INVOLUNTARY GRIMACE:
A SEMIOTIC MORPHOLOGY OF FACIAL GESTICULATION IN JAZZ IMPROVISATION

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Preface

This paper got its start in a smoke-filled nightclub in Urbana, Illinois. Shortly after beginning their first set a local jazz drummer suddenly dropped his jaw, cocked his head back, and stretched his facial skin into an amazing contortion. During the rest of the evening he displayed a range of facial contortions that was truly virtuosic. When asked about his visual accompaniment he said that although not fully aware of what his face did while performing, he had what he described as an involuntary grimace. In the years that followed this encounter I found many more examples of jazz performers doing unusual things with their faces and bodies while performing.

Jazz is essentially a performer's art form. The best known jazz names are mostly performers. Performance is firstly an execution of an action that presents a phenomenon related to a representational structure such as the 12-bar blues or rhythm changes forms. However, it is not merely a praxis, an application of a skill or practice that simply produces what it does – but a poiesis; a bringing forth of a phenomenon, of something with presence in the world. Personal interpretation, expressed through the vehicle of improvisation is one of the most important components of jazz. Composition is, on the whole, relegated to the service of improvisatory objectives, and is routinely and at times radically altered (in regards to feel, form, or harmonic content) in an effort to emphasize the performer's unique, interpretative vision.

It is generally agreed that good jazz players play from memory. The head or theme, formal structure, and chord progressions are committed to memory in order to stimulate 'freer', integrated approaches to improvisation during the solo sections. As a direct result of this, body and facial gestures are more discernable than in performances where musicians take refuge behind their music stands. These gestures contain expressive, communicative content. Musicians' faces are routinely 'read' by performers as well as the audience, in order to decipher important signals about solo length, pacing, tempo, and changes of dynamics or feel. Clearly, facial gesticulation plays an important, albeit largely unexamined role in jazz improvisation. Using Paul Ekman and Wallace Friesen's Facial Action Coding System (FACS) this paper

presents a preliminary morphology of facial gesticulation by demonstrating semiotic relationships between facial gesticulation and signs of emotion and thought during jazz improvisation in a small combo setting. The combo has traditionally been a vehicle for showcasing improvisatory skill. Because it is a new area of inquiry more time will be spent on explicating theoretical principles rather than presenting detailed analyses of actual performances. However, in researching this paper many hours of DVD and video footage of performers was scrutinized. Still shots and short video excerpts of these performers are used for illustration and support.

Introduction

Musical performance is for the most part a social act, which like other human encounters involves different modalities. Most studies of music performance, as Jane Davidson (1995) has pointed out, have ignored the role played by body movements. If mentioned at all, the use of the body has been relegated to anecdotal status in literature such as P. Baillot's 1834 treatise on playing the violin or Paul Berliner's recent book *Thinking in Jazz.* Davidson's studies have focused on the expression of emotion in music and practical issues of performance (e.g. the application of the Alexander Technique or Feldenkries methods). Other studies implicitly recognize that that some structural issues can be greatly clarified and enhanced through certain movements on stage. Robert Schumann in his essay "On Music and Musicians" said that, "… if Liszt played behind a screen, a great deal of poetry would be lost." (quoted in Davidson 1995, 106). In the nineteenth century the spectacle of virtuosity foregrounded the fact that performers were indeed aware of the significance of their stage bodies. For centuries performers have been consciously employing their bodies to achieve various effects. But their efforts have disappeared into the nebulous, largely undocumented, zone known as performance practice.

According to Robert Hatten (Lecture 3), learning to perform a composition requires the physical manifestation of inferred structural meaning. When committing a score to memory one has to embed the gestures, phrases, etc. into the body. In the case of jazz performance the embedded image, if you will, forms the basis for the improvised solo. The body and face showcase the struggle of the improviser to improvise material within the moving targets of the harmonic and rhythmic frameworks.

