

## Embodied Music Theory and Improvised Composition: Bill Evans, the Architect

**Abstract.** This article explores the connections and implications between a solo improvisation by Bill Evans, “Peace Piece”; a contemporaneous music theory, George Russell’s *Lydian Chromatic Concept* (LCC); and my own analytical measurement, Pythagorean Height. I introduce the idea of Pythagorean Height to articulate a harmonic logic I hear in Evans’ performance. Like “Peace Piece”, Pythagorean Height resonates in many ways with Russell’s ideas, but also differs in crucial details. It is these resonances, as well as the discrepancies, that form the body of the article. Russell has referred to the Pythagorean ‘prototype’ of his ‘Lydian proclivities’ (Russell 2001: 53). The idea of Pythagorean Height builds on the possibilities afforded by this ‘prototype’ and my contention is that Bill Evans’ improvisation on “Peace Piece” is similarly built upon this prototype. Though there are historical and contextual connections between Evans and Russell, the article is not one of historical exploration, but rather a consideration of how three related ideas help to clarify, illuminate, re-enforce and critique one another. In discussing a personal propensity to “consciously abstract principles and put them into [his] own structure”, Evans noted that “a painter” should be “a draftsman, too, and an architect”. In adopting and following on from this metaphor, the article sets up two apparent dichotomies, rhetorically, between embodiment and improvisation on the one hand, and theory and composition on the other. The intent is that the article will emphasise the falsities of these dichotomies to be understood as ‘straw men’ framing the paper’s discussion.

**Keywords:** Bill Evans, George Russell, Pythagorean Height, Lydian Chromatic Scale, the Lydian Chromatic Concept, modal jazz, jazz theory.

### 1. Introduction

In this article I consider “Peace Piece”, a solo improvisation on Bill Evans’ 1959 Album “Everybody Digs Bill Evans”, and its relationship to George Russell’s *Lydian Chromatic Concept* (LCC), a contemporaneous music theory. I introduce my own analytical measurement, Pythagorean Height, in order to articulate a harmonic logic I hear in Evans’ performance. This measurement, like “Peace Piece”, resonates in many ways with Russell’s ideas, but also differs in crucial details.

Russell’s Lydian Chromatic Concept organises a select number of scales, and the equal-tempered chromatic pitch-classes of western music, into an order according to Russell’s ranking of their ‘distance’ from (and hence consonance with) a ‘Lydian tonic’. His fixation with the idea of the Lydian scale comes from the observation that the stacking of fifths above a note creates a Lydian mode on that note once seven pitch-classes have been generated. My own measure, Pythagorean Height, continues this same process, instigated but not followed by Russell, into chromatic space, thereby arriving at a slightly different chromatic ordering than Russell.

The 2001 edition of Russell’s book on the Lydian Chromatic Concept refers to the ‘Pythagorean prototype’<sup>1</sup> of the Concept (Russell 2001: 53). I understand this ‘Pythagorean prototype’ to mean the continuous stacking of fifths, in our case equal-tempered fifths, in order to construct specific pitch-class spaces, just as we might construct a diatonic scale in Pythagorean tuning by tuning a stack of ‘pure fifths’ above a given bass. It is this ‘prototype’ that provides a remarkably apt insight into Evans’ improvisation on “Peace Piece” as well as a ground for the idea of Pythagorean Height.

Unlike Russell’s ideas alone, Pythagorean Height offers us an elegant structural description and explanation of “Peace Piece” that has aural credibility, and an analytical insight otherwise unavailable to us. In addition to Pythagorean Height articulating the piece convincingly, it is also my contention that the measurement has broader applications. This notion is posited explicitly, though perhaps indirectly, by Russell and is explored explicitly by Evans in his performance. It is also, seemingly, re-enforced by commentaries on Evans’ performance that identify, without being able to specifically articulate, a structure illuminated by Pythagorean Height.

In this way, my analysis is outward looking, just as my analytic method is inward looking. To use Russell’s parlance, the former is “outgoing” the latter “ingoing”, terms that for Russell, and us, simultaneously imply both position (distance) and motion (direction).

Russell’s own attempts to generalise his observations should be treated skeptically. They are at once grandiose and vague, and challenging in their inconsistencies. That the theoretical basis of the Concept might be applied more broadly, however, seems to be an animating force for Evans. Even if we are skeptical of the truth value of Russell’s claims, there is no denying their practical impact for Evans.

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<sup>1</sup> Throughout this article double quotations are used for direct quotes while single quotes are used within direct quotes, when paraphrasing, to identify nonstandard or unusual terms, or to draw the reader’s attention to some kind of special usage.

## 2. Finding Peace (Piece)

At 3:37 in Bill Evans' recorded performance of "Peace Piece", something remarkable happens. After an entirely diatonic opening, Evans' finger strikes a confident F sharp that punctures the well-established structure beneath (Evans 1959). This emphatic question mark sounds above the unrelentingly established C bass and ostinato in C, which will continue through the entire piece (see Ex. 1). Evans repeats his question mark, doubling down as if to underscore its importance (Ex. 2).



Example 1. Evans, "Peace Piece", mm. 1–3, ostinato (Aitkin 1980: 46)



Example 2. Evans, "Peace Piece", mm. 43–44 (Aitkin 1980: 48)

This question mark does not, however, articulate an ending for Evans so much as the rhetorical *beginning* of a harmonic exploration quite unlike anything in the preceding three and a half minutes of the piece. This F sharp is crucial to coming to terms with the entire piece, as Evans' re-articulation makes clear. He is making a point, drawing our attention to the start of a musical argument he is about to construct 'before our ears'.

