

HABITABLE EXOMUSICS ANALYSIS

JACOB ANDERSKOV
2015*

- RELATED TO JACOB ANDERSKOV'S ARTISTIC RESEARCH
PROJECT "HABITABLE EXOMUSICS" (2014-2015).

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For further information on the project and its research dimension, on the Habitable Exomusics album trilogy, and for more general reflections on the making of the music, see links from JacobAnderskov.dk.

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Introduction

Preface

The aim of this text is to present a more detailed view on the musical, technical and theoretical dimensions of the Habitable Exomusics project.

Much of the reflection related to most Artistic Research projects normally seems to be - and possibly should be - written in a language that allows any interested citizen to understand it. So is most of the reflection texts and interviews in the Habitable Exomusics project, outside of this specific "Analysis" text. As important as a broader kind of dissemination is, reaching out to fellow artistic researchers from other fields and curious fellow citizens (hopefully interested in art), I felt the need in this project to also share with other musicians and composers some of the considerations I have had on specific musical structures in the process. I wanted to disseminate these thoughts and structures with a degree of technical detail primarily suitable for sharing among fellow musicians and composers.

Or I might put it like this: While the public dissemination will naturally ask questions as to what it MEANS for the artist to make a mapping of his or her own artistic language in a project such as this one, and how it CAN be done in a fruitful way, I also wanted to make a much more specific dissemination of WHAT the map actually did show.

As already mentioned, the structural core of the entire project was this: During the early stages of the Habitable Exomusics project, I identified a number of structural tendencies in my own work, regarding which "definable post tonal material structuring principles" I have used the most. Then, for each of the general-level principles, I have tried to achieve an overview of the various possible (or relevant) ways in which each could be applied. In this way, the map created showed not just what I had previously done, but also a number of theoretically possible kinds of musical grammar, which I had yet to explore. At this point, I also interviewed a number of international improvisers on their thoughts on the terminology I was working with. The initial mapping process was followed by a phase during which I created (composed or improvised) prototypical pieces of music for each of these principles. These pieces of music form the cornerstones of the Habitable Exomusics artistic output.

The analysing process brought me to the main categories of material-structuring principles that might be called the "primary underlying post-tonal structuring principles in my music". The main categories are listed in the index, and will be described in each their chapter.

A general note:

This text is counter-chronological in several ways. Initially, I starting writing the text when I had just created the first versions of the mapping but not yet the new prototypical pieces of music. All initial versions seemed almost unreadable, since the absence of musical examples to convey the theory was quite bothering to myself as well as to my imagined future readers.

I realised that it made more sense for me to postpone the creation of the text until the prototypical pieces of music had been composed, and that these prototypical pieces of music could function as illustrations of the different principles. I preferred this solution to the dry theory by itself (though this approach would present the ideas in reverse order). For that reason, most of the examples in the text are from the Habitable Exomusics artistic output.

In terms of chronology, this approach to the text suggests that first there was piece of music, then an idea about how it was structured. That would be the case in many creative processes, including much of my own work outside of the Habitable Exomusics project. But in this specific project, I had chosen to reverse that chronological order from the beginning:

- First there was an idea (or rather, about 70 different ideas) about how to possibly structure post-tonal motivic musical material.
- Then, based on this (or each of these) structural idea(s), a prototypical piece of music was created, performed, recorded and (in many cases) released.
- Lastly, in this text, that prototypical piece of music is used to exemplify the mapping process going on before the piece came into existence.

As my overview of the area has evolved gradually throughout the project, I of course cannot label it as one uninterrupted chronological progression. Often, finishing one piece made me realise that several other possible options existed. But as soon as the overall landscape was in place, I started creating the pieces for each principle. A number of them have been used in written compositions, while other principles have been used in improvisation in more or less pure form. The majority of the described zones have actually been used in my music at some point during the project, although only a fraction of them made it to the final albums and documentations.

A note on links and references beyond the text

Audio:

I have added links to audio examples wherever it seemed practical.

If something seems to be missing, check soundcloud:

Kinetics: <https://soundcloud.com/jacobanderskov/sets/kinetics-the-path-habitable>

Statics: <https://soundcloud.com/jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>

Dynamics: <https://soundcloud.com/jacobanderskov/sets/dynamics-the-terrain-habitable-exomusics-volume-iii>

Extra material: see links, including videos, at http://jacobanderskov.dk/?page_id=468

Album and project info:

As of 2019, the main go-to site for overview of the whole project is an exposition at ResearchCatalogue.net. Publishing date unknown as of writing this. For a deep link view the exposition, please use

<https://www.researchcatalogue.net/shared/44fec4003f12f5af65e313c40411c7e4>

The original main **BLOG** at the RMC website is found at <https://rmc.dk/da/news/se-den-kunstneriske-udvikling-over-skulderen#.VY0M2OvCjdc>. Parts of the blog were in Danish, parts in English.