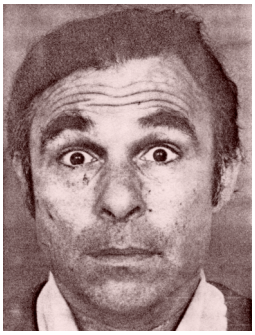
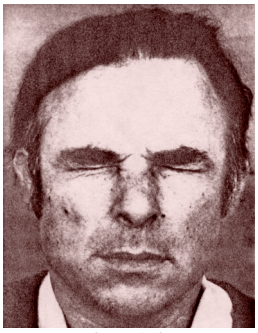
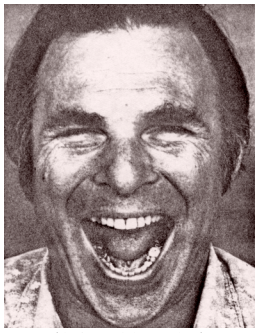
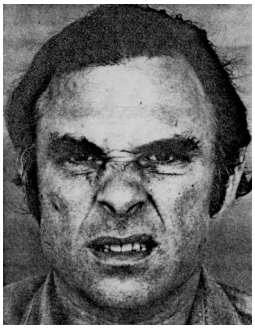
In general, jazz performers display more body and facial activity than do their concert music counterparts. Although there are notable examples of concert musicians gesticulating beyond what is needed to produce sound, such as Anton Rubinstein, Jacqueline Dupres, or Joshua Bell most are taught to minimize body movements so as not to detract from what amounts to an idealized concept of what music is. One possible reason for the jazz players movement predilection is the lack of scores with which to reflect, deflect, or interact. Similarly classically trained performers seem to gesticulate more when playing from memory than from a score. It is also perhaps due to the fact that jazz players (those with mobile instruments) play while standing. By anchoring the body chairs tend to inhibit motion. Jazz musicians are literally "on their toes" while playing. Also, they routinely learn to keep track of the beat using their bodies, and are not ashamed to display this technique in performance. The more dynamic or emphatic the music the more their bodies sway or gesture. Jazz performers "give themselves up" to the emotional and spiritual forces that this music taps into. And a prime location for observing these underlying forces is in the face.

One of the most comprehensive approaches to "reading" the face is the Facial Action Coding System (FACS), developed by Paul Ekman and Wallace Friesen in the 1970s, and last updated in 2002. The FACS measures all visually distinguishable facial movement on the basis of 64 unique action units (AUs). These are further defined according to a four point intensity scale: 0= non active, 1= occurs slightly, 2= occurs with medium intensity, and 3= occurs at maximum intensity. In reality, nonverbal behavior such as facial gesture is often comprised of a composite of several different FACS AUs, each representing a separate component. Additionally, there is a degree of variation for each FACS AU, even within a specific intensity (e.g. 4 + 6x). Ekman has demonstrated that facial muscles are often indicators of inner cognitive and/or emotional states. Hence, there are standard FACS AU combinations for various emotions and reflexes.

Table 1. A Sample of Facial Action Coding System (FACS) Action Units (AUs)

1. Inner brow raiser	2. Outer brow raiser	4. Brow lowerer	5. Upper lid raiser
6. Cheek raiser	7. Lid tightener	9. Nose wrinkler	25. Lips part
26. Jaw drop	41. Lid droop	43. Eyes closed	44. Squint
61. Eyes turn left	62. Eyes turn right	63. Eyes up	64. Eyes down

Table 2. Facial Action Coding System (FACS) Examples with AUs

 (1 + 2 + 5)	 (7+ 43)	 (16 + 12 + 27)	 (9 + 25)

Semiotic Primer

E.F. Kaelin has said, "nothing is brought to awareness without the mediacy of some sign" (104). With consciousness comes signage. Igor Stravinsky once claimed that music referred only to itself. But scholars including Jean Jacques Nattiez, Robert Hatten, and Thomas Turino have demonstrated that it can also refer to things outside of itself, using signs. One of the things that led Ekman to the FACS was a simple question that he asked himself - Is there a language of the body much like verbal language, in which meanings are associated with specific movements? (Ekman *Semiotica* 1969). Although he discovered associations, body gesture like music is not a language but a sign system. Language uses arbitrarily determined signs such as words. It's arbitrary nature is evident in the facts that different languages use different words to mean the same things, and that linguistic change is very slow and hardly ever brought about by single individuals. In music we can find several additional types of signs, and change can occur quickly, brought on by a relatively small number of people.