One might suggest this F sharp is the predictable – probable – deviation from the given diatonic set. We could, for example, note that F must be sharpened in order to arrive at the 'first secondary dominant' – the dominant of the dominant – of C. That is to say, it is the leading note of G. This gives us an immediate and intuitive sense of an F sharp's 'nearness' to the diatonic set, but seems to misconstrue its function within, and the stylistic conventions of, a piece where secondary dominants play no direct or apparent role. We should, however, hold on to this instinct of 'distance', which will contribute to our understanding of both Evans and Russell.

Viewed another way, this F sharp immediately – almost garishly – seems to evoke Evans' colleague, collaborator and former teacher, George Russell, and the theoretical idea that made him both famous and infamous: the Lydian Chromatic Concept. Grove acknowledges the significance of this idea by noting that it was "immediately received as the first major contribution by a jazz musician to the field of music theory" and it is a concept still (anecdotally) important to, and held in high esteem by, jazz pedagogues.

Russell is adamant that the Lydian scale is the 'natural' scale above a given bass (above a 'Lydian Tonic', as he would put it). I will remain agnostic on this point, which I think answers a question 'of its time' in a way that is also 'of its time'. It is enough, at this stage, to know that Russell held this view as sacrosanct and that it is – in the broadest possible sense – the central tenet of his musical theory. At this moment in "Peace Piece", Evans seems to make the same argument, or at least posit it as his hypothesis.

The next non-diatonic note Evans strikes, however, is an almost apologetic C sharp. He lowers the dynamics, slows the rhythm, softens the attack and moves to the very top of the piano. The emphatic F sharp and apologetic C sharp help us to construct a comprehensive and compelling understanding of the piece. We will return to C sharp in a moment but first I want to provide an overview of the Lydian Chromatic Concept.

## 3. The Lydian Chromatic Concept(s)

To refer to "the Lydian Chromatic Concept" as singular – as it is always done – is fundamentally misleading. There are many components to the Concept, and although Russell is keen, philosophically and poetically, to emphasise "unity" as a value (even "cosmic unity") (Russell 2001: 223), we should not downplay the difficulties of deploying the Concept that arise, in part, from its many constituent parts.

In bringing Russell's ideas to bear for our own purposes, we must invariably shape and reduce them. Just as the Concept – and indeed any theory – attempts to clarify by generalising, I too will have to generalise

Russell's theory. I will not, for example, spend much time on the cosmological or philosophical components of Russell's theorising, which are conceivably foundational. These are, in contrast to more formal aspects, harder to critique and assimilate, though this should by no means invalidate their importance. It is also the formal aspects discussed in this article that provide new and interesting insight. So if we accept that the Concept is singular, we must do so while acknowledging it is multifaceted and mediated.<sup>2</sup>

Aside from these multiplicities, the other difficulties in evoking the Lydian Chromatic Concept fall into two general categories: that of its publication history, and of its terminology/expression.

Burt has hinted at some uncertainty around publication dates for "The Lydian Chromatic Concept of Tonal Organization" (Burt 2002: 109). The new Grove dictionary of jazz lists the publication history of the book as having 1 edition in 1953 and 2 editions in 1959 (Roy et al. 1988/2002: 474). The copy of the book at the British Library, however, which is listed as being an edition from 1959, has no identifying features on the book itself about which edition it is and contains an appendix by Russell dated 1964. In 2002, Grove makes no mention of what Russell refers to as the "fourth and final edition" of the book allegedly published in 2001 (Russell n.d.).<sup>3</sup>

Amidst these uncertainties, significant changes in the details of the Concept emerge through the publication history. These changes must also – to some degree – argue against the ahistorical claims inherent in Russell's often declamatory style of writing. And while it is claimed the book exists in a number of *editions*, this too is misleading. The introduction, written by Andy Wasserman, to the "fourth and final edition" of the book claims that the knowledge of the Concept has been "distilled" (Russell 2001: ix) and yet the 1959 'edition' is 50 pages, where the 2001 'edition' is 237 pages.<sup>4</sup> A large chaser has been added and the mix allowed to ferment, certainly, but it has hardly been "distilled". Rather than a different edition of the same book it has become a different book with the same title.

Grove is appropriately guarded about Russell's book, even after acknowledging its significance. It notes the "purported scientific and musicological basis which Russell claimed for his Lydian concept might well be met with skepticism by anyone who has had at least a modest amount of professional training in the history of music theory, but there is no question of its practical impact" (Roy 1988/2002: 474).

Peter Burt, whose article "Takemitsu and the Lydian Chromatic Concept of George Russell" presents a unique and comprehensive attempt to bring Russell's theoretical ideas to bear in a different context – that of Takemitsu's music (in light of the composer's stated admiration for the Concept) – states similar caveats to Grove.

He begins by saying that the Concept has "acquired something of a reputation for intimidating complexity", noting that "the apparent 'complexity' of Russell's theory is actually due to a certain imprecision in the basic concepts and terminology, coupled with confusion in the manner in which the composer's ideas are argued and presented." (Burt 2001: 74) He goes on to note how this, in turn, led to some rigorous attacks on the Concept in the German magazine "Jazzforschung" in the 1980s (Burt 2001: 79).