At the “Habitable Exomusics” site at: http://jacobanderskov.dk/?page_id=468, there are **video links, video interviews, composition PDFs, project overviews, etc.**

Sheet music:

The excerpts from sheet music refer to the complete sheet music PDFs from the “Kinetics” repertoire. These compositions are all available online at http://jacobanderskov.dk/?page_id=468, plus at the Research Catalogue Exposition mentioned above.

The transcriptions from **improvised** sections are my selected excerpts. Providing complete transcriptions was neither possible nor interesting in my view of the entire project.

HABITABLE EXOMUSICS ANALYSIS, Part I - Symmetry

Part I: Symmetric Melodies

The term symmetric melodies, or melodic symmetry, is used in this text to describe phenomena like ex. 1a.

Ex. 1a

In ex. 1a, every bar is vertically symmetric around an axis of c. Any d-flat in ex.1 is next to a b-natural, since they are a half step above and below the axis note respectively. Any d is next to a b-flat, etc. Bar lines are only included for visual clarity, vertical symmetries can be used in very syncopated situations, as will be seen later.

Different octave/register placements are considered identical in this terminology. For this reason, in this terminology, a phrase symmetric around an axis of c will also be symmetric around an axis of f# (or G flat).

Explanations of this from ex.1a:

In bar 2: The notes d-flat and b natural are respectively a minor second below or above an c in one transposition, and respectively a perfect fourth above and below f# in another transposition.

In bar 4: the notes d and b-flat are respectively a major second below or above an c in one transposition, and respectively a major third above and below f# in another transposition.

In Bar 5: The notes e flat and a natural are respectively a minor third above and below c in one transposition, and respectively a minor third below or above an f# in another transposition.

- etc.

In the vocabulary for symmetry, the term “axis of c” is often replaced by the term “sum 0”. That is because, in this case, still in ex. 1a, the pitch c being defined as = 0, each bar adds up to 12. Twelve is equal to 0, or $12 = 0$ “modulo 12”, (because we are in a 12-tone system).

Example 1b, including pitch material from the composition Snap Pans, is still symmetric around an axis of c, or symmetric sum 0. (*Snap Pans did not make it onto one of the albums, but can be found as a live video at <https://www.youtube.com/watch?v=xMAjgSHdoEU>*)

Ex. 1b

But here, in the context of the composition, as will be clear if the complete sheet of the first 8 bars is studied, we do not hear c as a root that the music hints at, only as a symmetry axis. The implied root is a g. Note that the melody and the bass line are both symmetric around the same axis, although played in different registers. See Ex. 1c.

Ex. 1c

Snap, Pans

INTRO: Bass + drum improv
+ melody rubato-ish/broken

G mionr sym b7

Jacob Anderskov

The musical score for 'Snap, Pans' is written in 4/4 time and G minor. It features two systems of piano (pno) and bass. The first system includes a piano part with an '8ve down' instruction and a bass part with the instruction 'on head in: improv, no groove, but with flow/drive'. Both parts are marked with a box labeled 'A'. The piano part includes a triplet of eighth notes. The second system continues the piano and bass parts, with the piano part starting on a higher register (marked '6').

In the same fashion, ex. 2 is symmetric around an axis of either f or b natural, which we do not need to choose between, since the term “symmetric sum 10” describes the symmetry clearly.

Ex. 2

The musical notation for Ex. 2 is a single staff in G minor. Above the staff, the following fingerings are indicated: 10 0 9 1 10 0 6 4 7 3 6 4 3 7 9 1 10 0. The notes are: G2, A2, B2, C3, B2, A2, G2, A2, B2, C3, B2, A2, G2, A2, B2, C3, B2, A2, G2.

This pitch material, symmetric sum 10, is from the Kinetics composition “Stop Pots”, see Ex. 2b. (ex. 2 quotes mostly from the piano left hand, but all material in the composition shares this symmetric condition).

Audio: <https://soundcloud.com/jacobanderskov/stop-pots?in=jacobanderskov/sets/kinetics-the-path-habitable>

INTRO: bass solo (arco) on drum groove as bar 1+2.
On cue, pno joins on LH bassline bar 1+2 X 4, then to A.

Ex. 2b

Stop! Pots!

("kayak" version - sym-b7, Fibo)

Jacob Anderskov
dec 2014

♩=90 **A**
Swing tremolo (octaves), 8vb

Piano Swing

Bass tremolo arco

drums "swing" in 7/4 (3+4), time, plus: etc., simil..

Pno

B

The sum can also be an uneven number, as in ex. 3.

Ex. 3

4 11 10 5 4 11 10 5 11 4 10 5 4 11 2 1 2 1 11 4 10 5 4 11

In this case, the symmetry is sum 3 (= sum 15). The axis would here theoretically be a **combination** of two notes, in this case between g and g#. Or we may imagine that the symmetry axis **between** two notes – in this case: g-quartertone-sharp. This pitch material, symmetric sum 3, is from the Kinetics composition "Pull Up". See Ex. 3b.

♩=140

Highly energetic,
all possible meters present

Ex. 3b

Pull-up (Sym 5)

Jacob Anderskov
2014

A

Meters: (ref. use only) - KEEP WRITTEN TIME ALSO

5

etc., simil

Audio: <https://soundcloud.com/jacobanderskov/pull-up?in=jacobanderskov/sets/kinetics-the-path-habitable>

...