According to the American philosopher and scientist Charles S. Peirce, a sign is something that refers to something else in some way to someone. It is split into three parts: the sign itself, what it refers to, and the way in which the sign-receiving person decodes it. Peirce's complete semiotic system is quite complex and well beyond the scope of this paper. The following discussion focuses on his categorization of sign-to-object relationships, shown in Table 3.

Table 3. C. S. Peirce's Sign-to-Object Relationships

TYPE	DEFINITION	EXAMPLE
Icon	Iconic signs represent their objects primarily through the principle of similarity or resemblance.	Canonic imitation, or spatial representation of pitch
Index	Indexical signs are related to their objects through existential relationships.	The pointing hand of a conductor, or the look of sadness on the face of a pianist performing a slow-moving piece in a minor key.
Symbol	Symbolic signs refer to their objects by virtue of an arbitrarily established rule or law.	Composition titles, and many score indications.

According to Peirce, signs are iconically, indexically, and/or symbolically related to their objects. Iconic signs represent their objects primarily through the principle of similarity or resemblance. Canonic imitation and the spatial representation of pitch are examples of musical icons. Icons often depend upon indexical and/or symbolic signs in order to be fully perceived. Indexical signs are related to their objects through existential relationships. Musical examples include: the pointing hand of the conductor, the look of sadness on the face of a pianist performing a slow-moving piece in a minor key, or the famous perfect-fourth motive from the Prelude to *Lohengrin*, which usually refers to the wedding ceremony. Symbolic signs refer to their objects by virtue of an arbitrarily established rule or law. The word 'pipe' is a symbolic sign for the object from which I inhale smoke. Composition titles are symbolic signs, as are many score indications. In Peirce's thought, signs even extend to things that are beneath our awareness, or of which we are not yet aware. Thus, one of the primary strengths of his semiotic system is that it allows for possible or virtual signs, as well as relationships that reside at pre- and post-linguistic areas of our experience. Music embodies many of these.

Initial Examples

We've all witnessed sweaty performances that indexed intensity, difficulty, or virtuosity, or swaying bodies indexing lyrical sensitivity, or stillness indexing focus or contemplation. These examples are themselves indexes of physical gesture. According to Hatten "gesture is movement that may be interpreted as significant" (Lecture #2, 2001). It is a holistic concept, in which separate musical parameters are combined into an indivisible whole. Both Hatten and Alf Gabrielsson (Music & the Mind Machine, 1995) have examined what gestures performers employ in order to generate emotional character in music. Gabriellson (following Susan Langer

and Manfred Clynes) posits that there is an isomorphism between the structure of emotion and the structure of music, characterized by gestural motion. In Peircian terms this relationship is indexical and/or symbolic.

In the FACS the neutral face is used as a kind of baseline from which to define the Action Units. The neutral face is taken as an index of non-affective states. Jazz performers with either exposure to classical music or training often perform without much extraneous motion. A common type of neutral face in jazz improvisation includes closed eyes and facial stillness. It often functions as an index of concentration or transcendence of the self.. The neutral face might accompany portions of solos that conform to the underlying harmonic or rhythmic framework. At the other end of the facial continuum, facial contortions could be indexes of a struggle to place complex, asymmetrical subdivisions over a symmetrical pulse pattern, or of dissonant, non-chord tones, or extreme registral ranges. We also know that alcohol, certain drugs, and major depression have been found to produce flat affect, similar to the neutral face but with droopy eyelids or marked, facial asymmetry. Alcohol, drugs, and depression have unfortunately marked the careers of countless jazz performers. In Charlie Parker's (Bird's) performances body gesticulation was generally held to a minimum. What little gesturing we find occurs in his face. In the following video clip (from a televised performance of a piece called *Hot House*) Bird's neutral face is much in evidence but with some subtle inflections. For example, he occasionally furrows his brow and tightens his eyelids, for just a fraction of a second. This combination occurs either before a fast double-time flurry of notes, or in the middle of phrases not characterized by overly salient or climactic materials. Bird's eyes tend to move in a lateral manner, downward and outward, indexing the kind of highly active thought process that a bebop improvisation requires. As most of his solo is built upon licks that he had employed many times before one could justifiably assume that his thought process involved more tactile memory than novel arrangement. Finally, his eye region is markedly asymmetrical, perhaps an index of his heroin habit. Play Video Clip #1.