Burt argues of the Concept, nonetheless, that "its basics are simply stated ... [Russell's] method is designed to help jazz musicians modal improvisations over single chords or sequences of chords." (Burt 2001: 74) This eloquent reduction suits the older editions of the book more than it does the later edition.<sup>5</sup>

My own attempt at a reduction, which is perhaps slightly more geared towards our own purposes here, is that the Concept is fundamentally a hierarchical ordering of pitch, which takes place on two levels of structure, that of the individual pitch, and of the mode. First, on the level of individual pitch, the interval of a fifth is given absolute prominence, or "tonical authority" as Russell puts it (Russell 2001: 3). Thus, in a perfect fifth, the higher note "yields" to the lower, its tonic. A fifth is called "the basic unit of tonal gravity" by Russell (2001: 11).

<sup>2</sup> Takemitsu, a composer who held Russell's ideas in very high esteem, has perhaps the most insightful summary of Russell's thoughts when he says they are not "simply a musical method – we might call it a philosophy of music, or we might call it poetry." (Russell n.d.)

<sup>3</sup> Russell is keen, in his books and website, to both historicise and market himself and his ideas in such a way that should make us particularly vigilant about verifying details from these sources.

<sup>4</sup> As if to tantalise further, both books hint at the existence of a second book that will further expand and clarify the content of the book. If completed, these second books don't appear to have ever been published.

<sup>5</sup> This is unsurprising, as, although both list 2001 as their publication date, the 2001 edition of Russell's book does not feature in Burt's bibliography so we can safely assume he was not able to, or at least did not, consult this 'edition' of the book, nor this version of the theory.



Example 3. A perfect fifth above C

In Example 3, G ‘yields’ to C, its ‘Lydian Tonic’, below.



Example 4. A stack of two perfect fifths above C

In Example 4, D ‘yields’ to G, which in turn must ‘yield’ to C.

### 3.1. The first return

Before outlining Russell’s second level of hierarchical pitch organisation, I would like to bring this first notion back to “Peace Piece” itself. Just as Bill Evans’ F sharp – the characteristic note of the Lydian mode on C – evokes the Lydian mode (and therefore Russell), Evans seems to underline Russell’s belief in the prominence of fifths from the opening gestures of “Peace Piece”.

At a surface level, Evans’ improvisation heavily emphasises this fundamental unit from Russell. From Bar 20 to 42 of the transcription (where the right hand plays simultaneous notes, rather than individual notes, for the first time) there are 65 dyads played. Of these, there are 17 thirds, 3 fourths (or inverted fifths) and 45 perfect fifths (see Ex. 5 for a characteristic example of Evans’ performance).



Example 5. Evans, “Peace Piece”, mm. 33–34 (Aitkin 1980: 47)

In Chuck Israels’ Musical Memoir of Bill Evans, Israels observes that the “opening motive” of “Peace Piece” (Ex. 6) is an inversion of the descending fifth in the bass of the piece’s ostinato (Ex. 7) (Israels 1985: 113). We can now also observe that the D “yields” to the G and the G yields to the C in terms of what Russell calls variously “Tonical Authority” or “Tonal Gravity”. Evans, then, follows this same logic fairly rigorously – almost didactically – in a generative way. Let us consider the first right hand phrase he plays, in full (Ex. 8).



Example 6. Evans, “Peace Piece”, mm. 6–7 (Aitkin 1980: 47)



Example 7. Evans, “Peace Piece”, mm. 1–3 (Aitkin 1980: 47)

With the exception of the passing-note B (‘boxed’ in Ex. 8), Evans’ melody sketches out a series of stacked fifths shown in reduction above Example 8 (8a, 8b and 8c). If we were to continue this abstraction, the next pitch-class would be B. As if to affirm our suspicions, and allay any doubts about his theoretical viewpoint – indebted to Russell – Evans makes B the focal point of his next phrase (Ex. 9).



Example 8. Evans, “Peace Piece”, mm. 6–11 right hand only (Aitkin 1980: 46)

The note B is emphasised in the second right hand phrase, extending the previous collection of pitches, by adding an additional fifth ‘above’ the preceding collection.



Example 9. Evans, “Peace Piece”, mm. 13–16 right hand only (Aitkin 1980: 46)

This construction, using only fifths introduced sequentially, provides us with all the pitch material in the right hand for the first 42 bars (of a 76 bar transcription). It is here that Russell and Evans propose the same idea, building a scale of increasing ‘height’ in an abstract pitch space as a ‘natural’ harmonic process. It is when moving out of this diatonic pitch space that Russell and Evans part ways.

### 3.2. The second level of organisation in the Concept – the Principle Scales

The additional, perhaps more characteristic, level of organisation in the Lydian Chromatic Concept happens at the level of the mode, or scale. Here, Russell offers a ranking of scales that are increasingly ‘outgoing’ from a Lydian Tonic. This information is summarised in Table 1. The ordering is important here, as Russell contends that with each level from top to bottom we move further from the tonic. He also identifies the first three scales, accumulatively, as separate nested structure, “the Nine Tone Scale” (Russell 1959: xxx) constituting the “consonant nucleus” of music. Russell also notes that the grading of intervals is “based upon the graduating order of dissonance of five of the six scales” (1959: xxvii). He excludes the Auxiliary Diminished Blues from this ranking. In this framework, dissonance is graded and linked to distance from a Lydian Tonic within a fully chromatic pitch space.