This vocabulary for the symmetries (sum 0 or sum 10 or sum 3), which is commonly used to replace the “axis of c” or “axis of f” or “axis of g-g#”, indicates that we here have a system of pitch organisation that does not relate to an overall tonality or root, but only to the axis or the sum. In Ex. 4 are listed possible two-note-dyads in respectively sum 0, sum 1, sum 2 and sum 3.

Ex. 4

There are 12 possible sums, sum 0 – sum 11.

There are 6 EVEN-sum symmetries (sum 0,2,4,6,8,10, corresponding to respectively axes of c (or f#), of c#(or g), d (/g#), etc., up to axis of f (or b). These even-sum-symmetric conditions may seem as transpositions of each other.

And there are 6 UNEVEN-sum symmetries (sum 1, 3, 5, 7, 9, 11), corresponding to respectively axes of c-c# (or f#-g), of c#-d (or g-g#), etc. These uneven-sum-symmetric conditions may also seem as transpositions of each other.

So, IF we did assume that symmetry in this manner does not relate to a root or a tonality, we would see that there are 12 different symmetry families, in terms of pitch material, the musical context not considered. In this terminology they will have the same name no matter if there is an audible root or bass note in the music.

HOWEVER, in my music, as I have already been hinting at, I have found it relevant to take into consideration an either played or implied root or quasi-tonality in most symmetric passages.

In Ex. 5, another uneven-sum series of dyads, this time symmetric sum 7, is shown.

Ex. 5

The material in ex.5 will show out to be from the bassline in the Kinetics composition

“Qaanaaq”. (*Qaanaaq did not make it to the album, but an outtake from the studio sessions can be heard at:*

<https://soundcloud.com/jacobanderskov/qaanaaq>). See Ex. 5b.

Ex. 5b

Qaanaaq (Sym b3)

Jacob Anderskov
2 jan 2015

♩=110 **A**

Bass

5 Piano Solo /
vibe on groove

B on cue

similar

Pno

Bass

8

Pno

Bass

Ex. 3 and 3b was also based on an uneven-sum symmetry. Let me show that again:

Ex. 3

4 11 10 5 4 11 10 5 11 4 10 5 4 11 2 1 2 1 11 4 10 5 4 11

IF the “sum-“ or “axis-“ terminology were fulfilling in the description of these two uneven-sum melodic fragments (ex. 3 from “Pull Up” and ex. 5 from “Qaanaaq”, that implies that they are based on a similar situation or symmetric condition. And that would make it possible by a transposition of one of them to create a “pitch-organisational situation” equal to that of the other.

Ex. 6 shows ex 3, the opening pitch material from “Pull Up”, transposed to align with the pitch material from ex. 5, (“Qaanaaq”).

Ex. 6

0 7 6 2 0 7 6 2 7 0 6 2 0 7 10 9 10 9 7 0 6 2 0 7

It is my experience that these two situations are too different to be dealt with under one name or understanding, at least for myself.

My way of thinking about the pitch organisational principles here is that whereas ex. 5 (Qaanaaq) is symmetric-sum-7, and hinting at/ implying a root of A flat, ex. 6 (Pull Up, transposed) is symmetric-sum-7, and implying a root of c.

We saw a similar thing happening in the excerpt from “Snap Pans”, and the excerpt from “Pull Up”. “Snap Pans” is symmetric around an axis of c, with an implied root of G. “Pull Up is symmetric around an axis of g-g#, with an implied root of E.

This means that theoretically a sum-7-symmetry (axis of E+Eflat) could appear with 12 different pitches as the implied anchoring root, resulting in 12 different symmetric “conditions”.

Or, to be completely correct, since every tritone transposition is identical in terms of symmetry, actually giving us 6 uneven-sum-symmetries with the same axis of E+Eflat. Or, you might say, 6 uneven-sum-symmetries, for each root.

(And, similarly, with even-sum-symmetry, giving us 6 even-sum-symmetries, for each root.)

The same would be true about any other sum-number. Meaning that in the way I think about this kind of symmetric melodic pitch organisation, there are 12 possible root-pitches, which all can be combined with each of the 12 symmetry-sums, resulting in 144 “symmetric conditions”. This is including transpositions. If transposition is taken out of the picture (=considered equal), we have 12 distinct symmetry types.

This brings us to a way of thinking similar to the axis-terminology, except that the axis is now an interval, out of which the lower note is the implied root of the “symmetric condition”.

So, ex. 1a would be then symmetric with an axis of c, and the root C, could be called “symmetric around the root”.

Ex. 1b and 1c is symmetric sum 0, that is on an axis of c, with a root of G, meaning that it is symmetric on the interval G-F, which I think of as “symmetric root+flat seven”.

Ex. 2 and 2c is symmetric around an axis of f, with a root of C, meaning that it is symmetric on the interval C-Bflat, and therefore also “symmetric root+flat seven”. This symmetry is “just” a transposition of the symmetry in ex. 1b and 1c. (But note how different the tonal language is between these two, because the symmetry does not decide the colouring, only the pitch-structuring principle).

