
Analyzing Energy: An Experiment Based on Practising three Solos by Bill Evans

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When I decided to become serious about playing jazz piano many years ago I set myself a scheme of work that involved an exercise of a particular kind. Prior to the internet age (the early 80's) it was hard to get hold of published transcriptions. However, several volumes of Bill Evans' piano parts from when he played in a trio were already available. One of them – *Bill Evans 3* – included the full transcriptions of the piano parts of three performances of his own compositions: 'Show-Type Tune (Tune for a Lyric)', 'Re: Person I Knew' and 'Peri's Scope'. The former two were recorded on 29 May 1962 (with Chuck Israels on bass and Paul Motian on drums) and the latter on 19 June 1970 (with Eddie Gomez on bass and Jack DeJohnette on drums)¹. At the time I practiced each of these solos following the score very strictly. Once I was on top of it, I practised playing them along to the recording trying to be the most exact copycat on every parameter: pitch and rhythm, of course, but also dynamics, phrasing, accents, etc. The idea was to try and mimic the performance as much as possible. With hindsight this has proved to be one of the most beneficial experiences in my training and I have learned a lot from it. To start with, I obviously gained some intellectual knowledge of Bill Evans' style, at the level of piano playing and improvisation. However, a whole set of sensations relating to rhythm and energy were also revealed to me in the moment of playing, which only a musical experience in *real time* could allow². This paper aims to highlight some benefits of this experience for the purpose of music analysis.

Theoretical Model

This survey is a case study based on three recordings of Bill Evans playing in a trio with a view to explore an approach of audiotactile works as systems of a nature both textual and energetic.

The model explored in this paper requires a fundamental distinction between two notions:

- the primary (auditory) text: this consists of what is heard on the recording: all auditory aspects revealing infinite sound, dynamic, intensity and timbral nuances.
- The secondary (or 'visive') text: it is a written text established from the primary text through transcription. The transcribing process produces a reduction or schematic presentation of the music which cannot account for the breadth and wealth of nuances present in the sound object but with the upside of providing the necessary scheme allowing analytical discussion.

The primary text presents the same material to all receivers (mind the caveat of potential differences between editions) while the secondary text may vary depending on choices made by

¹ *Bill Evans 3*, TRO-Ludlow Music, New York. The date of the first publication is unknown.

² I was tempted to say 'a real life musical experience', which would have been inappropriate considering it involved playing against a rigid medium (the recording) as opposed to playing with other musicians in a shared live experience. However, it certainly was a real time experience with a productive dynamic dimension to it which does not exist when analyzing a written text.

transcribers. The latter does not have the authorial quality of the primary (auditory) text and it is only of relative value because it chooses between features of the primary text and is affected by transcription choices and potential mistakes, for example.

We shall also consider an ‘energetic’ plane in the musical object, which consists of all the processes involving variations of intensity carried out at the poietic level and perceived at the esthetic level.

With these concepts in place one may differentiate between two levels of analysis:

- a ‘traditional’ textual analysis, which has always been the object of the familiar field known as music analysis. It consists of interpreting a certain materiality of a work in relation to the main features of a musical idiom (jazz in our case). The material features involved are precisely those that mostly can be noted through a descriptive transcription and it has been the main tool of jazz analysis.³ It is thus logical that it is based on the secondary text even if attention is paid to the primary text.

- By contrast, energetic analysis could be defined as a set of features which do not get revealed by the above analysis but nonetheless occur within an idiomatic framework that takes place on a level different from that of mere musical language. This level involves energy and has something to do with the audiotactile principle. In this context, energy as a category may be defined as a kinetic musical energy that produces movement taking place on a number of levels. A parametric approach (rhythm, harmony, melody, form and sound) seem to offer a most appropriate tool to give an account of what happens on the energetic plane. For each of the above parameters it will thus be possible to present some idiomatic manifestations that can be identified in the primary (auditory) text and also appear in the secondary (visive) text, on the one hand, as well as energetic manifestations on the other hand. Each type of energy (rhythmic, harmonic, melodic, formal and sound) is activated by a musical brain at work when performing. We will refer to this mechanism when speaking of operating energy, mental energy or cognitive energy.

In audiotactile musics – understood as musical practices based on extemporization and improvisation as opposed to a score or a visual medium, motor-sensory action is paramount and the musical brain is engaged in a number of ways:

In the mobilization of theoretical musical knowledge, either implicitly or explicitly (theoretical competence) as well as know-how with regards to processes (operating competence). The theoretical competence is purely intellectual whereas the operating competence relies on automatisms and is psycho-somatic⁴.

³ For a critique and defense of transcription as a tool, see Laurent Cugny, *Analysis of Jazz – A Comprehensive Approach*, Jackson, University Press of Mississippi, 2019, p. 239-262 and Vincenzo Caporaletti, Laurent Cugny, Benjamin Givan, *Improvisation, culture, audiotactilité – Édition critique des enregistrements du Concerto pour deux violons et orchestre en ré mineur BWV 1043 de J. S. Bach par Eddie South, Stéphane Grappelli et Django Reinhardt*, Paris Outre Mesure, 2016.

⁴ This distinction between two types of competence, qualified as ‘theoretical’ and ‘operating’, roughly matches up with Michel Imberty’s distinction between ‘*Schémes de relation d’ordre*’ and ‘*schèmes d’ordre*’. On this subject, Fabiano Araújo Costa says that ‘following in Molino’s footsteps, Michel Imberty looked for an alternative model to the hypotheses based on the existence of modular systems (like the generative theories inspired by Chomsky, those of Gardner or Lerdhal & Jackendoff) and suggested that time, movement and the understanding of the connection between movement and energy (physical, motor-sensory, psychological...) mobilized by the subject in action be taken into account.’ In a nutshell, while ‘generative grammar’ is adequate for the structures of objects, the ‘evolutive grammar’ developed by Imberty is a ‘grammar of processes’, the rules of which are founded as ‘schemes organizing sound events in time’. The ‘*schèmes d’ordre*’ involve intuitions occurring in the course of time while the ‘*schèmes de*

In relation to the instrument played while performing.

In interactions between the performer and the musical environment (of reference⁵) or the other performers.

Where energy is identified through the parametric lens mentioned above a Schenkerian type of model can be useful. In this context, each type of energy is initially generated by some sort of *Ursatz*: isochrony in the field of rhythm, chord changes (the chart⁶) for harmony, an original tune (chosen as a melodic starting point for the performance) for melody, as for form a 'head-solos-head' type of structure, and the sound of instruments for the sound parameter. Sub levels could also be used, such as meter within rhythm, some standard chord progressions within harmony, formulas, licks and quotes in the field of melody, the formal organization of the chart (as part of form), and all the possible combinations of tone colours for sound. The surface level is made of the rhythms played, the chronological layout of chord progressions, all the melodic lines played, the tone colours and the dynamic progression of the performance.

We move from one level to another with the help of localized energetic settings (syncopations, particular rhythms, polyrhythms, equivalent rhythms; various actions of extemporization or of an improvisatory nature; harmonic enrichment, chord substitutions, pedal points, etc. as well as sound incursions and dynamic variations of all kinds).

Cognitive energy is different in nature. It gives instructions to the other energies and presides over them. It organizes which musical knowledge is used as well as when and how (the skills within the knowledge base and the knowledge base with the referent⁷), manages interactions with other musicians⁸ and puts the various energetic levels into motion. Finally (or perhaps primarily), it activates the improvisatory imagination.

The numerous aspects of parametric textual analysis⁹ will not be discussed here. Prior to presenting an illustration of this model with an example we shall merely make an initial summary of the various energies involved here.

1. Rhythmic Energy: the audiotactile principle transforms isochrony (an inert, metronomic pulse) into what Vincenzo Caporaletti calls the continuous pulse, which is elastic, alive and present in virtually all audiotactile works¹⁰. This is a first level of rhythmic energy. In turn, this continuous pulse gets subjected to particular

relation d'ordre' are understood as the schemes organizing these intuitions according to syntactic logic or the logic of sound discontinuity. These dynamic schemes helped Caporaletti develop an important argument.

⁵ See *infra* note 7.

⁶ Or any other harmonic data used as a starting point depending on the context.

⁷ The distinction between these concepts, knowledge base and referent, is drawn from Jeff Pressing and theorized in Cugny, *Analysis of Jazz – A Comprehensive Approach...*, p. 67-73.

⁸ On this subject, the concept of 'Interactional-Formative Space' developed by Fabiano Araùjo Costa appears most useful (Fabiano Araùjo Costa, Poetics of the 'Interactional-Formative Space': About the Conditions of the Mutual Constitution and Recognition of the Audiotactile Musical Aesthetics Experience (Post-1969) as an Artistic Object', PhD thesis, Paris-Sorbonne University, 2016).

⁹ See Cugny, *Analysis of Jazz – A Comprehensive Approach...*, p. 81-207.

¹⁰ This covers jazz of the common practice era, pop, rock, rap, French *chanson*, Brazilian popular musics. Exceptions are to be found in the field of free jazz or improvised musics (but the audiotactile status of these is uncertain due to their ambiguous connection to phonography. For example, see Derek Bailey, *Improvisation; Its Nature and Practice in Music*, Ashbourne, Moorland, 1980, Mathieu Saladin, *Esthétique de l'improvisation libre – Expérimentation musicale et politique*, Paris, Presses du Réel, 2014, Clément Canonne, *l'Improvisation collective libre : de l'exigence de coordination à la recherche de points focaux : cadre théorique. Analyses. Expérimentations*, PhD thesis, Université Jean Monnet, Saint-Étienne, 2010. On the concept of continuous pulse and the ways in which it differs from the normal concept of pulse, see Vincenzo Caporaletti, *Swing e Groove*, Lucca, LIM, 2014, p. 65, 165 sq. ; 237 sq. ; 250 sq.

treatments producing discrepancies. These include the generic category of syncopation as well as the micro-adaptations found in groove and they form a second level of rhythmic energy characterized by the production of localized energies.