	1. Lydian (F) [‘ingoing’]
	2. Lydian Augmented (F) [‘semi-ingoing’]
	3. Lydian Diminished (F) [‘semi-ingoing’]
	4. Lydian Flat Seventh (F) [‘semi-outgoing’]
	5. Auxiliary Augmented (F) [‘semi-outgoing’]
	6. Auxiliary Diminished (F) [‘semi-outgoing’]
	7. Auxiliary Diminished Blues (F) [‘outgoing’]

Table 1. The Lydian Chromatic Concept – Seven Principle Scales (Russell 2001: 13)

At this stage, however, we must again acknowledge the difficulties presented by the publication history of Russell's theory. The 'Eleven Member scales' (and "five tonal orders") of the Lydian Chromatic Scale (7 'vertical modes' as above, plus 4 additional 'horizontal scales') listed in 2001 were originally just the 6 scales of the Lydian Chromatic Scale in 1959 (plus 2 additional scales, the major and the blues, included for their "social and historical significance" rather than any particular function within the Concept). The ordering of these scales is also changed slightly (see Table 2). The Lydian Flat Seventh was not originally included and the Auxiliary Diminished and Auxiliary Augmented are swapped in their ranking.

2001		1959
1. Lydian ['ingoing']	←	1. Lydian
2. Lydian Augmented ['semi-ingoing']	←	2. Lydian Augmented
3. Lydian Diminished ['semi-ingoing']	←	3. Lydian Diminished
4. Lydian Flat Seventh ['semi-outgoing']		4. Auxiliary Diminished
5. Auxiliary Augmented ['semi-outgoing']	←	5. Auxiliary Augmented
6. Auxiliary Diminished ['semi-outgoing']	←	6. Auxiliary Diminished Blues (which "makes no important contribution to the chord categories" (Russell 1959: xxvii))
7. Auxiliary Diminished Blues ['outgoing']	←	
+ Major Scale, Major Flat Seventh Scale, Major Augmented Fifth Scale, and the African-American Blues scale. <sup>6</sup>		+ Major Scale and Blues Scale

Table 2. Historical comparison of constituent scales of the Lydian Chromatic Scale in the Lydian Chromatic Concept

Though a variety of explanations and demonstrations are offered by Russell for the ultimate prominence and necessity of the Lydian scale, explicating its properties as a scale as well as the implications of the overtone series for the scale, his explanation of the ranking of the other scales is somewhat opaque. In 2001 Russell suggests, though 'I think the theorist doth protest too much', that "Member scales are not arbitrarily selected because they "sound good"<sup>6</sup>; their identity is determined by compliance to specific criteria." (Russell 2001: 12)

He lists this "specific criteria" as "a scale's capacity to parent chords considered important in the development of Western harmony", "a scale as being most representative of a tonal level of the Lydian Chromatic Scale" and "the historical and/or sociological significance of a scale."

Within the first two points there is a certain amount of circularity to the reasoning whereby the theory is justified by its capacity to replicate the theory. The third point – and even the qualification included in the first point – allows an enormous amount of alteration and speculation such that even if we were able to meaningfully quantify these "specific criteria" there is no attempt to demonstrate the "compliance" of the scales provided and their ranking.

In 2001, Russell offers the series in Example 10 as a demonstration of the Lydian Chromatic Scale, parsed in accordance with his ranking of the principle scales. Here, distance from the left coincides with distance from the Lydian Tonic.



Example 10. Lydian Chromatic Scale as illustrated by Russell (2001: 12)

Note, particularly, that Russell breaks the logic of the 'Pythagorean Prototype' at the seventh note to the right of the Lydian Tonic. Here, instead of another perfect fifth, which would produce an F sharp, the 'flat 2' degree of the scale, a tone is inserted producing a C sharp, the augmented 5th.<sup>7</sup> The F sharp is relegated to the furthest note from the Lydian Tonic, disguised as a G flat. Just as in "Peace Piece", we find ourselves bumping into the relationship between F sharp and C sharp. In Russell's own words:

<sup>6</sup> As if this measure would at once devalue and exclude the theory's merits.

<sup>7</sup> Perhaps better understood in context as its enharmonic equivalent, the 'flat 6' degree.

“The Pythagorean ladder of twelve intervals of a fifth is the prototype for the tonal gravity field of a Lydian Chromatic Scale. However, in order to accommodate the evolution of the five main Western chord types (major, minor, seventh, augmented and diminished), the Lydian Chromatic Scale skips the seventh fifths (i.e., the interval of a fifth from B to F# in the key of F Lydian). As a result of this transition from the uninterrupted ladder of successive fifths, the Lydian Chromatic Scale is also referred to as the WESTERN ORDER OF TONAL GRAVITY.” (Russell 2001: 53)

#### 4. Pythagoras in Lydia – Pythagorean Height

“A ladder of fifths proceeding upwards from the tonic ... produces the first seven tones of the Lydian Scale, thereby creating a unified tonal gravity field... The establishment of the interval of a fifth as the strongest harmonic interval represents the most important contribution of the overtone series to the fundamental principle of the *Lydian Chromatic Concept of Tonal Organization* – the Principle of Tonal gravity.” (Russell 2001: 3)

My own term, Pythagorean Height, is simply a measure of the number of equal-tempered fifths required to obtain a complete set of given pitch-classes (see examples 11 and 12). The given set need not contain all of the pitch-classes required to generate the set, meaning non-commensurable sets are comparable (compare Ex. 11 to Ex. 12).<sup>8</sup>

One pertinent advantage here is that this approach speaks to an aural intuition in as much as it allows us to acknowledge the ‘Lydian implications’ of Evans’ F sharp against his C bass in “Peace Piece”. This interval has the same Pythagorean Height as the Lydian scale, and so also allows us to articulate the characteristic nature of this interval for this mode.