Ex. 3 and 3b are symmetric sum 15, around an axis of g-g#, with a root of E. Meaning it is symmetric around the interval E-b, that is “symmetric root + perfect fifth”.

Ex 5 and 5b are symmetric sum 7, meaning around an axis of e-eflat, or around the interval Aflat-b, that is “symmetric root + minor third”.

Etc.

In this terminology, where symmetries are thought of as intervals with the root as the lowest note, it is obvious that there are 12 possible “symmetric conditions”:

“Possible Symmetric conditions”:

Axis = Root

Axis Interval = root + minor second,

Axis Interval = root + major second,

Axis Interval = root + minor third

Axis Interval = root + major third,

Axis Interval = root + perfect fourth,
Axis Interval = root + tritone,
Axis Interval = root + perfect fifth,
Axis Interval = root + minor sixth,
Axis Interval = root + major sixth,
Axis Interval = root + minor seventh,
Axis Interval = root + major seventh.

Here we are getting to the way I used this overly systematic way of thinking as a creative tool: I made this list of the 12 possible symmetric conditions, and decided to make a new, “prototypical” composition for each of them.

This resulted in, in the Kinetics repertoire:

(audio: <https://soundcloud.com/jacobanderskov/sets/kinetics-the-path-habitable>.

sheet music: http://jacobanderskov.dk/?page_id=468.)

Stop Pots. Symmetric around an axis of root + minor seventh (C to B flat)

Pull Up. Symmetric around an axis of root + perfect fifth (E to B)

Tattarrattat. Symmetric around an axis of root + minor second (B flat to b natural)

Qaanaaq (did not make it to the album, but heard at <https://soundcloud.com/jacobanderskov/qaanaaq>). Symmetric around an axis of root + minor third (A flat to b natural)

Snap Pans. (did not make it unto the album – see video at <https://www.youtube.com/watch?v=xMAjqSHdoEU>). Symmetric around an axis of root + minor seventh (G to F).

The composition “**Eu-git – a Fatigue**”, finished after the recording of the trilogy albums, is symmetric around an axis of root + major sixth.

Parts of the composition **Rat Star** also contained strict melodic symmetry; the entire melody in the A, B & C section is symmetric around an axis of root + perfect 4th (E flat to A flat).

I am still imagining going on with the quest of completing the list of the 12 symmetric conditions in 12 compositions, and at the time of writing this sentence, I have finished at least one composed piece for the majority of the 12 symmetric conditions.

HABITABLE EXOMUSICS ANALYSIS, Part II – Intervallic consequence

Part IIa: Intervallic consequence - Few intervals

I use the term intervallic consequence (or intervallic consistency) as the overall term covering many different concepts, such as serialism, quasi-serialism, multiple arpeggios, and the one I will discuss now. I still have not heard a fully satisfying name for it, and for that reason, I will call it “few intervals”. A more descriptive yet less apt name could be “few intervals used for generating all material”.

In **Ex. 1**, an excerpt from the melody of the composition Tsetse is shown. (*This composition did not make it onto the album, but a video of the first performance is online at <https://www.youtube.com/watch?v=c8hbng2hu2E>.*)

Ex. 1

23 melody pitches:

27

The melody is to be played over a sustained E flat pedal. Note that the interval between two consecutive notes is always either a perfect fourth or a major third – or their inversions, perfect fifth and minor sixth.

(This structuring concept has a famous appearance in Bartok’s Concerto for Orchestra, the low melody of the first movement - though with the intervals perfect fourth and major second).

I happen to like the sound of this kind of consistency, and especially, I find it quite usable in motivic improvisation. I found it relevant for me to use this approach more, because I wanted to force my playing further away from tonality. Not because I thought my music was too tonal, but because I wanted a certain kind of refreshment in my music right now. And this system does have that effect – mentally as well as practically.

It felt intriguing to me to stick to those concepts, not just use them for 10 seconds. The question could be stated as: Can I play a complete piece of music on just this one principle? And, how many different zones or grammar-types can I have such a relation to? I am not trying to aim at an objective truth, but trying to investigate which concepts do work for me. So I wandered, how many different such pairs of 2 intervals would it make sense for me to get acquainted to? - This kind of question is typical for parts of the mapping part in the project.

If any interval above the tritone is considered an inversion of a smaller interval, the list would be like below:

Possible Interval pairs:

1,2	1,4	1,6	2,3	2,5
1,3	1,5		2,4	2,6

In this notation of the piano melody in a purely improvised passage from the opening of the trio album Dynamics (the Terrain), starting at around 0.28, it is obvious from a closer look that only the intervals minor third, major third, minor second, and their inversions appear. (Audio: <https://soundcloud.com/jacobanderskov/the-terrain-part-i?in=jacobanderskov/sets/dynamics-the-terrain-habitable-exomusics-volume-iii>). The name for this “condition” in the above system would be “1,3,4”.

...