More Examples

In the Facial Action Coding System, Ekman describes the raising and lowering of the eyebrows and forehead wrinkle as part of the surprise affect. But in jazz improvisation eyebrow movement can signify other things as well, especially when accompanied with tight or droopy eyelids. Some wonderful examples of using eyebrow movement for expressive purposes are found in the

following clip from the December 1957 CBS jazz special "The Sound of Jazz" which brought together the most famous jazz performers of the time. You will see improvised solos by tenor saxophonists Ben Webster and Lester Young, in a rendition of Billie Holiday's *Fine and Mellow*. Play Video Clip 2.

Webster uses his eyebrows to index an oscillation between light, delicate phrasing and earthy or bluesy qualities. They also serve iconic function when he raises them after initiating high register notes. His eyebrow movement is combined with closed eyelids and head nods and shakes. The back and forth lateral movement, often an index of lyricism, is here indexing a verbal commentary such as "Isn't that a shame" – perhaps a response to the lyrics of *Fine and Mellow* which begin: "My man don't love me, he treats me oh so bad." During the climax of Webster's solo he cocks his head back and opens his eyelids for a split second. Only the whites of his eyes show because his eyeballs are rolled back in his head. This is the look of someone possessed and is appropriately accompanied with gruff, guttural playing. At the beginning of Webster's solo Billie Holiday is shown listening with interest and with a neutral face. As he begins to develop his materials she sympathetically shakes her head and drops her jaw. Lester Young's solo takes the word mellow in *Fine and Mellow* to heart. He uses smooth, legato phrasing with medium to upper register, pentatonic-derived pitches. In contrast to Webster he keeps his eyes open and looks straight at one of the cameras. All of his facial gesticulating occurs in the eyebrows and eyelids. The eyebrows move up and down while the eyelids remain droopy. The eyebrow/eyelid combination along with the legato phrasing and direct glance is symbolic of what might be termed "the relaxed lover." At the time that this show was televised Young had been making music with Billie Holiday for the better part of twenty years. But they had some kind of falling out several years before and hadn't spoken since. I mention this because it is of relevance to the footage showing Holiday listening to Young. Her face appears significantly more animated when listening to Young than when listening to any of the other soloists on this tune. The footage of her begins halfway into his solo. We see her smile, bite her lower lip, and sway her head in iconic coordination with Young's sequential phrasing. She raises her eyebrows immediately after the beginning of each sequential instance. Her smile is a cross between what Ekman calls "listener response," "coordination," and "enjoyment smiles" (Ekman 1997, 203). The former is frequently used for conversational signaling. The coordination smile is used by listeners to let speakers know that something is understood, with no need to repeat of rephrase. It is equivalent to the "mm-hmm", "good" and head nod it often accompanies (ibid.). Indeed, Holiday also nods

her head. Enjoyment smiles have obvious significance but it is important to note that they typically last between point 5 and 4 seconds. Her smile is well within this range.

Table 4. Listening Faces

 (6 + 12 + 32 + 44)	 (1 + 12 + 41)	

Another, more pronounced, example of eyebrow use occurs in a recent clip featuring saxophonist Dexter Gordon in a live performance at the Harvest Jazz Festival at the Paul Masson Vineyards in California. His eyebrows are more active than Webster's or Young's and seem to iconically signify melodic shape as opposed to indexing romantic or lyric associations. The eyebrow movements culminate in four facial grimaces either at the top or bottom of his melodic line. Play Video Clip 3.