2. Harmonic Energy: It develops on the basis of harmonic data (a chart or any other setting used as a harmonic matrix for the performance). Some harmonic formulas may act as a secondary level (the I – vi – ii – V formula, for example). The various techniques of chord inversion, extension or substitution create additional levels. Harmonic energy *per se* is mainly produced by creating and resolving tension in various ways. In tonal music, this is mostly achieved by the main cadences (perfect, plagal...). In other contexts (blues, modal but also non functional), the same phenomenon may occur (for example the tension produced by tonalization in blues or the use of cadences in a modal context). Other generators of energy may present themselves depending on the situation.
3. Melodic Energy: Melody always turns out to be the hardest parameter to manipulate. If the original tune (otherwise known as the ‘head’ or ‘theme’ in common practice jazz) is seen as an *Ursatz*, then the breakaways produced by the processes of extemporization (pitch and rhythmic modification while maintaining the general shape of the melody) directly derive from this energy itself, as well as the melodic invention specific to improvising, of course.
4. Sound Energy: This manifests itself both at the level of tone colour and dynamics. All changes in tone colours have to do with a type of energy that may be seen as sound energy. The same applies to changes in sound dynamics – both at the level of sound volume and the level of tension associated with dynamics. For example, one could say that early bebop has made very little use of this energy. generally. It always uses the same instruments and they are played in a fairly immutable manner while dynamics rarely move outside of the medium range within a performance (and from a performance to another). It is clearly very different in free jazz or jazz-rock where the management of this energy is of paramount importance to the musicians.
5. Formal Energy: The concept is harder to grasp. Form is, indeed, always a resultant parameter: it gets identified by cross-referencing the other parameters, melody and harmony in particular. The three ‘primary’ parameters (melody, harmony, rhythm) are also closely related. The concepts of harmonic rhythm or broken chord (arpeggiated melody) illustrate this fact. However, it is possible to identify formal energy in various situations occurring while performing. These situations may be produced by the improvisatory imagination of a given musician (for example, deciding in the moment how many choruses a solo is going to have. Think of the various versions of John Coltrane’s *Impressions*). It may also be the result of interactions between the performers or may occur in settings where the form of the performance is not decided upon prior to the performance itself. In this context, the ‘intensity curves’ suggested by Denis-Constant Martin and Didier Levallet some time ago, and which they applied to sound energy mostly, could be seen as the formalization of formal energy¹¹.
6. Cognitive Energy: This type of energy is totally different. It refers to the mental energy that the musical brain needs to develop when it is involved in the audiotactile process. It is observed in mainly two processes: On the one hand, it focuses on holding all the different aspects (the components of the referent) of a

¹¹ Denis-Constant Martin, Didier Levallet, *L’Amérique de Mingus*, Paris, P.O.L., 1992, as well as Cugny, *Analysis of Jazz – A Comprehensive Approach...*, p. 285-286.

performance together. Put metaphorically, it has a horizontal (or diachronic) action. On the other hand, it draws on every aspect of the resources of the knowledge base (knowledge, technique, vocabulary, culture). Its action can be described as vertical (or synchronic). Both actions are actually co-ordinated by the brain in the performance process. Based on any given musician's knowledge base and the context provided by the referent, cognitive energy operates on various levels to solve technical issues, whether instrumental, rhythmic (syncopations, polyrhythms, equivalent rhythms, management of the continuous pulse, etc.), harmonic (managing chord progressions, chords, harmonic rhythm), melodic (choosing pitches for each melodic line) or to do with sound (tone colours and dynamics), form (managing hypermeasure¹², formal decisions at macro level), improvisation and interaction.

In this context, the performance in progress is perceived as the actualization and coordination of all these musical energies combining in the audiotactile process to produce a musical object presented in a recording. The analysis of this recording – the surface of which constitutes a primary text – aims to try and do the journey that has led to this musical object backwards, hoping to reveal as much of the processes involved as possible. The results are exposed both in visual-textual form and in process-based or energetic form. The former involves an update on the idiomatic front (rhythms played, harmonic layout, structure and form of the performance, tone color, orchestration, etc.). All these elements share a discontinuous nature and can be discretized, which means that a transcription can give a reasonably fair account of them generally and can serve as a basis for the analysis of such elements. The latter is more specific to the audiotactile process, gesture-based and involved with cognitive function. All these aspects are continuous and hard – if not impossible – to account for in graphic form via a transcription (though other means – computing in particular – can help to track them). They also largely depend on interpretation.

In the context described above a recorded piece may be seen as an energetic system of its own involving a production framework as well as processes. The general economy of this system is thus energetic and cognitive in nature.

The Example of Bill Evans' Solos

We will start with an introductory presentation of the anonymous transcription used as the basis for the specific analytical experiment described above as well as for the analysis of the visual text and the energetic analysis to follow. A sketchy analysis of the visual text will then be presented, giving a brief account of the three compositions and what Bill Evans made of them in the three recordings, as one would do in a traditional analysis and without going into too much detail. We will carry on with an 'energetic' analysis, still based on the visual text of the score but highlighting elements that can be discretized and that seem to produce a particular energetic flow or be produced by it. A special attention will be paid to certain elements (rhythmic ones in particular) and a description of three 'energetic systems', as we call them, will follow, before a final discussion of the experience itself and how it allowed access to 'energetic' elements that traditional analysis would not reveal.

¹² The concept of hypermeasure was first developed by Edward T. Cone (*Musical Form and Musical Performance*, New York, Norton, 1968) and later applied to jazz by Keith Waters. It consists in considering groups of bars as 'hypermeasures'. For example, in the AABA form most often presented as 32 bars (4x8) each line of 8 bars is seen as a hypermeasure, with each group of two bars making up a 'hyperbeat' in the quadruple hypermeasure. (Keith Waters, 'Blurring the Barline: Metric Displacement in the Piano Solos of Herbie Hancock', *Annual Review of Jazz Studies*, no.8, 1996, p. 19-37).

Preliminaries: Transcription, Chord Figuring

The transcription is very precise (pitches and their duration, rhythms, accents) and is virtually faultless. Chord figuring is available above the theme. As always when it comes to figuring chords choices have been made. It can be fairly synthetic (three or four sounds) or more descriptive (five sounds or more) with options for potential extensions, alterations, inversions and so on. One criterium to decide on a type of figuring (beyond choices motivated by the aims of the analyst) consists in asking whether a chord's specifications are structural or occasional. Is the alteration in a chord present in the theme or implied by the tune, or conversely does it only occur once in the course of the solo, which would suggest that it was produced by an improvisational impulse and thus has no reason to appear in the harmonic structure of the piece? Indeed, in the latter case, the alteration would be seen as an extension that happened during and through improvisation. The most convincing example can be found in the *ii – V – iii – vi* progression that is recurring in 'Peri's Scope'. The fourth chord in this progression (Am7) is systematically altered by Bill Evans during the solo but never when the theme gets exposed. It is thus clear that the structure implies an Am7 chord while the improviser chose to alter this chord when improvising, probably for a dynamic reason (this will be discussed further p. 27-31).

Based on this criterium, our figuring of this chord differs slightly from that in the transcription. Another example in 'Peri's Scope' (bars 7 and 8): the transcriber decided to make a C#, C, B, B \flat counterpoint played by Bill Evans on an E7 chord very clear so the following four chords are indicated: E13, E7(#5), E7, E(b5). Notwithstanding the fact that E7(b13) for the second chord would have been more accurate, it seems that merely indicating the root of the chord (E7) and in so doing leaving the counterpoint as a superstructural treatment of the theme (the counterpoint occurs when the theme is exposed and then recapitulated) but not of the improvisation chart, would have been more adequate, which an examination of the solo confirms.

Form and Harmony of Compositions

« Peri's Scope »

Dm^7 G 7	Em^7 Am 7	Dm^7 G 7		C	E 7	Dm^7 G 7
Dm^7 G 7	Em^7 Am 7	Dm^7 G 7	Gm 7 C 7	F $^\Delta$	B $^7(\#5)$	B $^7(\#5)$ A $^7(\#5)$
Dm^7 G 7	Em^7 Am 7	Dm^7 G 7	$\text{Em}^7(\flat 5)$ A 7	Dm 7	G 7	C

Figure 1: Harmonic Chart of « Peri's Scope »

It is a 24 bar chart which can be organized in three lines of 8 bars each, like above, though two lines of 12 bars would be equally acceptable. Indeed, the first 12 bars and 8 last bars are very tonal with the standard *ii – V – I* formula and its variant *ii – V – iii – vi* dominating. On the other hand, the transition F $^\Delta$ – B $^7(\#5)$ – B $^7(\#5)$ – A $^7(\#5)$ may read as a IV – VIIx – bVIIx – Vix progression where bVIIx¹³ is a tritone substitution of iii. In this approach, this is merely the

¹³ For this functional figuring we are using John Mehegan's notation system, in which a symbol is added to a degree in Roman capitals only if this degree is not presented in its original quality. For example, the symbol 'x' meaning a seventh chord is added to all the degrees displaying this quality, except for V as this degree already involves a seventh

unfolding of the circle of fifths in its entirety. However, if the systematic use of augmented fifths (which suggests an anchorage in the whole tone scale) is taken into account as well as the effectiveness of this substitution, then this transition of four chords appears more like a non tonal (or less tonal) interpolated clause.

« Re: Person I Knew »¹⁴

C	✂	Gm ^Δ	Gm ⁷	Fm ⁷	✂	Cm	✂
Fm ⁷	Cm	Fm ⁷	Gm ^Δ	Fm ^Δ	Gm ⁷	A ^b Δ	D ^b Δ

Figure 2: Harmonic Grid of « Re: Person I Knew ». A sustained C acts as a pedal point for all the chords

According to traditional jazz theory this harmonic chart would be labelled as ‘modal’. However, according to the normal taxonomy of jazz harmonic environments – tonal, blues, modal and non-functional – it would fit better in the last category. Without entering that debate it is clear in all cases that this chart does not belong in classical jazz tonality, as found in Broadway standards and the vast majority of jazz compositions before 1955, blues excepted. Some tonal elements are nevertheless visible. The passage alternating Cm and Fm chords can be seen as a repeated plagal cadence in minor. The last two chords, A^bΔ and D^bΔ, are undoubtedly the tritone substitutions of the ii – V progression. Their positioning at the end of the chart reinforces the traditional sense of suspension felt on the dominant, which puts the resulting harmonic accent on the first chord (C), which is therefore perceived as a true first degree in accordance with pure tonal logic. The permanence of a tonal centre implied by the pedal point on C hinders proper chord movement, which would suggest moving away from classical tonality.