Ex. 3 - from "Statics Part IV"
time: ca. 1.10-

The image shows a musical score for Ex. 3. It consists of two staves, treble and bass clef. The treble staff contains a series of notes and rests, with some notes marked with ellipses (...). The bass staff contains a series of notes and rests, also with some notes marked with ellipses (...). The notes are primarily in the mid-register range.

Ex. 3, which shows only the mid register part of what is going in this piano solo improvisation from “Statics” (a lot of low rumbling stuff is happening at the same time), only the intervals minor second, perfect fourth and tritone (plus their inversions) are used, making its labelling name “1,5,6”. Here we see tendencies that the system becomes polyphonic.

(Audio: <https://soundcloud.com/jacobanderskov/statics-part-iv?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>).

Later in the same piece, this transforms into the pitch material in ex. 4:

Ex. 4 - from "Statics Part IV"
time: ca. 2.00-

The image shows a musical score for Ex. 4. It consists of a single treble clef staff. The notes are arranged in a sequence that illustrates the intervals 1, 3, and 4. The notes are primarily in the mid-register range.

- which is now using only the intervals 1,3,4.

...

In ex. 5, we see a more polyphonic take on exactly the same principle, also from Statics.

(Audio: <https://soundcloud.com/jacobanderskov/statics-part-iii?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>)

Ex. 5 - from "Statics Part III"
(slowly)

The image shows a musical score for Ex. 5. It consists of two staves, treble and bass clef. The treble staff contains a series of notes and rests, with some notes marked with ellipses (...). The bass staff contains a series of notes and rests, also with some notes marked with ellipses (...). The notes are primarily in the mid-register range.

Here, the piano improvisation becomes a 3-part polyphonic piece of music, where each part uses only the intervals major third, perfect fourth, and their inversions. It starts as one note, then becomes two voices, one on top, one below. Then the upper voice splits into 2 voices. In each single voice follows the described linear principle. A few times the interval relations are appearing across the registers, e.g. right after the high c sharp near the end of the transcription.

The entire 5 minute piece is almost completely consistent with this principle. Meaning, there is almost no point in the piece where I do not follow this principle. Almost every single note relates to the previous note of the voice with this interval relation.

In all the improvised examples (ex. 2-6), the whole thing is improvised, so I could just leave the concepts behind, as soon as I got inspired to do something else. But an interesting point is that during my solo tour, preparing to record the solo album, I realised that it made much more sense for me to stay in these concepts for more extended durations. Occasionally, I would leave it for pure “inspiration”, but normally not for tonality. Even if I felt a strong gravitation in the material towards tonality, I would still only leave it for something else which did not allow itself to become completely tonal. This dogma created a kind of friction in my solo playing that I liked, and which felt and sounded right to me at that time.

In conclusion, some of the interval combinations found their way to either a composition or to at least one of the recorded improvisations. Others were just part of my on going process. It was of course not that important that all possible “Habitable Exomusics”- material structuring principles would be documented on the albums. But I do believe that focusing so much on these systems in my practice did bring about a specifically flavoured kind of post tonal curiosity in my improvisations along the way.

The described process is typical to the way I have used the concept of “mapping”. My idea was that of getting an overview, first of what IS going on in my music, then what COULD be going on.

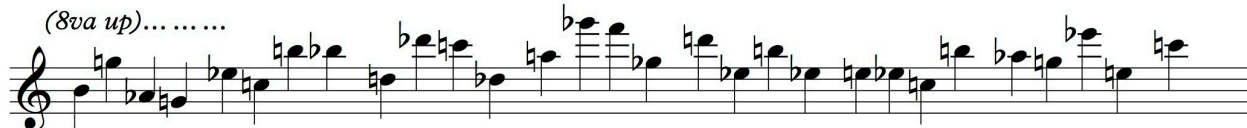
Or you might say: making the list of possibilities: Here is what I have done. And then: which actions are still undone, but similar to what I have done, meaning, COULD be done. Then, inventing the daily procedures and routines making the still-unresearched material available to the intuitive creation in the moment.

Part IIb: Intervallic consequence - Multiple Arpeggios

In ex. 6a, from the solo album "Statics", the following pitch-material is played slowly, high above a low accompaniment:

(Audio: <https://soundcloud.com/jacobanderskov/statics-part-v?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>)

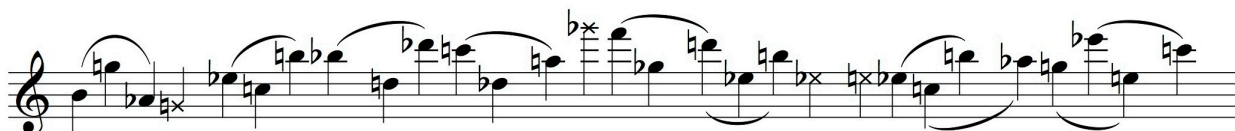
Ex. 6a - from "Statics Part V" (time: ca. 3.25-)



Again, the only used intervals are 1,3,4 and their inversions. Meaning, it can be seen as purely derived from the concept of few (3) intervals between succeeding notes. But the resulting line can also be seen as a number of arpeggios of the same trichord (and its inversion), marked with slurs in ex. 6b:

\$

Ex. 6b



I am naming this way of thinking about intervallic consequence as **multiple arpeggios**.