What I contend this means is that any pitch classes that fall within the Pythagorean Height of an interval are audibly plausible additions to that set, more than notes that would increase its height. In this sense, the height can be seen as a kind of harmonic ‘limit’ for the ear as it is for my ears.

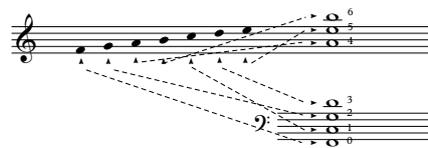
As noted above, for reasons that are not entirely clear or explicit, Russell deviates from the ‘ladder of fifths’ in arranging his own ranking of pitches and scales. I contend that Evans challenges this deviation in his performance, and Pythagorean Height simply removes Russell’s – somewhat arbitrary – ‘skip’ in the ladder of fifths.

Pythagorean Height can, thus, be viewed as a way to simplify, generalise and standardise some of Russell’s ideas while imposing its own point of view, critical of the more internally inconsistent conditions in Russell’s theory.



Example 11a. Lydian scale

The Pythagorean Height of Ex. 11a is 6.



Example 11b. The ‘pythagorean construction’ of Example 11a

<sup>8</sup> Depending on your perspective this is either a benefit of the measurement or a fatal flaw, flexibility or an intolerable imprecision. If you believe that only sets with the same or similar number of notes can or should be compared, then this measure will be of no use to you. One valid critique has been that it is unreasonable to compare an interval with a scale, since the *possible* Pythagorean Height of any number of notes  $n$  will be  $(n-1)$ . For 2 notes, the smallest possible height will be 1, while the smallest possible height for 7 notes will be 6. While this is true, its significance depends upon *for* what you are comparing sets. My contention, from my own ears, is that Pythagorean Height identifies an aural similarity that is more helpful than not even if it links sets that are otherwise to be understood as being different in kind, not just degree. One simple demonstration of this kind of difficulty would be to consider intervals under transposition. There is no doubt, no argument, that a dyad of C and F sharp sounds different to a dyad of B to F, however, because of transposition we recognise that there is something significant, audibly, that they share even though they are materially and audibly distinct. I maintain that Pythagorean Height identifies an aurally meaningful similarity that can be helpful, even though it does not speak to other completely credible and valid differences between sets of notes.



Example 12a. The interval of C to F sharp

The Pythagorean Height of Ex. 12a is also 6.



Example 12b. The 'pythagorean construction' of Example 12a

One aim of Russell's, most explicit in the 1959 edition of his book, is an attempt to order and rank all possible relations in a fully chromatic pitch space of equal temperament. The number of component parts to his theory, and their sometimes vague explication and application, makes this difficult to achieve coherently. I have a similar interest in finding hierarchical relations within a chromatic pitch space, and Evans' performance proposes his own ranking based upon the 'Pythagorean prototype' of the Lydian Chromatic Concept. Pythagorean Height can be used to quantify these relationships.

In many ways, Pythagorean Height is the most controversial idea in this article and much relies upon the reader's willingness to accept its value as a premise. One common way of discussing 'distance' in music, is to discuss how many semi-tones there are between the upper and lower notes of an interval. This, however, may offer little in terms of 'audible distance' or distance in any other sense. C and D flat are 'close' in pitch space, but distant as tonal areas. However, if measurement is done in fifths, rather than semi-tones, as it often is done structurally – for example, around the circle of fifths – then we have more of a sense of the 'harmonic distance' 'within' that interval. Pythagorean Height calculates fifth based distance (or, perhaps fifth based 'space'), within a single harmony (broadly construed) rather than between harmonies as would often be done in any traditional tonal analysis. In this way it assimilates accepted ideas in tonal analysis within a more set-theoretical mindset.

### 5. Returning to Peace (Piece)

Miles Davis held "Peace Piece" in such high esteem he wanted to include it in the "Kind of Blue" sessions (Pettinger 1998: 84–85).<sup>9</sup> Though the authorship on "Kind of Blue" has been highly contested, Russell's and Evans' ideas, including those explored in "Peace Piece", clearly contributed to this iconic album (see Israels 1985: 114 and Lyons 1983: 219). It is also worth noting that despite "Peace Piece's" potential drawbacks within the broader context of Evans' output – an apparently simple, solo work, at the end of an early album – Israels' musical obituary of Evans' contains a great deal about this piece in particular. In fact, it has generated a surprising amount of commentary over the years.

I would first like to reflect on what has already been said elsewhere about the piece in order to develop some impression from which we might work and to which our analysis might speak. First, Israels notes that Evans allows his melodic invention:

"more freedom than he would in an improvisation tied to a changing accompaniment. He takes advantage of the ostinato as a unifying element against which ideas flower, growing more lush and colourful as the piece unfolds. Polytonalities and cross rhythms increase in density ... The improvisation becomes increasingly complex against the unrelenting simplicity of the accompaniment, until, near the end, Evans gradually reconciles the two elements." (Israels 1985: 113)

Mawer, whose interest lies chiefly in identifying and clarifying antecedents for Evans' work within the Western Classical Music Canon, identifies and describes the same musical journey as Israels in these terms: Evans' "ever more virtuosic variations – replete with scalic and chromatic figuration – inhabit that elusive realm between composition and quasi-spontaneous, improvised performance" (Mawer 2014: 234). Elsewhere,

<sup>9</sup> Pettinger goes even further noting "the solos [on 'Kind of Blue'] were born out of the Concept and mood of "Peace Piece"; without that precedent "Flamenco Sketches" would not be." Russell's direct theoretical influence on Kind of Blue has also been explicitly considered elsewhere, see (Boothroyd 2010) and (Titus 2010).