As for form, we have organized this 16 bar grid in two lines of 8 bars but four lines of 4 would have been equally acceptable because of the position of alternating Cm and Fm chords in particular.

chord in its original form. Adding a symbol would be redundant in this case. Here B7(#5) is notated VIIx (the #5 alteration is not taken into account in accordance with the logic of a synthetic rather than descriptive function of degree figuring). The original quality of vii is ‘m7(b5)’ but it presents itself with a different quality here (7). It is thus appropriate to add the symbol associated with this quality (x). Bm7(b5) would have been notated vii without any symbol as it’s occurring in its original quality. This way, the addition of a symbol to any degree automatically signals the presence of at least one accidental (D# in the case of B7(b5)). Cf. Cugny, *Analysis of Jazz – A Comprehensive Approach...*, p. 99-108).

¹⁴ The title is an anagram of the name of Bill Evans’ producer at the time, Orrin Keepnews.

« Show-Type Tune (Tune for a Lyric) »

F A ^{7(b9)}	Dm ⁷	Gm ⁷	G ^{#o}	Am ⁷ A ^{7(b9)}	Dm ⁷	Em ^{7(b5)}	A ^{7(b9)}	Dm ⁷	⚡
Gm ⁷ C ⁷	Am ⁷ Dm ⁷	Bm ^{7(b5)} E ⁷	C ^{#m7} F ^{#m7}	Dm ⁷ G ⁷	C/E Am ⁷	Fm ⁷ B ^{b7}	Gm ⁷ C ⁷	Abm ⁷ Dbm ⁷	Gm ⁷ C ⁷
F A ^{7(b9)}	Dm ⁷	Gm ⁷ G ^{#o}	Am ⁷ Dm ⁷	B ^b B ^o	F/C Dm ⁷	E ^{b7}	⚡	F F ^{#o}	Gm ⁷ G ^{#o}
Am ⁷ F ⁷	Bm ^{7(b5)} Bbm ⁶	Am ⁷ Dm ⁷	Gm ⁷ G ^{#o}	Am ⁷ Dm ⁷	B ^b B ^o	F/C Dm ⁷	Gm ⁷ C ⁷	F	G ^{bA}

Figure 3: Harmonic Chart of ‘Show-Type Tune (Tune for a Lyric)’

The structure of this composition is particularly interesting. It can be seen in different ways. We have chosen a presentation in 4 lines of 10 bars as it highlights the ABAC form. Also, the B line clearly shows a ii – V upwards progression, progressing by whole tones up to bar 5, and alternating semitones and tones from then on but still upwards (the opposite movement to the downwards tendency that is a component of classical tonality) until the penultimate bar where a downward movement towards the first degree chord is initiated. Lines 1, 2 and 4 also look like they can divide into two sets of five bars while the third line looks like it could be divided into 4, 4 and 2. These last two bars can be seen as the real start to a 7 (or possibly 8) bar harmonic phrase. This ABAC form could thus be structured as 10–10–8–12 rather than 4 x 10. However, though the piece seems to be stemming from an ABAC traditional framework, asymmetry has filtered into it.

Finally, all three compositions use a traditional four beat metre and assume a ternary division of time. Tempos are 232 bpm for ‘Peri’s Scope’, 160 bpm for ‘Re: Person I Knew’ and 216 bpm for ‘Show-Type Tune’.

In the following analysis each composition is referred to using the acronym of its title: PS for ‘Peri’s Scope’, RPIK (‘Re: Person I Knew’) and STT (‘Show-Type Tune’ [Tune for a Lyric]). Bars are identified by their location, either in the theme (Th), a chorus (I, II, III), the return of the theme (Rth) or the coda. So the third bar of the theme is noted as Th/3, bars 7 to 9 of the first chorus I/7-9 and the eighth bar in the coda C/8. When referring to a specific moment within a bar we use the convention that identifies a moment in time within a bar following the model of graduated paper: a note occurring on the second half of the first beat will be noted 1,5 ; the third quaver of a triplet starting on the third beat 3,66, etc. The second semiquaver on the fourth beat of bar 7 in the second chorus will appear as II/7 (4,25).

Though the distinction between an analysis of the secondary (visive) text and an analysis of energy is not crystal clear let us assume that it is valid in order to highlight the elements that seem to operate at different musical levels. Put in very basic terms, let us say for now that a visual-textual analysis focuses on the behaviour of the music analyzed in relation to stylistic norms. The most common case can be found in harmonic analysis that focuses on the discrepancies occurring in relation to the harmonic system chosen for a performance. For example, the description and interpretation of Charlie Parker’s use of chords’ superstructures on a tonal standard, or the use of dissonance by a given musician in relation to a norm like classical tonality,

modality or blues harmony. In the field of rhythm, the focus may be on showing where notes take place in relation to isochrony, or how complex rhythmic formulas are, etc. This type of analysis mostly relies on transcriptions, of course.

At the level of music production, analyzing energy involves trying to understand how different types of musical energy are managed by performers and become part of the music as it is being made. From the point of view of music reception, the aim of such an analysis is to study how energetic aspects create and fuel interest in the music. It is based on sound data available from recordings. However, that does not mean that a graphic transcription cannot be of any use in this context. On the contrary, it is needed for reasoning purposes as well as for communication. Graphism may also help to reveal some aspects related to energy.

In the present case study – three solos by Bill Evans – the analysis of the visual text presented will not be comprehensive. Only a few rhythmical elements (syncopation and polyrhythm) will be discussed.

Elements of an Analysis of the Visive Text

Bill Evans' style of play is generally anchored in bebop (and Bud Powell's piano playing, which was his main point of reference). He displayed the fundamental aspects of this style but also developed them in certain areas, rhythm and chord disposition for example.

From a formal point of view, Bill Evans mostly stuck to one of the pillars of the common practice, the head-solos-head form.¹⁵ However, his repertoire is made up of his own compositions as well as standards (either drawn from Broadway or jazz) and a desire to move away from formal norms (mostly AABA and ABAC as well as structures of 32 bars laid out as 4 x 8) while maintaining the original flow, is often visible in his compositions, as is the case with the three examples discussed in this paper. This suggests that it becomes necessary to look into the ways that the discrepancies in the form of the compositions accommodate the enduring head-solos-head form of the performance.

From the point of view of harmony, Bill Evans is totally in line with bebop: he uses extended tonal harmony, respectful of the fundamentals of classical tonality especially with regards to chord progressions but in a version that incorporates some of the developments of art music, notably with regards to cadences and chords themselves. It reaches some of the furthestmost bounds of tonal harmony and goes over into modality and non functional harmony (the influence of early twentieth century impressionism on Bill Evans has often been noted). The specific jazz features are to be found in particular usages in chord realization and borrowing from blues.

The same observations apply to melody. With regards to melody (right hand), the bebop rhythmic style of Bill Evans manifests itself in his specific flow made of accelerations (triplets of quavers, or semiquavers in slower tempos) inserted among swing quavers.

¹⁵ On the notion of common practice, see Cugny, *Analysis of Jazz – A Comprehensive Approach...*, p. 14-15.

Figure 4: « Show-Type Tune », II/25-26

Figure 5: « Re: Person I Knew », IV/11-16

There is not much to point out about sound. A few exceptions put aside (a very punctual use of the Fender Rhodes electric piano), Bill Evans always preferred the classic jazz formats, mainly the piano-bass-drums trio or solo piano (and, more rarely, the quartet or quintet). Like all great pianists, it is clear that Bill Evans had a sound of his own that stood out. However, it is a factor of individuality, not a linguistic feature to be noted for itself.

From the point of view of rhythm, Bill Evans incorporated and followed the developments of bebop but went further, in particular in the field of polyrhythm (as well as the use of unusual time signatures and heterometre, but these aspects will not be developed in this article). We will now focus on two characteristic rhythmic features of Evans' style – syncopation and polyrhythm – showing how they present themselves in the chosen corpus. These two features - polyrhythm in particular, which Bill Evans explored to great depths - are among the distinctive markers of his style.

Syncopation

As for all jazz musicians, syncopation is the basis of Bill Evans' rhythmic style. In its most generic definition it refers to a quaver played between beats, whether it is slurred to a note on the beat, isolated (meaning not immediately preceded or followed by the quaver on the beat) or, conversely, preceded or followed by the quaver on the beat but is accented.

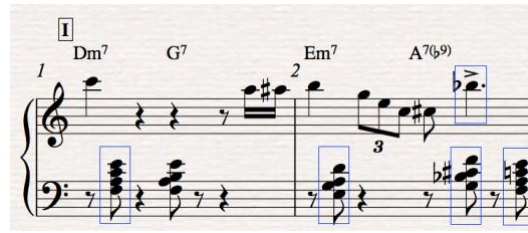


Figure 6: « Peri's Scope », I/1-2

In this example, four of the five chords played by the left hand are played between the beats, as is the Bb in the right hand positioned on I/2(3,5) but this time the note carries on onto the next beat and is accented.

A second level of syncopation can then be identified, resulting from a combination of notes that are themselves syncopated or not.

The syncopation of horizontal combination consists in alternating isolated (typically the punctuating chords in the left hand) or accented notes, in turn between the beats or on them.