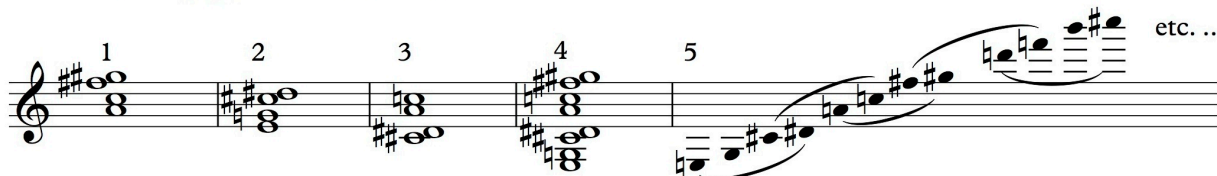
These multiple arpeggios are quite common among improvisers from many parts of the world, though most of them use mainly a few of the possible trichords and tetrachords for the arpeggios. (A famous and brilliant example of this concept is John Coltrane's solo on "A Love Supreme Part I: Acknowledgement")

...

In the composition "Cous Cous Hotshots", for the Kinetics ensemble, the entire composition is based on that principle.

The arpeggio material is shown in ex. 7a:

Ex. 7a - arpeggio material in "Cous Cous"



This might be labeled a "root, minor third, major 6th, major seventh"-tetrachord, as shown in bar 1 & 2. Or in its inversion, as a "root, major second, minor sixth, major seventh" - tetrachord, as in bar 3. It might be relevant to note that the inversion in bar 3 of the material in bar 1 or 2 contains the two bottom notes of the tetrachord in bar 1, and the two top notes of the tetrachord in bar 2.

This might illustrate why or how I happen to think of it as every tetrachord being an excerpt of a more infinite tone row or an infinite chord, as shown in bar 4 (excerpt of the larger chord) and bar 5 (the series of notes forming both the larger and the smaller tetrachords). From the bottom up, this row has always the same intervals: minor third, tritone, major second, tritone, and repeating the same over.

Do also note that even though the row of notes repeats its patterns a perfect fourth (plus an octave) away after every 4 notes, the series of notes cover 11 different pitches before repeating just one of them (c#, the last note of this series).

Ex. 7b shows an excerpt from the full Cous Cous sheet. (Video: <https://www.youtube.com/watch?v=ZFnUowlRVZI>)

Ex. 7b

Couscous Hotshots

Minor-6-7 - (Imperman(2,3,6)/tetrachords/quasi-seri)

Jacob Anderskov
2014

♩.=100

Piano

8ve DOWN, loose phrasing

mf [Melo-DNA:]

Bass

♩.=100

Pno.

B

mp

mp

Note how all motives are derived from the tetrachord material in ex. 7a.

"Cous Cous" did not make it onto the trilogy albums, but can be heard online – see video at <https://www.youtube.com/watch?v=ZFnUowlRVZI>.

The multiple arpeggio approach was mostly used in the Habitable Exomusics project in the way I explain in the following section about "derived rows". However, I did also work a lot on it in a more loose way, mostly on the following tetrachords:

Main Tetrachords and trichords for multiple arpeggios:

0,2,8,11 or 0,3,9,11 a.k.a. root+minor3+major6+major7, resp. root+#5+major7+9 (as used in Cous Cous)

0,4,6,11 or 0,1,5,7 a.k.a. major7-flat5 or 5,sus4,b2.

0,3,6,11 or 0,5,8,11 a.k.a. root+minor third+major7+flat5.

0,3,7,9 a.k.a. Minor 6 (as used in "7 seasick seamen" from the album "Anderskov Accident")

0,3,8,11 a.k.a. root+minor third+major7+flat5.

0,3,11 or 0,8,11 a.k.a. root+minor3+major7 resp. root+minor6+major7.

0,2,11 or 0,9,11 a.k.a. root+major2+major7 resp. root+major6+major7.

0,3,7 or 0,4,7 a.k.a. major triad resp. minor triad.

0,4,8 a.k.a. augmented triad.

Most of these did not make it onto the trilogy albums in the above form. Some did in the "derived rows" version (see below). But they were all part of the workflow and the preparational process, which I will deal with in the blog posts about "the Path", "the Map" and "the Terrain".

Part IIc: Intervallic consequence - Derived rows.

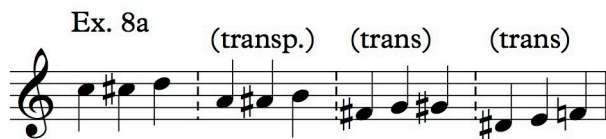
This chapter deals with principles that could be labelled “derived rows”, “quasi-serialism”, (loose usage of serialism), “symmetric rows” or “redundant rows”.