The slow side-to-side movement of the head we saw in the footage of Webster, Holiday, and Young is, as was pointed out, a symbolic gesture of legato or lyrical materials. It is symbolic of lyricism in the sense that it is an arbitrary convention, but also indexical when intentionally used to point toward an interpretation of lyricism. This kind of movement often accompanies speech. In the following two clips violinist John Blake and pianist Kirk Lightsey both employ side-to-side head movements with legato phrasing. Play Video Clips 4 & 5.

In addition to gestures that accompany speech one finds many examples of gestures that are iconic of speech or singing. Improvisers performing on non-wind instruments, especially piano and bass, commonly use mouth movements to vocalize or mutter to themselves. Three examples are shown in Figure 9. When learning to improvise jazz performers routinely sing original and transcribed solos. With this in mind it would appear that vocalizing or muttering pianists or bassists are attempting to reproduce on their respective instruments what they first produce vocally. Further proof for this resides in the fact that the pitch and rhythmic materials resemble each other. This is unlike the musically irrelevant vocalization that we find in Glen Gould's performances. In the following two short video clips we observe signs of speech resemblance. In

the first Kirk Lightsey combines fluid head swaying, and eyebrow and mouth movements. He appears to be in conversation with himself. The second clip features bassist Avery Sharpe raising his cheeks and eyebrows while playing an unusual double-stop gesture.

Play Avery Clip 6.

Play Kirk Clip 7.

Table 5. Assorted Grimaces with AU numbers

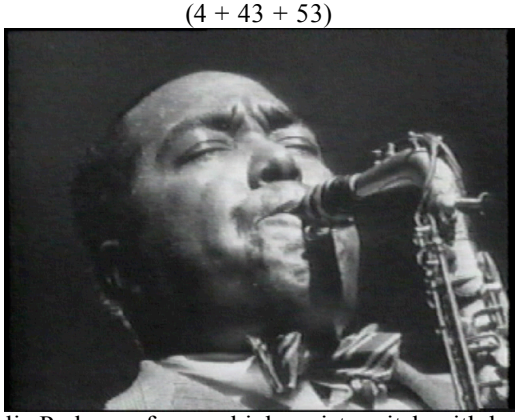
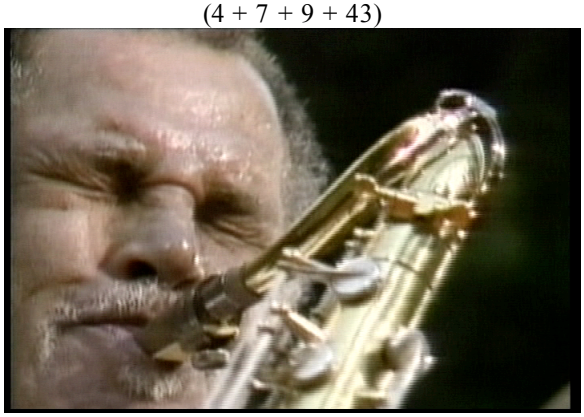
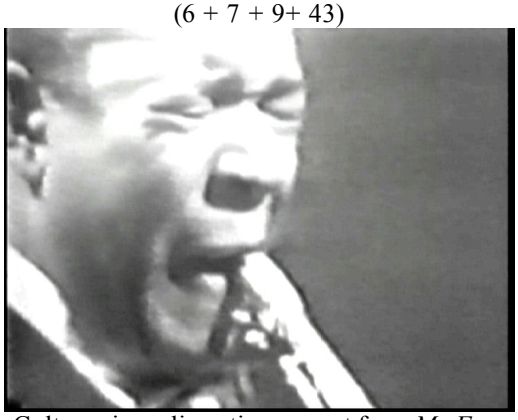
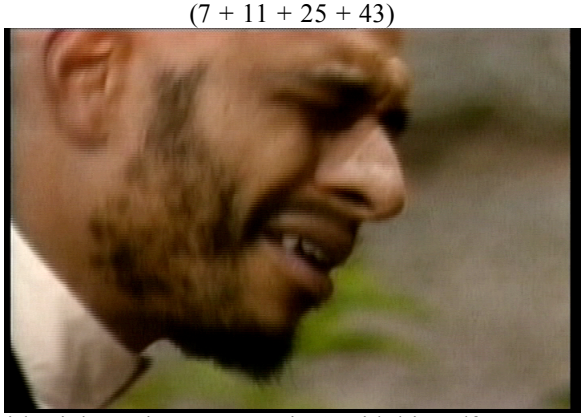
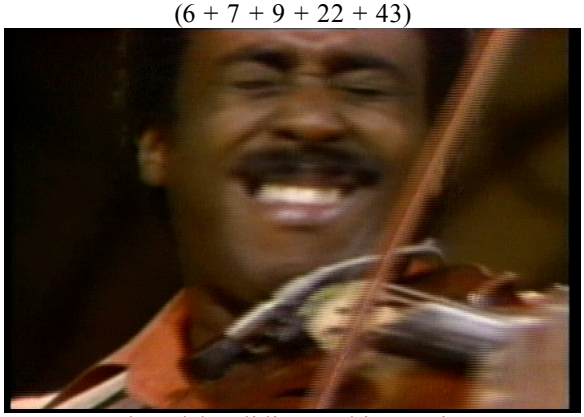
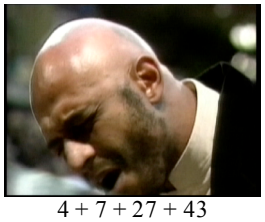
(4 + 43 + 53)  Charlie Parker performs a high register pitch with brow lowerer.	(4 + 7 + 9 + 43)  Dexter Gordon on his way up to the altissimo register.
(6 + 7 + 9+ 43)  John Coltrane in a climactic moment from *My Favorite Things*.	(7 + 9 + 11 + 43)  Eric Dolphy on Coltrane's *Impressions*.
(7 + 11 + 25 + 43)  Kirk Lightsey in "conversation" with himself.	(6 + 7 + 9 + 22 + 43)  John Blake sliding up his E string.