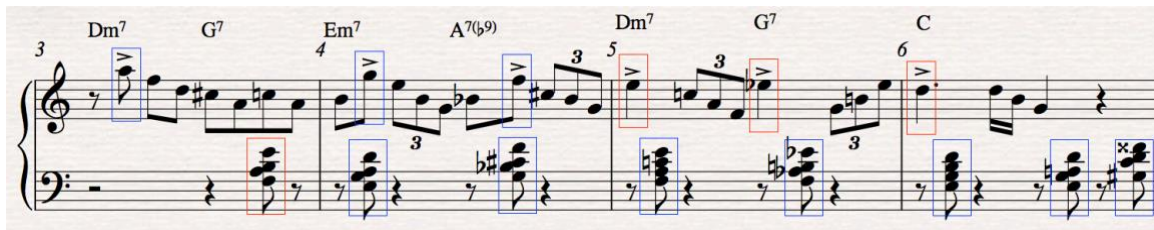


Figure 7: « Peri's Scope », I/3-6

An example of this can be found in the right hand above, between three syncopated notes that are accented and three notes accented on the beat¹⁶.

The syncopation of vertical combination consists in alternating notes played together by both hands and notes played with the hands out-of-sync. So four combinations are theoretically possible and may alternate: right hand – left hand: [on the beat - on the beat], [syncopation – on the beat], [on the beat - syncopation] or [syncopation-syncopation]. This alternation in itself generates an effect of syncopation at a secondary level.

In the same example, the second and third chords of the series (I/4) are played to support the syncopations in the right hand – I/3(1,5) – I/4(1,5) (= [syncopation-syncopation]); the next three chords are also played off beat but out-of-sync with the right hand as the accented notes of the phrase are on the beat this time (= [on the beat - syncopation]).

A particular case of combination syncopation occurs in the following passage from the exposition of the head / theme in 'Peri's Scope' where Bill Evans plays a rhythm of dotted crotchets in the right hand while playing the same rhythm a beat behind in the left hand.¹⁷

¹⁶ It is also worth noting that the six notes involved make up a descending line that is diatonic at first, and chromatic later on, which certainly reinforces an *Umlinie* effect.

¹⁷ Our interpretation of these rhythmic features as syncopation complements the concept of metric dissonance suggested by Harald Krebs and Peter Kaminski as it is applied to jazz analysis by Vincenzo Caporaletti with the concept of centrifugal or centripetal metric dissonance. See for example, Vincenzo Caporaletti, *Esperienze di analisi del jazz*, Lucca, LIM, 2007, p. 25, 108, 115 et sq., 188.



Figure 8: « Peri's Scope », Th/13-16

The alternation occurring here is of a different sort: horizontally, it takes place in both hands systematically between the notes that are in turn on the beat and off beat. It is thus possible to call it a systematic syncopation of horizontal combination. The vertical equivalent does not occur as the left hand is always a beat behind: the hands never play together (repeat of the [syncopation-syncopation] model). However, because the discrepancy is systematic it produces an effect similar to that of a vertical syncopation.

One can see the various textual elements mentioned so far as the product of a particular cognitive energy each, but also as producing each a specific effect with regards to energy. The simple syncopations go against the original isochronous pulse of the beats and thus produce a specific rhythmic energy. The syncopations of horizontal combination also produce irregularity and thus different sorts of rhythmic energy. Finally, the syncopations of vertical combination produce yet another type of rhythmic energy.

Polyrhythm

Polyrhythm as we understand it here involves a recurring rhythm long enough to be able to move forward or backward from the pulse. It may be created either by way of dynamic accentuation or by a pattern of accentuation derived from a melodic contour¹⁸.

The most common case is known as 3:4 polyrhythm or cross-rhythm, for example a series of quavers accented on every third note. Six beats are needed for the accent to be back on the first quaver and twelve beats for it to be back on the first beat of the measure again:

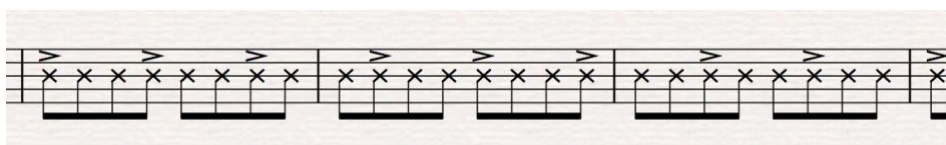


Figure 9: Example of 3:4 polyrhythm



Figure 10: Example of 3:4 polyrhythm stemming from a melodic pattern

Bill Evans is an expert at this kind of polyrhythm. Here are the most significant examples of it, put in order of increasing periodic length.

¹⁸ For a critical investigation of accentuation, see V. Caporaletti, *Swing e Groove...*, p. 255 et sq.

Accents every 2 quavers in a triplet (2:3) => 3 occurrences:

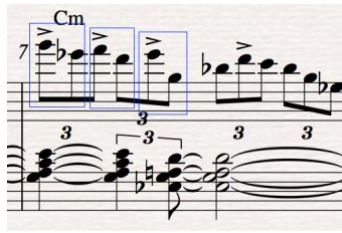


Figure 11: « Re: Person I Knew », VI/7

Accents every 4 quavers in a triplet (4:3) => 4 + 2 + 2 + 2 occurrences, separated by quaver rests in triplets:

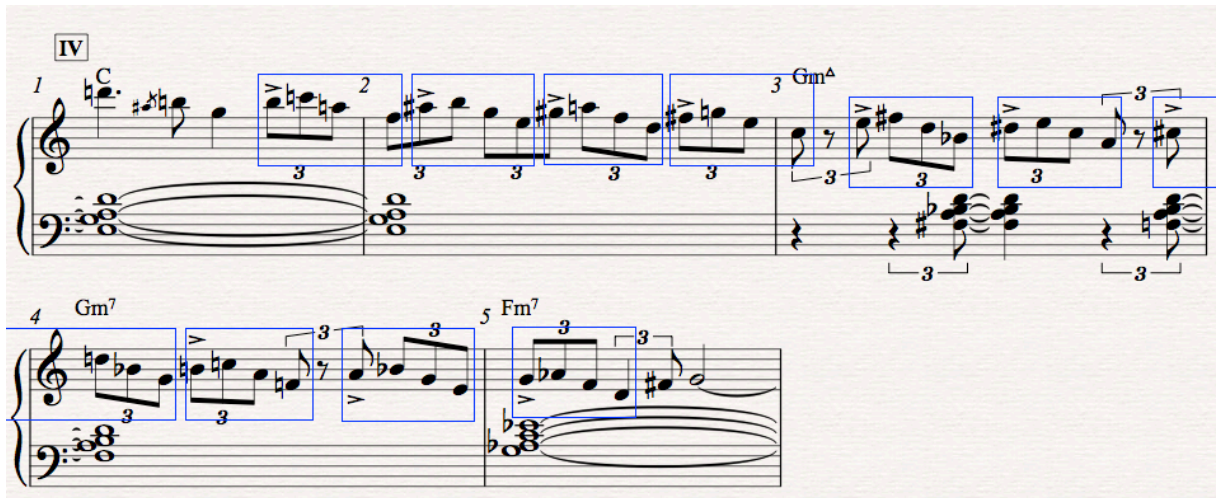


Figure 12: « Re: Person I Knew », IV/1-5

1 dotted crotchet (3:2) => 7 occurrences:



Figure 13: « Show-Type Tune », III/23-26

1 dotted crotchet (3:2) => 4 occurrences:



Figure 14: « Re: Person I Knew », III/1-2

1 dotted crotchet (3:2) => 7 occurrences:



Figure 15: « Show-Type Tune », II/21-24

5 quavers in a triplet (5:3) => 4 occurrences:



Figure 16: « Peri's Scope », II/7-8

4 crotchets in a triplet (4:3) => 2 occurrences:

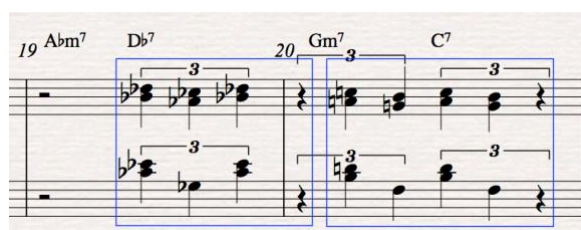


Figure 17: « Show-Type Tune », III/19-20

1 dotted minim (3:4) => 5 occurrences:



Figure 18: « Re: Person I Knew », VII/9-13

1 dotted minim (3:4) => 4 occurrences:



Figure 19: « Re: Person I Knew », VI/12-15

Particular case no.1: ([4:4], [3:4], [2:4]) => 1 + 3 + 1 occurrences:



Figure 20: « Re: Person I Knew », V/10-14

This is a sort of accelerating polyrhythm. A motive presents itself once as 8 quavers, then as 3 quavers (three times), then as 4 quavers.

Particular case no.2: ([4:4] and [3:4]) => 3 + 3 occurrences:



Figure 21: « Re: Person I Knew », IV/12-14

This is the same process. A periodic grouping is identifiable melodically 6 times: as 4 quavers the first couple of times (4:4, so not as a polyrhythm) and as 3 quavers only the following four times:

- (1) 4 quavers
- (2) 4 quavers
- (3) 3 quavers
- (4) 3 quavers
- (5) 3 quavers
- (6) 3 quavers

Elements for an Analysis of Energy

This may be called an ‘energetic’ analysis. It is based on the products of the visual text (as noted by the transcription) but it focuses on bringing out aspects of the music that do not proceed from this textuality. It ‘reaches’ out of the visual text in a way, moving in two directions: on the one hand, in the direction of reception – the energy in question is likely to be felt by listeners (the analyst acting as one) – on the other hand, in the direction of music production, taking into account the cognitive energy used and managed by the performer and developing hypotheses about it. As for the analysis of the visual text, only certain aspects are developed below, which focus on the playing style of Bill Evans. For example, aspects relative to interaction and the management of the continuous pulse (groove) which are at the core of audiotactile analysis will not be discussed here.