I have chosen to place this “serialism” section within the “intervallic consequence” section, because serialism is in my view (or: in my use) mainly about intervallic consequence: The essence of the usage of tone rows, when transposition of these rows is in use, is basically the consistency of the intervallic material, not necessarily of the exact pitches. And, as will be seen shortly, the principle is closely related to that of multiple arpeggios.

Since the beginning of my career as a recording artist, I have used 12 tone serial principles quite often in my work, (though most of the time with no one taking notice, which was probably better, especially from a commercial point of view..). I think it would be relevant to mention it here, even if doing so risks ruining whatever is left of my remaining street credit(...).

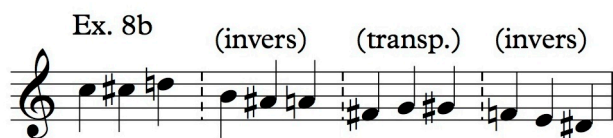
Over the years, many of the rows that I liked to use had special qualities, that made me label them as “symmetric rows”. I started to wonder what the main principles behind these rows were, and have come to a way of thinking about it quite in line with the term “derived rows”.

A very simple example of a derived 12t row could be the one in ex. 8a:



This series of pitches contain all twelve pitch classes, in an order where the first three notes form a motive, which, when repeated 4 times, covers all 12 notes.

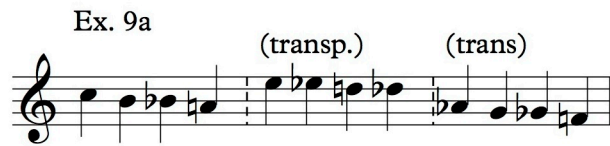
That motive could also be mirrored every other time, giving us ex. 8b:



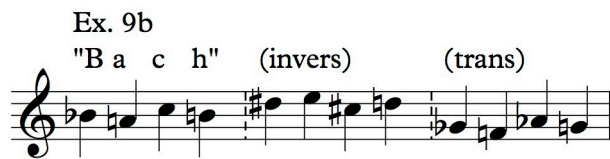
Again, the same motive, repeated 4 times, though every other time in its inversion, once again covers all 12 notes. That principle is called a DERIVED ROW, in a.o. Allen Forte’s book “The Structure of atonal music”. The trichord that the row is derived from, would in Forte’s vocabulary be labelled “0,1,2”, named after the contained pitches in its closest position, transposed to c.

When I call it redundant, it is because this row contains not 12 separate pieces of information, but only one three-note-idea, plus an unfolding of this idea. This might be one reason why it seems so useable in improvised music: there is not as much serial information to deal with, and a certain audible consistency of the material is heard, no matter how the material is unfolded.

Another example is seen in ex. 9a:



This time we have a four-note motive or group of notes, which is repeated 3 times, thus covering the 12 notes. This tetrachord would be labelled “0,1,2,3,” by Forte. Ex. 9a might again seem quite simplistic, since it is almost a chromatic scale. But if each 4 note tetrachord is played in another permutation (order), as in ex. 9b ...



... then we get some quite famous pitch material: the first four notes form the motive “B – A – C – H”, which as used as a fugue motive in J. S. Bach’s last, unfinished fugue in “Kunst der Fuge”, which he (according to a well known part of the classical European music history/ lore) composed at his deathbed. When this motive is repeated three times, and the second “bar” is inverted, as in ex. 9b, we arrive at the 12 tone row that Anton Webern used in his String Quartet, Op. 28. Note that in Forte’s terminology, this would still be labelled “0,1,2,3”, since the tetrachord does not change name “just” because of permutations in the order of the material. This material is loosely used in “Statics part VIII”, see below (ex. 12).

Derived rows do not need to contain only chromatic trichords or tetrachords, almost any trichord will do – see e.g. ex. 10:



Here we see a trichord, which when repeated in 4 transpositions, every other time inverted, covers all 12 notes. Note how similar this pitch material may seem to ex. 6a / 6b, in terms of the material that the concept generates. Forte would label this trichord “0,1,4”, since that is the closest possible position of the notes. This material is used in “Diamonds are for unreal people IV”, see below (ex. 13a-13e).

Three examples of actual appearances of these concepts in the trilogy:

In “The Terrain, part I” from “Dynamics (the Terrain)”, at around 4.00, the piano improvisation alternates between the 4 trichords shown in ex. 11a, again covering all 12 pitches.

(Audio: <https://soundcloud.com/jacobanderskov/the-terrain-part-i?in=jacobanderskov/sets/dynamics-the-terrain-habitable-exomusics-volume-iii>)



The way they are used differs each time, but the realisation concept is visualised in ex. 11b:

Ex. 11b - piano pitch material in "Dynamics, part I", from around 4.00



Each of the 4 bars is used as a deconstructed building block with no obvious center, order or direction, and with a vibe as if every motive is heard for the first time. First bar of ex. 11b is an orchestration of the notes in the first bar in ex. 11a, and so forth.

(The Feldman'esque vibe here is no coincidence, given Feldman's huge depth to Webern, to whom the concept owes a lot, though Feldman himself did not use serialism as a structuring principle, but rather as an intuitive inspirational source. Also, Nils Davidsen and I had listened a lot to Webern & Feldman shortly before the recording).