Mawer notes that “in the middle and towards the end ... Evans’s palette is more piquantly dissonant than is his typical practice ... the melodic line invokes a much wider, fluid modality with sharpened tendencies. We may reference Ionian, Lydian, wholetone, chromatic and blues-inflected collections” (Mawer 2014: 235).

Pettinger notes the mood of “Peace Piece” as “rarified and introspective” (Pettinger 1998: 85), going on to say that

Evans felt unable to oblige subsequent club requests for ‘Peace Piece’. It was a unique performance – or almost, so, for after a first take Orrin Keepnews wrote on his recording sheet that Bill was not quite happy, and the next take was used. ‘It’s completely free-form,’ Evans said... Except for the bass figure, it was a complete improvisation” (Pettinger 1998: 69).

Pettinger also succinctly described the piece as Evans having been “hypnotized into a ‘one-off’ pursuit of a line, increasingly decorative” (Pettinger 1998: 68).

What emerges from this commentary is that “Peace Piece” is rich in contradiction. Though allegedly a one-off performance that Evans felt unable to repeat, it was recorded twice. In fact, his girlfriend at the time suggests it was a piece Evans practiced regularly, drifting into the piece from Bernstein’s “Some Other Time”, the song from which Evans took the ostinato for “Peace Piece” in the first place (Pettinger 1998: 68). Gretchen Magee, Evans’ theory teacher at Southeastern, goes further to suggest that “Peace Piece” (or some variation thereof) was actually a written out composition exercise (Pettinger 1998: 69).

Further, the piece’s apparent simplicity is in direct contradiction to the complexity definitively and repeatedly observed within it. It is a complexity that commentators struggle or are unable to articulate with any precision or clarity. Without identifying the time code 3:37, they are commenting on this section of the piece, and the F sharp question mark noted above is at the heart of these close listenings to the piece, at the heart of what is remarkable about this polarised, though seemingly never polarising, work.

On the one hand, Evans certainly contributed to the vagueness of the commentary by emphasising the idea of the piece being “free form” and a “complete improvisation” (Pettinger 1998: 69). On the other hand, he nonetheless stressed elsewhere the “importance of form and structure in his own work ... the overall framework of a number” (Pettinger 1998: 34). Barrett observes, of the liner notes for “Kind of Blue”, that “Evans famously overstates the freedom afforded the players and the spontaneity of the sessions” (Barrett 2006: 185), suggesting that ‘freedom’ was something to which Evans aspired and was inclined to overemphasise, rhetorically.

The observation of ‘piquant dissonance’, Mawer’s haphazard list of scales, ‘fluid modality’, ‘polytonalities’, ‘sharpened tendencies’ ‘increasing complexity’ and the ‘increasingly decorative’ trajectory of the piece all seem to point towards a clearly audible presence or structure in the piece which is not – cannot – be precisely or clearly articulated.

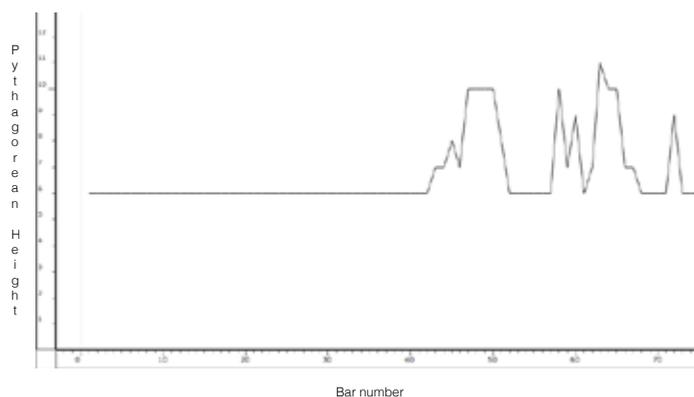
Mawer ventures only briefly into a closer examination of pitch stating that “the effect of Evans’s ever-changing melody over the Bernstein bass is to create new harmonic inflections, such as the expressive superimposition of Ab/A, creating simultaneous minor/major ninths, over G” (2014: 231). The identification, indeed the creation, of “new harmonic inflections” is something we should encourage. However, this tentative attempt at close analysis seems to collapse almost immediately under the weight of traditional harmonic language, ill-suited to the object of observation.

### 5.1. The very height of complexity

Table 3 is a graph demonstrating the Pythagorean Height of each bar in “Peace Piece”. I believe it articulates the trajectory hinted at, vaguely expressed, by the commentary above, and also my own aural intuition about the harmonic logic of the piece. Table 3 outlines a very specific measure of the piece, and reveals a remarkable amount of structure. In this graph we can see what Israel identifies as happening “near the end”, where “Evans gradually reconciles [the] two elements” (1985: 113). From the ‘highest’ bar, 63, we see a local and general reduction of the height that finally returns us to the same height as the diatonic opening.<sup>10</sup>

We can see the journey, identified by Mawer, that “in the middle and towards the end ... Evans’s palette is more piquantly dissonant”. She identifies Pythagorean Height’s steady growth in this section of the piece.

<sup>10</sup> It is the interesting paradox of pitch space that we seemingly arrive – return – to C in two ways at once. The A sharp at Bar 63 ‘returns’ us to F – as the next fifth in the stack, which is already present in the ostinato from the beginning and is a fifth below C. Evan also returns by gradually lowering the Pythagorean Height of his improvised lines towards the end of the piece.