Energetic Rhythm

Some rhythms are not particularly remarkable in themselves. Yet, they have a boosting effect. They have an energetic value beyond and above their visible value on the written text. Here are a few examples drawn from the three solos:

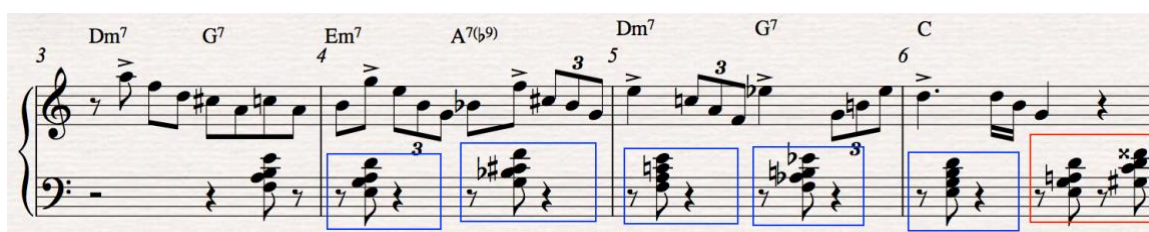


Figure 22: « Peri's Scope », I/3-6

The syncopated chords repeated at regular two beat intervals drive the music. The sixth occurrence of it (on I/6) with two chords puts an end to this micro-system.



Figure 23: « Peri's Scope », I/20-24

The same happens with the following rhythmic figure, played five times in a row: [dotted crotchet after the third beat – quaver (or crotchet) on the first beat]. Here again, a different conclusive formula closes the system.

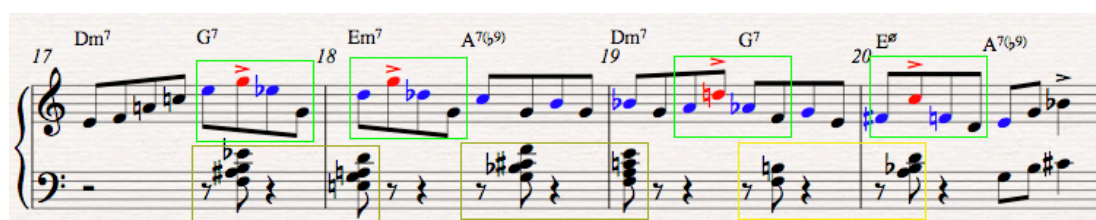


Figure 24: « Peri's Scope », II/17-20

The configuration here is very interesting: the figure of four quavers (with an accent on the second which is also the highest pitch in the group) played by the right hand and which occurs on the third and fourth beats of bar 17, first and second beats of bar 18, second and third of 19 and first and second beats of 20, also acts as a little engine generating energy. The set up does not involve regular repetition, only one consecutive repetition (bar 18 after 17) followed by a differed third (bar 19) and fourth (bar 20) occurrences. This set up combines with a chromatic descent from *E* at II/17(3) to *E* an octave lower at II/20 (3). This descent is perfectly regular rhythmically and seems to act as an *Urlinie* driving the energetic micro-system. The leadership of melodic over harmonic motion is blatantly clear here. If we attempted to analyze the pitches in relation to the harmonic system in use, many inconsistencies would appear (called 'harmonic discrepancies' in the next chapter) which actually make sense the moment that the melodic motion is taken into account.

It is also worth noting that the engine identified in the previous example occurs twice (bar 17 and 18), hardly modified (the first chord is short rather than long).

In « Re: Person I Knew »:

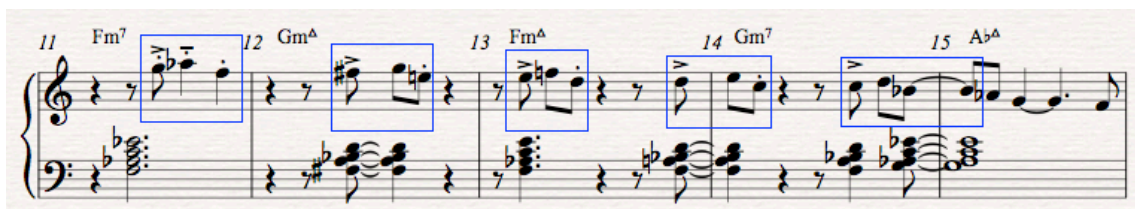


Figure 25: « Re: Person I Knew », VI/11-15

We feel like we are losing track of time with this descending, unsteady repeated phrase (which compares with what we called an 'accelerating polyrhythm' earlier).

This effect returns in the next chorus with a two-note motive played four times, in turn moving upwards or downwards, from VII/5(2,5):



Figure 26: « Re: Person I Knew », VII/4-8



Figure 27: « Re: Person I Knew », VI/9-10

We witness the opposite effect here. After a quiet bar, the rocket in VI/10 feels like a sudden activation, not just because of the semiquavers but also because of the pitches chosen that create an effect of perfect cadence. On the second beat, the three notes *G*, *B* and *D* may be understood as a fifth, major seventh and ninth of the *Cm* harmony. However, these are also clearly the three notes of the perfect chord on the dominant, before a strong melodic affirmation of the tonic function on beat 3 and 4. It sounds as if the pianist was undergoing a sudden change of mood and chose to end a period of modal wandering abruptly using a affirming perfect cadence. The resulting energetic effect is remarkably powerful.

In « Show-Type Tune »:



Figure 28: « Show-Type Tune », II/29-31

The regular presentation of the two-note rhythmic figure as well as the no less regular punctuating chord played by the left hand on the quaver following the second note of the figure generate an energy that gets reinforced by the upward motion of the phrase.

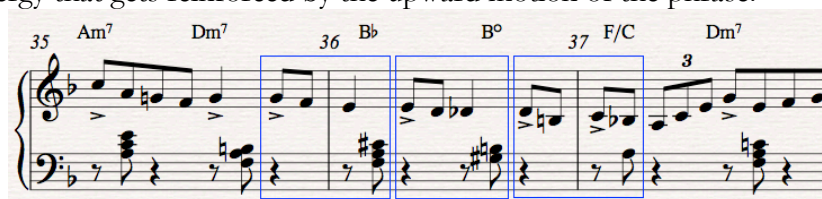


Figure 29: « Show-Type Tune », II/35-37

Same effect on three occurrences here. It is reinforced by the motive being placed on the afterbeat.

Same again below but this time the accent of the afterbeat is on the last note instead of the first.



Figure 30: « Show-Type Tune », C/6-8

‘Harmonic discrepancies’

In fast tempos the time available to think per bar is reduced and the cognitive energy has to operate on emergency mode¹⁹. Put more simply, it is a context where emergency is constant. One needs to think fast and to adjust to a fast changing performing environment. It seems undeniable that improvisatory thinking at the piano deals with a whole, played by both hands, but also involves the separate management of each hand individually. Because each hand follows its own logic, a hiatus between them may sometimes occur resulting in harmonic ‘mistakes’, which we prefer to name ‘harmonic discrepancies’²⁰. Musically speaking, this phenomenon cannot really be seen as a hiatus as the notes involved are horizontally justified by the logic of development followed by each hand, even if their vertical association may contradict some harmonic rules. There are many examples of this in our corpus, not only in the two solos in fast tempo but also in the slower one. There is never any harmonic mistake in Bill Evans’ playing actually: there are discrepancies that can be seen as hiatus in relation to the harmonic norm that the performer chose (extended tonality). They are of two types. The first – which is also the most common – involves the right hand playing a note that creates a minor ninth with a note in the chord played by the left hand that is not the root. The second type involves some alterations to chords that may end up in conflict with other unaltered chords as a result. Potentially, both types could prove more problematic in slow tempo because the two conflicting notes would coexist longer. However, it is unlikely that the pianist would produce this situation as he has more time available to think and avoid them.

In « Peri’s Scope »:



Figure 31: « Peri’s Scope », I/16

I/16(1,5): hiatus between *D* (right hand) and *C#* (left hand).

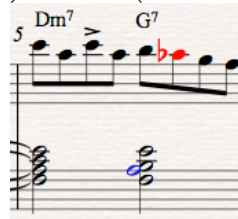


Figure 32: « Peri’s Scope », II/5

II/5(3,5): hiatus between *Ab* (right hand) and *A* natural (left hand). Here Bill Evans alters the ninth interval at the right hand but does not do so at the left hand. This hiatus is, however, quite minor: firstly because the copresence of two states of the same degree (here major and

¹⁹ A symmetrical phenomenon can occur at the opposite end of the tempo spectrum. I recall a conversation with Michel Grailler who was Chet Baker’s pianist for a while. He explained to me that Chet Baker played ‘My Funny Valentine’ so slowly that he (Michel) had to have the score handy as a safety net as the delay between each chord could be so long that he feared he could lose track of the chart and not know what chord was due next.

²⁰ In reference to Charles Keil’s ‘participatory discrepancies’ (Charles M. H. Keil, ‘Motion and Feeling through Music’, *The Journal of Aesthetics and Art Criticism*, 24, no.3, 1966, p. 337-49).

minor ninths) does not necessarily transgress the norm, secondly because $A\flat$ is a passing note between A (II/5(2,5)) and G (II/5(4)) according to the original logic to follow to alter the dominant chord. Nevertheless, there is ground to think that Bill Evans would not have taken the risk of this hiatus in a slow tempo.

In « Show-Type Tune »:

Some of these harmonic discrepancies occur on a chromatic passing note. We are pointing them out though as passing notes they are not really significant at this tempo:



Figure 33: « Show-Type Tune », II/5, II/14, II/26, III/1

II/5(2,5), hiatus entre $sol\sharp$ (m.d.) et sol (m. g.).

II/14(3,5) : hiatus entre sib (m.d.) et la (m. g.).

II/26(3,5) : hiatus entre sib (m.d.) et la (m. g.).

III/1(3) : hiatus entre $sol\sharp$ (m.d.) et sol (m. g.).

Some of these harmonic discrepancies occur on a chromatic passing note. We are pointing them out though as passing notes they are not really significant at this tempo:



Figure 34: « Show-Type Tune », II/20, II/37

II/20(3,5): hiatus between F (r.h.) and E (l.h.).