Table 6. Other Examples of Facial Gesticulation

 Bird and Miles. Note Bird's vacant, asymmetrical look with traces of AU 2 + 5.	 Bird looking "worried" marked by AU 2 + 41 on left side, plus AU 4.
 Dexter Gordon displaying his iconic eyebrow use. AU 1 + 2 + 14 + 43	 Acknowledging audience applause and twitching. AU 9 + 10 + 25 + 43

Table 7. Speech Resemblance

 4 + 7 + 27 + 43	 7 + 25 + 43 + 55 + 58	 6 + 26 + 32 + 57 + 64

As we've seen, the face can impart information about emotional and/or lyric content, but is also used for structural signaling. Notable examples include: the closed-eye look of concentration while developing a solo, and facial contortions at climactic points. Some facial signs refer to

improvised structure, as symbols of speech or indexes of movements that accompany speech. Common examples might be translated as: “Okay, I’m done, no more choruses; I’m coming to the end of my solo,” or “Shit, I just missed the bridge” or of a rhetorical question like: “Wasn’t that a cool, clever lick?”

At the beginning of improvised solos one often finds short, fragmented materials, which are a part of probing or searching gestures. Next, improvisers make initial statements of established materials. (This is what trombonist George Lewis calls “putting it out there.”) The established materials then undergo variation and adaptation accompanied with iconic body and/or facial movements that coincide with the beginnings of each repeated variant. This usually leads to a climax rife with facial contortion. Finally the close of the solo is marked by wrapping-up gestures wherein performers open their eyes (if they were previously closed), step back, and display neutral faces and perhaps smiles. Typical examples from each part are shown in Table 8 and in the following video clip, which features John Coltrane’s solo from the Miles Davis’s tune *So What*. He begins with an initial statement of material along with downward cast, open eyes. He then closes his eyes during most of the remaining solo. As he develops his material his face becomes more and more active, culminating in several climactic, albeit brief, moments in which his lids tighten and his nose wrinkles. During this section he systematically repeats and varies a single motive in remarkable ways. At the point where most improvisers would move on to something else Coltrane repeats the motive yet again, adding material before its reiteration. This particular moment elicits coordination smiles from the musicians in the background who had been listening intently. Notably this is the only time that Miles Davis, a musician not known for either his modesty or encouragement of other musicians, looks directly at Coltrane and opens his mouth as if to say, “Yeah, that’s it.” It is not hard to miss this poignant moment at actual speed. So, following the clip you’ll see it in slow motion with the sound fully attenuated. Play Video Clip 6. (Also, see Table 9.)