Table 3. The Pythagorean Height<sup>11</sup> of each bar in “Peace Piece”<sup>12</sup>

Despite his ekphrasis, Israels concedes elsewhere that this ‘free’ and ‘complex’ work might have been a “practiced improvisation” (Pettinger 1998: 69), and without apparent contradiction singles out this improvisation as “an example of the depth of Evans’ *compositional technique*” (Israels 1985: 113).<sup>13</sup> At the time of Evans’ death, Israels observed that “Few have gone deeper into his [Bill Evans’] work to find the underlying principles” (Israels 1985: 109). Mawer noted much more recently that this has “changed relatively little” since his death (1994: 217). Pythagorean Height is a way of viewing and expressing some of these underlying principles and can be offered as a tentative step in this direction.

In fact, if we return to Example 8, which demonstrates Evans’ right hand as it generates melodic material in ascending fifths, it is easy to see how this process within a ‘diatonic height’ (i.e. a Pythagorean Height of 6 or less) is clearly replicated, and extended, once he moves into the chromatic space of “Peace Piece”. Table 4 considers the shape of the piece, if only taking account of Bill’s right hand. Though differing in the detail, it seems to clearly replicate the overall shape of Table 3.

The ‘progression’, expressed by Pythagorean Height, in which each fifth ‘yields’ to the fifth below in a ladder of fifths (which, of course, becomes a circle under its own weight within equal-temperament) is entirely in accord with the Lydian Chromatic Concept, though pursued in a different way. Evans, whose “greatest contribution to the development of jazz lies beneath the surface” (Israels 1985: 109), seems better reflected by this analytic measure than in the attempts, quoted above, to describe his work in words. Ironically, Evans’ own words, about “freedom” and “improvisation” can be viewed as creating a context into which further analysis might have seemed inappropriate or without reward. Pythagorean Height, in contrast, allows us to broaden this context and understand with clarity his embodied theoretical perspective.

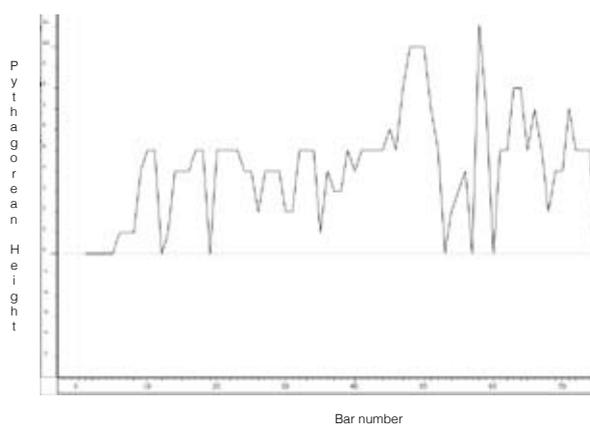


Table 4. The Pythagorean Height of each bar in “Peace Piece” taking only the right hand notes

<sup>11</sup> Although we have considered the ‘Lydian implications’ of Bill Evans’ F sharp against a C bass, to be strict in our quantitative analysis we calculate the Pythagorean Height from F natural, present in the ostinato from the beginning, rather than the clearly articulated tonic focus of C.

<sup>12</sup> Choosing the duration of a bar is, of course, fairly arbitrary, though a convenient way to avoid subjective biases entering the analysis. It also provides a degree of resolution that seems appropriate in this case.

<sup>13</sup> The emphasis here is mine.

## 6. Concluding Comments

### 6.1. Dissenting voices

There is, arguably, a certain circularity here, wherein the idea of Pythagorean Height could be seen to come, in part, from a critical listening – an analysis – of “Peace Piece” (though it does not) and is then the tool by which an analysis of that piece is undertaken. The logical fallacy of circular reasoning is often levelled at analysis. Russell’s own theory suffers at points from this kind of self-replication, the theory articulating the music which articulates the theory without providing greater insight into the musical experience. While it is simple to point out that the idea of Pythagorean Height arose from my own compositional work before I first heard Evans’ “Peace Piece”; that hearing his improvisation lead me to consider it analytically, and this in turn lead me to Russell (thereby reversing the historical record of events), this would also misconstrue and simplify the purpose of discussing the three ideas in conjunction with one another.

A straightforward chain of causality linking Russell to “Peace Piece” and “Peace Piece” to Pythagorean Height, which in turn circles back to re-enforce Russell and Evans could be constructed, but doesn’t strike me as a useful or insight-provoking project. Russell certainly offers a historically and contextually compelling antecedent for Evans’ piece, and Pythagorean Height may be readily demonstrated by “Peace Piece” (as well as vice versa). However, we should not think of these as causal, circular or linear, but rather perhaps a network of nodes that inform one another and interact in surprising and compelling ways. There is a dialogue between Russell, Evans, and me that treads common ground while traversing different, if intertwining, paths. The three pillars of this article, therefore, are not offered as mutual proof of one another, but instead as related ideas that help to clarify, re-enforce, illuminate and critique one another.

Len Lyons notes that “Russell’s idea of applying the Lydian mode to jazz improvising had a strong impact on Evans” (1983: 219). The extent of this influence in a historical sense does not, however, concern us here. It is enough to acknowledge it, and while “Peace Piece” in particular seems to point us towards Russell’s Concept, it also points us away from it at the same time, expressing some of Russell’s ideas while challenging others. Evans both accepts and critiques Russell’s theoretical standpoint in his performance. We are, then, informed by the tension between the two ideas, which have a relational valency. In this, I hope my analysis of “Peace Piece” will be seen as a demonstration of an idea with broader implications, rather than an endpoint.