II/37(1,5): hiatus between $B\flat$ (r.h.) and A (l.h.).

In « Re: Person I Knew »:

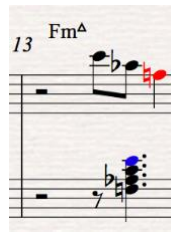


Figure 35: « Re: Person I Knew », II/13

II/13(4): hiatus between *F* (r.h.) and *E* (l.h.).



Figure 36: « Re: Person I Knew », III/7, IV/7, V/7, VI/7

III/7(2,5), IV/7(3,5), V/7(2,5) and VI/7(3): hiatus between *Bb* (r.h.) and *A* (l.h.). It is noticeable that Bill Evans thought Cm7 at the right hand and Cm6 at the left hand at measure 7 in four consecutive choruses (he plays either Cm[add9] or Cm7 at the left hand in the other choruses). This would tend to confirm the hypothesis of distinct cognitive processes (or dual cognitivity).

Chromaticism

Bill Evans rarely plays melodic chromatic series of more than four or five notes. His style is very strict from the point of view of harmony: he does not allow himself to move away from his norm of choice (bebop fundamentally) where dissonances are allowed within the limits of extended tonality. Long chromaticism can adapt to all harmonic situations by definition but, consequently, it has little expressive potential in this respect, for the same reason. It is thus logically excluded from the vocabulary of a pianist like Bill Evans. When it occurs it can be seen as a linking device or a moment of cognitive breathing, that is to say an automatism activated in order to free the musical brain from the present and allow it to focus on the future. There are a few examples of this in our corpus.

In « Show-Type Tune »:



Figure 37: « Show-Type Tune », I/17-18

Here is a case of six notes that can be understood as a linking chromaticism. At a tempo of 216 per crotchet there is relatively little time for real cognitive breathing.

Things go differently in the following example:

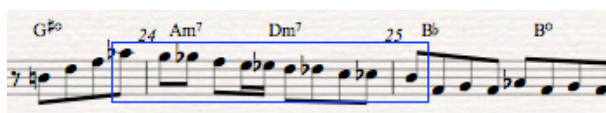


Figure 38: « Show-Type Tune », I/24

The chromaticism stretches over a measure and eleven notes. It is likely that Bill Evans was aiming at a note in the first chord of bar 25 but, in a way, it seems like he took a momentary vacation from harmony, which frees some cognitive energy.

The same goes for the ten note series below:



Figure 39: « Show-Type Tune », II/16-18

Return of the Root at the Left Hand

Carrying on from this idea that there are moments when the cognitive energy is momentarily saturated and the performer has not got enough of it available to work out all the parametres simultaneously, leading him to give up on some of them in order to gain some cognitive momentum, a hypothesis may be made along the same lines about some chord inversions at the left hand. It will be shown later that Bill Evans systemized them in his playing. He worked out in advance some preferred inversions for each chord quality, which is something that John Mehegan noticed and formalized²¹. Conceived for the purpose of orchestras with bass these inversions always omit the root (it is clear that things are very different for solo piano). However, some root positions sometimes appear in fast tempos. There are many occurrences of the sort in ‘Show-Type Tune’ and ‘Peri’s Scope’ in four, three or two sound chords.

Occasionnally, Bill Evans uses a four-sound chord in root position (1-3-5-7), for example on the diminished chord which is known to be harder to extend as it is often already altered without the root (G# = E7[b9]without root):

²¹ See *infra*, p. 27-31.



Figure 40: « Show-Type Tune », II/30, III/4

However, it may also occur on other chords ($G\flat^{\Delta}$):



Figure 41: « Show-Type Tune », II/40

Bill Evans may also use this position on the diminished chord but with a major seventh (F -double-sharp) instead of the diminished seventh (F).



Figure 42: « Show-Type Tune », II/4, Rth/4

The chord in root position may also get played with three sounds, as a perfect chord ($G\sharp^{\circ}$, Dm):



Figure 43: « Show-Type Tune », II/34, III/1, III/3-4, III/12

Or with the seventh without the third (E \emptyset , Dm7):

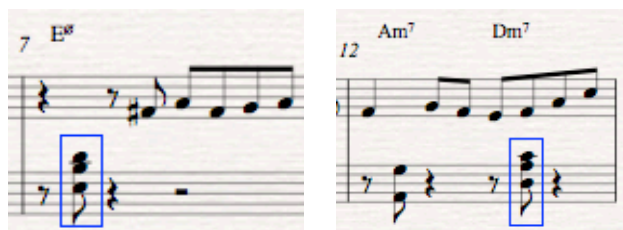


Figure 44: « Show-Type Tune », II/7, II/12

Or with neither the third nor the fifth (Am7):

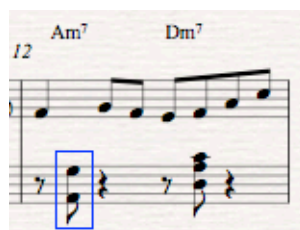


Figure 45: « Show-Type Tune », II/12

At II/12 Bill Evans plays both chord Am7 and Dm7 in root position, with two sounds first (with neither third nor fifth), then with three (no third again but with the fifth).

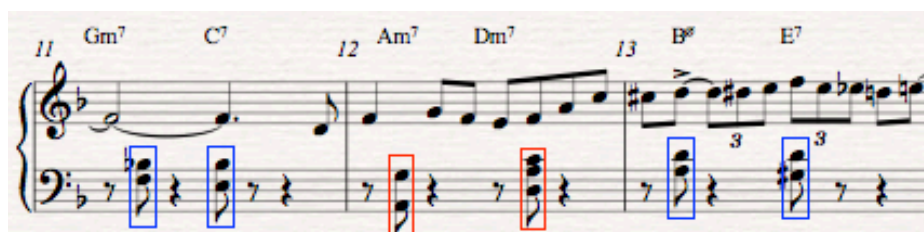


Figure 46: « Show-Type Tune », II/11-13

Even following a minimalist approach of two-sound chords (third and seventh, see the four chords framed in blue) there was no real reason (for example a descending melodic line going low enough to enter the zone of the chord realizations, as is the case in II/7-9) not to apply this rule to bar 12, playing G - C (Am7) first, followed by F - C (Dm7). For that reason, the hypothesis of cognitive breathing would seem plausible (though debatable by all means: these may well be deliberate choices, not emergency solutions).

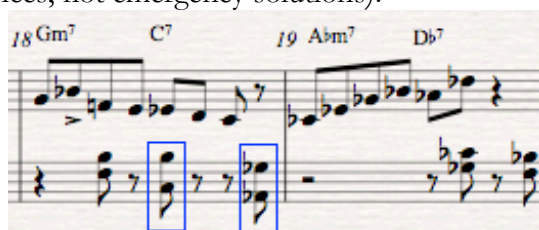


Figure 47: « Show-Type Tune », II/18-19

Here again it would have been possible to play *E-Bb* for *C7* and *Gb-Cb* for *Abm7* (as in the next bar) despite the right hand melody moving downwards slightly lower. Instead, Bill Evans plays both chords in root position with neither third nor fifth, probably as an emergency²².

The same occurs in II/39:



Figure 48: « *Show-Type Tune* », II/39

At II/23 the perfect chord (*Am* in root position) is played anticipating the next beat:



Figure 49: « *Show-Type Tune* », II/23

Some relatively similar cases can be found in ‘Peri’s Scope’, especially when the theme is exposed. In the ii – V – iii – vi formula, iii is sometimes played in root position (but we have seen that it can potentially be seen as a first degree, in which case it is Mehegan’s A form):



Figure 50: « *Peri's Scope* », Th/4, Th/10

The same happens in each of the two choruses where the *F^Δ* chord appears:



Figure 51: « *Peri's Scope* », I/13, II/13

²² It could be objected that Evans used the root in order to avoid doubling a third (a major third in *C7* but minor third in the melodic line and minor third in *Abm7* while major in the melodic line).

The most striking case occurs in five measures during the exposition of the theme: all the chords are two-sound chords (the root and the seventh) played in the root position, except for one chord, E \emptyset in Th/20, played with the diminished fifth only.



Figure 52: « Peri's Scope », Th/17-20

The same identical series returns in the recapitulation of the theme (we will see p. 34 that the recapitulation itself is nearly identical to the exposition). This series gets extended even, as the preceding bars (14 to 16) present three successive chords (B7, Bb7 and A7(b9)) in the root position but with three sounds this time: the root, third and seventh:



Figure 53: « Peri's Scope », Rth/14-16

We are thus presented with seven bars in a row in which the left hand chords are played in root position.

A few similar examples occur in 'Re: Person I Knew' as well but they are less significant due to the sustained pedal point on C which modifies considerably the dynamics related to the root.

Digital Enjoyment

Do some chord progressions shape the melody in particular ways? If so, could these be motivated (in part or entirely) by what feels good to play, what is pleasurable for the fingers, for example in certain patterns alternating white and black keys? Could a melodic pattern 'fit the hand' in the same way that actors can say of a text that it 'fits in the mouth'? It is tempting to say so noticing that on three occasions in the last two measures of the harmonic grid of 'Show-Type Tune' Bill Evans repeats the same arch-shaped melodic pattern on F - Gb^A - F.



Figure 54: « Show-Type Tune », [Th/39-40](#), [I/39-40](#), [II/39-40](#)

One could argue that this arch-shaped melodic pattern may have been chosen for its intrinsic textual quality. Yet, beyond the general pattern the initial notes are the same in all three occurrences (*E-F-A-C*). In fact, all the pitches are exactly identical in the last two instances. Bill Evans even makes a harmonic ‘mistake’ in the second occurrence, bringing Gb^{Δ} a beat early.

It could be a mannerism or cliché, of course. All musicians including the greatest have some in their bag of tricks. However, the recurring nature of this mechanism suggests that it may – at least in part, and in some cases more than others – have something to do with digital enjoyment.

