of five notes (C, D, E, G, A), it tells us the scale is C major, or if we take any of five notes (D♭, E♭, G♭, A♭, B♭), it tells us the scale is G♭ major. This is because the position of the semitone in the scale is clarified when the third sound is taken.

This (Figure 11) is an example of a combination that clarifies the scale by the fewest number of notes. But, for example (Figure 12), although it is clear that the six notes are the components, we cannot decide which scale to pick out.

There are many other examples of combinations by which we can identify the scale. Thus, here is a possible way to guess another’s tonal center from the position of the semitone included in the sounds of the player’s phrases.

2-2. A relation between sound and player

Next, we consider the relation between sound and player. While playing, we can know our own key, so that we can know our own scale. This means we can distinguish between 7 notes included in our own key and 5 notes not included in our own key.

Now, let’s consider the case where Player A listens to sound executed by Player B. What can we know in the case where Player A’s scale includes the note of the sound? We can only know Player A’s scale includes the note of the sound.

Then, what can we know in the case where Player A’s scale doesn’t include the note of the sound? Now, Player A is in Key C and the sound that Player B executes is F sharp.
There is a semitone gap between F sharp and F or G which Player A’s scale includes. At this moment, Player A surely understands the sound has a semitone gap from his scale. This means difference between Player A’s Key and Player B’s Key. So they can find a ‘tonal difference’ each other. It can be absolutely recognized through the fact that someone makes a sound which isn’t a part of a whole spectrum of some key that the others play on.

As seen in the preceding section, players can guess each other’s tonal center from the position of semitones that the sounds they play include—or at least narrow down the possibilities. Further, each player can clearly recognize the difference between his or her own key and another’s from the difference between his or her own scale and the sounds that the other plays. With these clues, players can specify their co-player’s tonal centers not perfectly but fairly precisely. In this conjecture, each player’s tonal center is moved through tonal diplomacy, allowing modulation to happen. This type of modulation is made not by internal operation but by listening to each other.

2-3. A vertical relation between sounds

In order to make the concept easier to grasp, we excluded natural minor scales from the discussion in section 2-1. This is because, strictly speaking, if we pick up a certain diatonic scale, we cannot determine an unambiguous key from it, since a particular major scale and the relative minor have the same diatonic scale in common.

Then, how are keys actually determined? A vertical relation between sounds does the job. Now, let us consider a case where a horn player plays a phrase using a diatonic scale that has CDEFGAB. If a bass player then adds the bass note C, sounds flavored by the key of C major emerge. However, if the bassist instead adds the note A, then A minor-flavored sounds emerge.

Let us see a concrete example. (Figure 13) is part of a performance of “Little Symphony” that trumpeter Don Cherry (1936–1995), who had been playing with Coleman since the L.A. era, did with Haden, recorded on July 19, 1960.

From the middle of bar 1 to the beginning of bar 5, Haden continuously plays the note F#. When Cherry plays the phrase from bar 4 to bar 5 above this F#, this part has a flavor of F#m. In addition, if we listen only to bar 13, we cannot feel anything but B♭m.

This sort of tonality emerges from the relativity of sounds that both players produce in
the real space where each players can share their sounds, and it has nothing to do with the imaginary tonal centers that each player establishes internally. For example, even if Cherry were playing on the tonal center D from bar 4 to bar 5, or Haden were playing on the tonal center A in the same place, this part would sound as though it were in F#m. When the note has emerged from the instrument, it belongs to another sound world. Then, it is possible for real sounds to metamorphose an imaginary tonal center into a new one. (Of course, it is also possible for players to keep the former center.) In this way, vertical harmony which emerges from the interaction of horizontal lines in the ensemble—self-created harmony\(^9\)—can be a cause of modulation.

### Conclusion

In Chapter 1, we confirmed that Coleman’s harmolodics is a method for inspiring modulations by interpreting something inside the musicians.

In Chapter 2, we validated some alternative ways to internally interpret music so as to yield modulations that are based on what is heard: guessing another player’s tonal center from the positions of the semitones, recognizing the difference between each other’
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s keys through the semitone gap between the notes of a scale and the actual sounds, or metamorphosis by the tonality that emerges from a combination of real sounds produced by collective improvisation.

We can imagine the following situation:

Player A in key C major takes a note C and internally regards it as the fifth. Consequently, his/her tonal center C moves into F. In other words, this causes “shifting to a secondary tonal center.”

On the other hand, player B in key C major listens to the real sounds produced by player A. If the sounds included B♭, player B would recognize the difference between his key and that played by player A since the C major scale does not include B♭. In other words, player B could guess player A’s tonal center from the notes in the sounds produced by player A since the position of semitones in these sounds could indicate player A’s key. Therefore, player B can play the same key or a different one. Playing a different key would cause “polytonality” in the real sounds.

Through each player’s tonal diplomacy, his or her lines would spontaneously create any harmony such as F♯ or Cm. This vertical harmony could metamorphose each imaginary tonal center into a new one. This also causes “shifting to a secondary tonal center.”

Similarly, in Coleman’s ensemble, modulations arise from each musician’s internal interpretations and as a result of listening to each other’s sounds. Through these modulating techniques, Coleman’s music is distinguished by a continuous movement or an incessant fluctuation—that is, “a constant modulation.”

Notes

6 Coleman, Ornette, Skies of America, Columbia, KC31576, 1972.
8 Coleman, liner notes for Skies of America, Columbia, KC31576, 1972.
9 ibid.
11 Coleman, 1972.
12 Iverson, 2008.
14 Iverson, 2008.
15 ibid.
16 Jost, p.48.
17 ibid.
19 This borrows Wilson’s words. (Wilson, p.85.)