### 6.2. Justifying Russell

Pythagorean Height might also be offered as a partial justification for Russell’s own ordering of his Principle Scales. The two lists below demonstrate the ordering of the Principles Scales of the Lydian Chromatic Concept alongside their Pythagorean Heights.<sup>14</sup>

With the exception of the Auxiliary Diminished Blues scale, whose ‘flat 2’ scale-degree Russell deemed to be much further from his tonic than Evans does in his performance, the Pythagorean Heights are in accordance with the different ‘levels’ suggested by Russell. They even present a plausible reason, something Russell does not attempt, as to why the Auxiliary Augmented and Auxiliary Diminished scales might have been swapped as they were.

2001 Principle Scales	Pythagorean Height
1. Lydian [‘ingoing’]	6
2. Lydian Augmented [‘semi-ingoing’]	8
3. Lydian Diminished [‘semi-ingoing’]	9
4. Lydian Flat Seventh [‘semi-outgoing’]	10
5. Auxiliary Augmented [‘semi-outgoing’]	10
6. Auxiliary Diminished [‘semi out-going’]	11
7. Auxiliary Diminished Blues [‘out-going’]	10

<sup>14</sup> Without going into the details, Pythagorean Height could be constructed either by fixing the tonic, as we will do here, or by finding the ‘most efficient’ construction in fifths of a given set, which would produce slightly different results.

### 6.2.1. Consonance

McGowan has suggested that the notion of consonance and dissonance is problematic when simply ‘applied’ from the western classical tradition to jazz (McGowan 2008: 101–102). In his universalising claims, Russell is keen to address dissonance, equating it with distance. Understanding consonance and dissonance in terms of distance might be helpful in addressing McGowan’s concerns about the semantics of dissonance in jazz, by offering an alternative path to the simple ‘application’ of western theoretical models.

But there is a central paradox to Russell, too. On the one hand he wants to offer insight into ‘the nature of music’, something that would have to be universal were we to believe in such a thing. On the other hand he is keen to present his proclaimed shift from Ionian to the ‘more natural’ Lydian scale as the difference between western classical music and jazz, thereby emphasising the contingency, rather than the universality, of these forms of musical expression.

There is a comparable tension for Evans, well-known for his study of and interest in the classical canon. His performance on “Peace Piece”, seems firmly grounded in both Ionian and Lydian, classical and jazz, perhaps taking more from Russell’s unifying instincts than his divisions. Evans defied the simple ‘application’ of models of dissonance, instead embodying a different view of music theory and consonance from first principles, in tandem with, and deviating from Russell. His offering, if read seriously as above, is the offering of a beginning, not the summary of an ending.

## 7. Final Returns

Evans has said he thinks “of all harmony as an expansion from and return to the tonic” (Lees 1988: 162). Pythagorean Height allows us to see this process of expansion and return clearly in “Peace Piece”. We might also observe that Evans’ sentiment is expressed in two different ways at the same time in “Peace Piece”. Each bar is, literally, a simple return to the tonic from the dominant in the left hand’s ostinato. Evans’ improvisation exploits the fifth relationship between tonic and dominant in a different way too, though – guided by Russell’s thought – in ascending a ladder of fifths until it too has returned to the tonic.

And so we return to the F sharp at 3:37. It clearly evokes Russell, but the apologetic C sharp that follows immediately embodies Evans’ own critique of Russell. According to The Lydian Chromatic Concept and its ‘tonal gravity’, this C sharp is a violation, an aberration, a sudden jump to the most extreme position from a Lydian Tonic. If Evans followed Russell’s logic, this note is the most dissonant position possible above a tonic on C. Evans rejects Russell with his C sharp, but does so with the reverence of a student and colleague, apologetically. Instead, he simply plays through a generative process, using fifths that traverses the entire chromatic space of equal temperament. Pythagorean Height allows us to capture, view and articulate this strategy.

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## **Įkūnyta muzikos teorija ir improvizuota kompozicija: Billas Evansas – architektas**

### **Santrauka**

Yra trys šio straipsnio atraminiai taškai: Billo Evanso solo improvizacija *Peace Piece*, šiuolaikinė muzikos teorija, t. y. George'o Russello *Lydinis chromatinis konceptas* (LCC), ir autoriaus analitinis instrumentas – pitagoriškas aukštis. Vis dėlto straipsnyje nepateikiama priežastinė ar nuosekli šių trijų aspektų argumentacija, jie traktuojami kaip istorinis susikirtimo taškų, papildančių vienas kitą ir sąveikaujančių netikėtai ir įtikinamais būdais, tinklas.

Autoriaus metodas – pitagoriškas aukštis – pasitelkiamas analizuojant Billo Evanso atlikimą, kadangi jis aiškiai artikuliuoja kūrinys girdimą harmoninę logiką ir siejasi su tuo, ką George'as Rusellas nurodė kaip savo lydiško chromatinio koncepto pitagorišką prototipą. Tai leidžia Evanso atlikimą traktuoti ir kaip komponavimą, ir kaip improvizaciją. Iš tiesų Evansas pats išreiškė savo asmeninį norą „sąmoningai abstrahuoti principus ir diegti juos į [jo] paties struktūrą“, kaip kad „tapytojas“ turėtų būti „ir braižytojas, ir architektas“. Remiantis šia metafora straipsnyje bandoma parodyti supaprastintų dichotomijų (viena vertus, tarp įkūnijimo ir improvizacijos, kita vertus, tarp teorijos ir kompozicijos) ydingumą.