Energetic rhythms, harmonic discrepancies, chromaticism, return of the root, and digital enjoyment constitute a number of aspects which, each of them considered individually (and it is likely that others could be identified), function on the energetic level of a performance. Their combination in a performance accounts for part of the recorded performance as a whole (the recorded performance being understood as an energetic system). However, some intermediary energetic systems may also exist, taking place between the elementary data and the whole. We will take a look at a few below.

Energetic Systems

Beyond the various aspects involved in energetic dynamics that have been discussed above, it is tempting to test the hypothesis that ‘energetic systems’ – defined as specific configurations producing a specific kind of energy themselves – may exist. Here are three examples: a harmonic formula linked to a type of chord realization in ‘Peri’s Scope’, an unaccompanied chorus in ‘Show-Type Tune’ and, finally, nearly identical exposition and recapitulation of the theme within the same performance (‘Peri’s Scope’).

The ii – V – I – VIx Formula and Mehegan's Chord Positions in 'Peri's Scope'

In the fourth volume of his general survey of styles in jazz piano²³, John Mehegan has formalized the left hand chord positions of Bill Evans when he played with a bass²⁴. It consists of two forms known as A and B, each synthesizing an order of pitches both vertically and horizontally in the four sound chords of the canonic ii – V – I tonal progression. It is assumed that the root is played by the bass and is thus not involved in positions; because they are played by one hand only, chords are in a closed position. The first chord (ii) starts on the 3 – 5 – 7 – 9 position initially²⁵ which, in C²⁶, corresponds to F – A – C – E for Dm7²⁷. The next chord (V) is built according to contrapuntal continuity, using the pitches available for each voice (which, in principle, amounts to all pitches available diatonically except the root: 3 – 4 – 5 – 6 – 7 – 9 – 11 – 13)²⁸. Its position thus derives from that of the first chord (so F – A – B – D for G7). Paradoxically, the third chord (I) is the most problematical. In theory, it contains three structural sounds only: those of the perfect chord. Moreover, the mechanical movement of such a cadence should impose that B in G7 progress to C in the C chord achieving harmonic resolution. This is a possibility and would be laid out as follows: 3 – 5 – 8 – 9 (E – G – C – D, which equates to C). Another option would involve keeping B, now a major seventh (laid out as E – G – B – D = C^A). It is often used but the instability caused by the leading note being present can speak in favour of the sixth (4). As a convention, this last option is chosen as point of reference here, though it is fully acknowledged that the other two options are perfectly acceptable and in use. The chosen chord for the first degree thus presents as 3 – 5 – 6 – 9 (E – G – A – D) = C6²⁹. The full progression looks like this:



Figure 55: Referent Position Mehegan A³⁰

The two symmetrical contrapuntal lines, built on two pairs³¹, appear with clarity:

²³ John Mehegan, *Jazz Improvisation, IV: Contemporary Piano Styles*, New York, Watson-Guption, 1965.

²⁴ Did John Mehegan develop this formalization based on the playing styles of several other pianists? The question is not discussed here. However, it provides a perfectly accurate description of the style of Bill Evans.

²⁵ The voicings of the chord are described from the bottom up and numbered in the same way (1 representing the lowest pitch and 4 the highest).

²⁶ All examples are taken from the C scale and the discussion will systematically be based on the major mode as the minor mode presents additional difficulties that we do not want to deal with here (See Cugny, *Analysis of Jazz – A Comprehensive Approach...*, p. 133-134.)

²⁷ The basic name of the chord is kept without taking into account possible extensions (in the present case the ninth is seen as an extension that does not justify modifying the information given by the basic name Dm7).

²⁸ A mechanical difference exists between 4 and 11 as well as 6 and 13 respectively. It has nothing to do with the place of the pitch within the chord; it is a matter of function. If 11 is present, then so is 3 (even if it is not heard, for whatever reason). Equally, if 13 is present, then 7 has to be as well).

²⁹ The ruling determining when a note 'can replace' another is neither abstract nor of obscure origin. Two conditions must be met for it to be valid. 1. It must be compatible with the general functioning of the formalized system. 2. It must essentially come from observing the performers in action. Indeed, these systems were originally intended to formalize existing practices, not to create theoretical and categorical rules that performers would choose to obey.

³⁰ This position is actually played an octave lower than is written, as indicated by the 8vb symbol. All A positions are indicated at this pitch. The convention also writes the bass line on the lower staff regardless of what bassists actually play, potential inversions or accidentals that they produce when playing other pitches than the roots.

³¹ 6 playing the part of 7 from a functional point of view.

3 – 7 – 3 (voice 1) symmetrical with 7 – 3 – 6 (voice 3)³²;

5 – 9 – 5 (voice 2) symmetrical with 9 – 5 – 9 (voice 4)

We name this position ‘referent position A’³³ though it is merely a theoretical basis from which a number of variants can develop in practice. Replacing 6 by 7 (*B*) or 8 (*C*) in the resolution is an example of it. Two other variants may occur: 1. The fifth in the second chord (*D*) may be replaced a thirteenth (*E*). 2. The fifth in the first chord (*A*) may be replaced by an eleventh (*G*).

A chord may be added to the model (degree vi), which is needed for harmonic isorhythm (2 chords per measure). The same principle applies, building the Am7 chord as 7 – 9 – 3 – 5 (*G* – *B* – *C* – *E*). The four chord progression looks like this:



Figure 56: Referent Position Meghan A

A change in the sequence of chords is the necessary consequence of the descending motion in the circle of fifths which logically³⁴ occurs between I and vi (C6 and Am7). From the point of view of continuity in the voicings the sequence should rather read with vi at its place in the circle of fifths progression:

vi – ii – V – I

Am7 – Dm7 – G7 – C6

5 – 9 – 5 – 9

3 – 7 – 3 – 6

9 – 5 – 9 – 5

7 – 3 – 7 – 3

³² The line would have been perfectly symmetrical (7 – 3 – 7) if the major seventh *B* had been chosen as a resolution. However, it must be repeated that the variants (8, 7 or 6) have no impact on the structural symmetry between the voices.

³³ The B position (which is preferred for keys between *G*♭ and *B*) will not be discussed in this paper even if it is used just as much as A. In the B position the first and second voices are placed under the third and fourth, following this pattern:

5 – 9 – 5 (voice 1) symmetrical with 9 – 5 – 0 (voice 3) ;

3 – 7 – 3 (voice 2) symmetrical with 7 – 3 – 6 (voice 4).

³⁴ Tonal logic requires contrapuntal continuity before the resolving chord of the progression.

However, for the purpose of reasoning we will keep the real chronological order of the progression:

$$\begin{array}{c} \text{ii} - \text{V} - \text{I} - \text{vi} \\ \text{Dm7} - \text{G7} - \text{C6} - \text{Am7} \\ \\ 9 - 5 - 9 - 5 \\ 7 - 3 - 6 - 3 \\ 5 - 9 - 5 - 9 \\ 3 - 7 - 3 - 7 \end{array}$$

Some supplementary information needs be given before carrying on with our case study. ii – V – I and ii – V – I – vi formulas have been mentioned. Actually, through diatonic substitution iii could replace I as both degrees are morphologically identical. However in a trio with bass, which note is going to be at the bass, *C* or *E*, (and possibly which degree) is eventually the bassist's decision. When he plays *E – G – A – D* at that moment, Bill Evans emits a C6 chord as well as Em11 and thus cannot contradict the bassist.

We have made the decision to keep the first degree (I) to talk about the formulas and the positions of the chords in general but, actually, in the present context it is fair to say that we are dealing with iii, as shown by the harmonic chart. Indeed, considering the level of repetition of the formula, a recurring first degree would hinder any kind of harmonic 'take off' and its repetitive entrenchment in the resolution chord would make any final resolution fall flat.

Moving on to 'Peri's Scope', it is worth reminding the reader that, firstly the composition is, from the point of view of harmony, mostly based on this formula (ii – V – I – vi) and, secondly, that the piece is in fast tempo (crotchet = 232). Why does tempo matter in relation to harmony? The faster the tempo, the greater the cognitive tension: as the time available to think per time unit is reduced, automatisms grow proportionally more necessary as a cognitive basis. Indeed, the more 'pre-thought' material is involved in automatisms, the more time is available to focus on creative improvisatory actions. For this reason, and because we are trying to identify automatisms serving the improvisatory process, it matters to deal with an example in fast tempo.

What is then observed? The formula of reference for chord positions – which originates in a stylistic and theoretical decision as well as some effort to integrate it to the performer's automated bag of tricks – provides the required cognitive tool to release some necessary thinking time. Observing improvisation in action reveals this automatism through its variants.

The Mehegan formula of reference as it has just been described (Fig. 57) gets modified in two ways. On the one hand, Bill Evans uses the A form in the definitive form presented by Mehegan himself: he prefers the thirteenth *E* to the fifth *D* in the G7 chord. On the other hand, he uses a harmonic substitution³⁵ consisting in replacing vi by VIx³⁶ and he alters the chord by

³⁵ Harmonic substitutions consist in replacing a degree by a chord with a different quality but on the same root. The most characteristic example is found in secondary dominants: the chords containing a minor third in the series of the

way of minorizing the ninth (B \flat) and the thirteenth (natural F). The chord progression becomes like this:



Figure 57: Mehegan's Position A (ii – V – I – VIx), called 'Peri's Scope'

It can be synthetized as follows:

ii – V – I – VIx

Dm7 – G7 – C6 – A7(b9b13)

9 – 13 – 9 – 13³⁷

7 – 3 – 6 – 3

5 – 9 – 5 – 9

3 – 7 – 3 – 7

Looking at the transcription of 'Peri's Scope' (and playing it) it seems clear that in the numerous occurrences of the ii – V – I – vi progression as it appears theoretically in the composition, Bill Evans chooses (in this tempo) to formalize it in this position of reference at the left hand and it thus becomes an automatism. This is how he plays it when all of his cognitive energy available is engaged elsewhere. He may, however, transform it by way of minimal cognitive operations which do not challenge the whole plan thought out in advance and which is instantaneously available 'in his fingers'.