Table 8. Typical FACS AUs during Improvised Solos

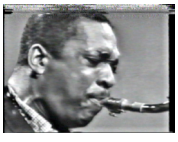
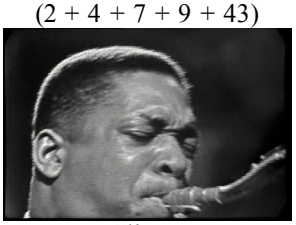
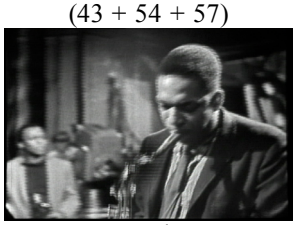
Introduction	Initial Statements	Variation & Adaptation	Climax	Close
				

Table 9. Three Still Shots from John Coltrane's solo from *So What*

(41 + 57 + 64)	(2 + 4 + 7 + 9 + 43)	(43 + 54 + 57)
		
Beginning	Climax	End

It is interesting to compare the preceding footage with Coltrane's later experimental, avant-garde period. In the next clip the apparent freedom of avant-garde improvisation is symbolically mirrored in Coltrane's more emphatic use of body and facial movements. Here we witness the struggle of the improviser to connect with the visceral and spiritual forces of an ever-changing and high-energy accompaniment.

Play Video Clip 7.

Table 10. Woman "speaking in tongues."

(2 + 6 + 7 + 9 + 27 + 43)

Before concluding I will take a short detour through speaking in tongues, tics, and twitches. Although similar FACS AU numbers describe improvisers' faces during climactic moments and people in pain, to say that the improviser is feeling physical pain is in most cases untrue. Having paid his or her dues s/he is perhaps drawing upon memories of pain, or simply following standard indexical or symbolic performance practice protocol. For example, ballads are often used as vehicles for expressing loss and pain. In the next clip vibraphonist Bobby Hutcherson appears locked in a grimace, which in another context might signify pain, but here is an indexical sign of a triplet motive incessantly repeated. Play Hutcherson Clip 8.

There are interesting similarities between facial grimaces in jazz improvisation and in an ecstatic religious practice indigenous to the southern region of the United States, known as speaking in tongues. In this practice a congregant after becoming possessed with the spirit of G-d begins to mutter gibberish or nonsense syllables. Many jazz performers grew up attending churches in which their friends and family members routinely spoke in tongues. In the next clip we see a woman speaking in tongues displaying a nose-wrinkle grimace remarkably similar to those found during climactic moments in jazz improvisation. Play Video Clip 8.

Finally, there is the issue of tics and twitches. Some jazz performers exhibit Type A behavior which is marked by scowls, teeth-clenching, and tics. Others suffer from conditions similar to Tourette's syndrome, which is characterized by involuntary tics and grimaces. Dexter Gordon is a good example of this. Here are two short clips in which he twitches involuntarily after completing his solos. Play Video Clips 9 & 10.

Conclusion / Questions Raised

In the fields of psychology and theater the face has been studied and categorized more than any other part of the body. The reason why so little attention has been paid to visual aspects of musical performance according to Davidson is due to the domination of the aural recording, the most common way of experiencing music. With DVD and video technology becoming prevalent perhaps more attention will be paid to the visual. The results of this study can be further applied to more detailed analyses of individual works and broader, multimodal studies involving hand, body, and torso gestures, and neurolinguistic research on the musical brain.

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