Statistically, the progression in point occurs four times in the harmonic chart. Taking into account this solo and its two choruses only, there are eight occurrences altogether. The formula of reference (automatism) is played six times without any modification. Two variants occur: in I/9

cycle of fifths get replaced with seventh chords: Bm7 (b5) replaced by B7, Em7 by E7, Am7 by A7, Dm7 by D7 (See Cugny *Analyser le jazz*, Paris, Outre mesure, p. 119-120).

³⁶ The norm used to figure chords is John Mehegan's (in the book previously mentioned). To put it briefly, it advocates for a set of symbols each corresponding to a certain chord quality (M for 6 or Maj7, x for 7, m for m7, ø for m7(b5) and ° for a diminished chord, rather than adding the same symbols that are used in lead-sheets and added to Roman numerals. The symbol is only used when a chord's quality differs from that implied by its degree. So, for example, we do not write iim or Vx as ii and V imply a 'minor' or 'seventh' quality, as defined by their respective corresponding degree. The main upside of this figuring system, compared with the standard 'Berklee' system, is that it provides an additional piece of information: the presence or absence of notes from outside the concerned tonality in the chord considered (see Cugny *Analysis of Jazz – A Comprehensive Approach...*, p. 99-108). See also *supra*, note 14.

³⁷ In this presentation of the voicings (vertically and horizontally) degrees are considered in abstract, without taking their nature into account (major, minor, perfect, diminished or augmented).

and I/10 the first degree is omitted and in II/3 and II/4 VIx is omitted and replaced by a repeat of the first degree in the same position.

Looking at ii – V – I progressions only (with or without VIx), it appears that it occurs eight times in the chart (the last one on a slower harmonic rhythm of one chord per measure), which means sixteen times in the two choruses (actually only fifteen times as the last occurrence is neutralized by the repeat of the theme). The automated formula appears in ten occurrences, with a slight variant on one occasion (in II/19 only two notes, *F* and *B*, are played in *G7*, so *A* and *E* are omitted). Four significant variants occur, each corresponding to an alteration of the dominant chord (*V*): in I/5, the ninth and thirteenth are minorized (*A^b* and *E^b*); in I/27, II/11 and II/17, the ninth is augmented and the thirteenth minorized (*A[#]* and *E^{b38}*). It is not unreasonable to assume that in these four cases of substantial modification of the formula a improvisatory decision was made by the pianist in the time that the automatism freed up.

What does the ‘energetic system’ that has just been presented consist in? It is made of two elements: the treatment of a harmonic formula and the way that the left hand is going to deliver it. The dynamism of the formula is stressed by three elements: firstly, the ii – V – I disposition instead of I – ii – V. The resolving chord is placed on an even measure, which is thus weaker and diminishes the conclusive effect. Secondly, the presence of iii instead of I also diminishes the sense of root. Thirdly, in substituting the secondary dominant VIx to the original degree vi, Bill Evans intensifies the boosting effect as he moves on with this same formula or another one. His use of the formula, in the Mehegan disposition described, conveys an energy that fuels groove and improvisation rhythmically, harmonically and melodically (through counterpoint).

First Chorus of the Solo in ‘Show-Type Tune’

This chorus is entirely played by the right hand (no left hand):

³⁸ The transcriber has chosen to write *C^b* and *B^b* where theoretically it is *B* (third of the chord) and *A[#]* (augmented ninth).

Figure 58: « Show-Type Tune », chorus I

The energetic effect is very strong when the left hand plays again from the first measure of the second chorus³⁹. Bill Evans repeats the process in the same piece for a four-measure phrase:

³⁹ Keith Jarrett uses the same technique (no left hand) to achieve the same energetic effect by way of densifying the texture.



Figure 59: « Show-Type Tune », III/5-10

However, in the present case, rather than pursuing an effect involving forgetting the accompanying left hand, it would be fair to assume that the idea was to free the lower medium register in order not get in the way of the descending motion of the phrase.

Having already noted the lack of accompaniment in the whole chorus one may also notice a very peculiar relationship between the tune and the harmony. Bill Evans simply arpeggiate chords, using very few extensions and hardly altering any chord⁴⁰, as if the right hand had to express the harmony that the left hand did not reveal, and also as if the musician needed to review and spell out the harmonic progression before taking off from the second chorus on.

If these observations have any relevance it is possible to see this process as yet another example of energetic system.

Identical Exposition and Recapitulation in ‘Peri’s Scope’

It is a striking feature of ‘Peri’s Scope’ that the exposition and recapitulation of the theme should be nearly identical to each other: virtually the same presentation of the head, the same inversions and the same rhythmic placements occur. A jazz theme is expected to be subjected to some kind of extemporization in the common practice, which involves a different treatment of each occurrence, should it be at the beginning and end of a head-solos-head form in the same performance. In this context, how can the present counter-intuitive process be interpreted? In this case at least it may be that a logic of music writing is getting the upper hand over the logic of extemporization. As the theme gets worked at it tends to crystallize progressively. It starts to find an expression that seems to become necessary. If this is understood in a literal sense, there is little incentive to make changes subsequently. This phenomenon occurs with certain themes: in the version of ‘Israel’ recorded on the 2 February 1961 by the same Bill Evans the theme is exposed twice virtually unchanged. The recapitulation at the end of the performance is also very close to the original. When Bill Evans recorded this piece again on 19 June 1970 (nearly nine years later) he played roughly the same arrangement of the theme again.

The same phenomenon can be observed with other musicians. With Thelonious Monk, for example, many compositions have compulsory contrapuntal melodies, sometimes going as far as whole arrangements. In some cases (‘Crepuscle with Nellie’) this may even render the following step of solo improvisation superfluous: the arranged composition is self-sufficient and music writing prevails. The two versions of Brad Mehldau’s composition ‘Lament for Linus’, as a trio (4 September 1996, *The Art of the Trio 1*) or solo (1 or 2 February 1999, *Elegiac Cycle*) are identical to the note.

⁴⁰ D# in I/8(1) is an exception. Bb and C (which should be noted B# as the augmented ninth) in bar 5 are not taken into account: they confirm the original tonality (F) rather than appear as chordal alterations. Ab in bar 18 is to be understood in a context of momentary tonal logic as belonging to Eb.

It is probable that many other examples could be found. Should this phenomenon be seen as an ‘energetic system’? I believe so as it seems to me that we are not (or not merely) dealing with aesthetic, artistic or theoretical and somehow abstract choices. Formative necessity seems to be taking place and impose its law beyond the performer’s will⁴¹. In this context, the energy in point is developed by the piece in process.

Conclusion

Let us go back to the initial experiment which involved learning a transcribed solo (which I had not transcribed myself) and playing along to the recording. If this exercise is practised with the required discipline – which means forcing oneself to copy the recording in the most *exact* way – it proves to be an invaluable way of interiorizing the groove (as well as the articulation) of the music. One feels (and knows) when one is at one with the groove or just vaguely close to it. Variations of tempo – when they occur – are also perceived in this utmost effort to adjust to the recording.

Besides, the level of difficulty in getting the rhythm right is proportional to its complexity. The harder a rhythm is to play, the more likely it is that this is due to a rhythm being more complex. It seems that both aspects increase in a parallel and homothetic way.

Of course, this experience does not compare with groove adjusting between musicians in a real performance. When playing along to a disc there is no interaction as one of the parties is definitely set through recording (a situation which compares to recording a track in re-recording). In this respect, it is a less musical experience. However, its pedagogical value is undeniable as it makes groove, variations in tempo, rhythmic complexity, rhythmic tension and generally most of the rhythmic and articulatory aspects of the recorded performance, palpable in a non verbal way. It compares with another exercise that involves a student trying to repeat what the teacher has just played without verbal interaction. The advantage of this exercise lies in the teacher playing live, as opposed to the previous experience with a recording. However, this is compensated by playing in real time with the recording, which makes ‘taking one’s time’ impossible and forces the performer to adjust to the real time of the performance (even if that performance now fixed on record).

Though this experience does not hold the keys to everything, of course, it still seems a very worthwhile tool to use on a pedagogical journey and even more so in the development of a performer. Its value lies in the fact that it addresses pedagogy as well as analysis and explores both the visive text (analysis of the tones played and fixed in the transcription) and energetic aspects (the sensations felt whilst playing to the recording).

Finally, this experience can be made without using a transcription by learning the recording by heart. Avoiding a visive medium and all visual representations is the upside of this approach. However, assuming that the aim is the most exact reproduction possible, it faces the challenges of memorization in the case of long and complex recordings. There are thus three types of experience that can be made: reading the transcription without using a recording, reproducing a recording without using a transcription, and reproducing a recording *via* its transcription, which was the case discussed here.

⁴¹ Extensive quoting in Ella Fitzgerald’s scat improvisations seem to me to have something to do with music writing gaining power and formative necessity but this is a matter for further investigation.

I am aware that the distinction between the analysis of a visive text and an energetic analysis is by no means as clear-cut as this paper may have seemed to suggest. In a way, every element observed in a visive text has an energetic aspect to it. However, the opposite is not true, which is where the distinction may become valuable: some energetic elements may not appear visible in the visive text, or their energetic value may not necessarily be identifiable from it. For example, the [dotted crotchet - quaver] figure in 'Peri's Scope' (Fig. 23) is not particularly powerful in itself but its repeat at that specific moment undeniably produces a rhythmic boost that can be clearly felt when playing it (and probably when listening to it) while it may not come across as particularly strong when reading it on the transcription.

However fragile and difficult the distinction between the two types of analysis may be in concrete analytical terms and in the analytical process, it still seems to me that it may offer a way to overcome having to choose between looking at the process or the product. We have previously discussed this issue elsewhere and will not develop it in any great length here again. However, the procedure described in this paper leads to a constant movement (which I deem necessary) to and fro between the product (designated as the 'text' in our case) and a process of music production where energy plays a foremost part. Speaking of my own personal experience made over forty years ago, and reflecting back on it, I am impressed not only by the impact that it had on my development in jazz improvisation but also by the enduring mark that it has made on my musical spirit.

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