The section (shown in 11b) is purely improvised, which might be one reason why things move so slowly here. The concept has to be understood and digested by the player(s) in real time, and sometimes either the overview or the sensation of the needed time of the actions in the ear of the improviser can force things down in tempo – which actually only gives a flavour that I happen to like. The last bar of ex. 11b does only appear near the very end of the section (or actually, is only hinted at) around 7.50. Either because the realisation of the full derived row took some time for the mind – or because the need did not arrive earlier than this in the ear of the performer...

...

In ex. 12, some of the main pitch material from "Statics part VIII" is shown.

(Audio: <https://soundcloud.com/jacobanderskov/statics-part-viii?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>)

Ex. 12 - from "Statics part VIII"

1 (from 0.00-) 2 (ca. 1.55) 3 (ca. 2.30) 4 (ca. 2.50)

Once again, as in ex. 9a and 9b, we are dealing with different transpositions of the “B-a-c-h-“ tetrachord, the very opening of the improvisation actually being those exact 4 notes, though with another distribution in octaves than in ex. 9.

The first bar becomes the offspring for an improvisation on the motive, and a journey into possible transformations of it. A free transposition of the motive (shown in bar 2 of ex. 12) appears at 1.55, though with an added extra bass note. And then, near the end of the piece, bar 3 (at 2.30) and bar 4 (at 2.50) arrives. These two bars happen to be permutations (other orders) of the other two tetrachords in 9b, though in opposite order. And, so, again covering all 12 notes by repetition of the one single motive (bar 1 + bar 3 + bar 4).

...

Ex. 13a shows the pitches in the main bass line of the composition “Diamonds are for unreal people, part IV”, from the album “Kinetics (the Path)“.

Ex. 13a - pitches in main bass line in "Diamonds Part IV" on "Kinetics (the Path)"

Note again how the second bar is an inversed transposition of the first bar, and how the two trichords together cover 6 neighbouring chromatic pitches.

Ex. 13b shows an excerpt from the “Diamonds..” sheet. Note how the bass line only uses the pitches in ex. 13a. ... Audio: <https://soundcloud.com/jacobanderskov/diamonds-are-for-unreal-people?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 13e - Excerpt from Diamonds(...) IV, page 2

2 **B** Diamonds IV

16 octaves

Pno *mf*

B D^b

18

Pno

B F

The melody in especially bar 17 and 18 spells out the pitches of ex. 13d. And then, as can be seen in the rest of the excerpt in ex. 13e, (starting on the melody note a flat in bar 18) this pitch material is then reused in transposition a major third up. Earlier in the piece, the bass line transposed the original bass material a major third down.

So, in “Diamonds are for unreal people IV”, the row is not used as all 4 transpositions of the same trichord, meaning, not only transpositions by tritones of the 6 pitch motive in ex. 13a, but rather a more freely use of just the 6-tone-row of ex. 13a itself. This again shows the way that material generated from derived rows can be very similar to material generated from motivic improvisation: There are very few motives involved – and, all 12 pitches can come into use, based on quite simple or quite easily recognizable material.

...

The realization that I had a strong preference for symmetric rows or derived rows led me to asking the question: how many symmetric or derived rows do exist? The number is of course huge, and is not really the main issue here, but I soon realised that it can be asked in a more clarifying way; Many of the rows I had worked on were derived from trichords. I imagined (and still do feel) that if two different derived rows were derived from the same trichord, they would at least share certain qualities, and I started to consider them part of the same “family” of derived rows.

The number of possible trichords is 12, when all transpositions, permutations and inversions are considered equal. See ex. 14, which shows a representation of the overview Allen Forte uses.

Ex. 14. List of all possible trichords:

A Trichord 0,1,2 	B Trichord 0,1,3 	C Trichord 0,1,4 	D Trichord 0,1,5 	E Trichord 0,1,6
F Trichord 0,2,4 	G Trichord 0,2,5 	H Trichord 0,2,6 	I Trichord 0,2,7 	
J Trichord 0,3,6 	K Trichord 0,3,7 			
L Trichord 0,4,8 				

If unfamiliar with this system, one might wonder whether some trichords weren't forgotten. But, as exemplified in ex. 15a and 15b, all other possible combinations of 3 pitches are either transpositions, inversions, octave displacements or permutations of one of these 12 trichords.

Ex. 15a

"0,4,7" 	= inversion of 	= Trichord 0,3,7
-------------	--------------------	----------------------

Ex. 15b

"0,3,7" 	= permutation of 	= inversion of 	= Trichord 0,3,7
-------------	----------------------	--------------------	----------------------

The question about whether it is "fair" to "analyse" e.g. the major chord as "equal to" the minor chord is a discussion beyond the scope of this text. When used in a post-tonal context, they do share certain obviously recognizable properties in terms of intervallic content. And, this text is not at all trying to analyse music outside of the Habitable Exomusics universe, nor to state any truths about how other composers have (or might have) worked. The process here is one of "mapping done and undone possible actions", by analysing my own preferences, and making assessments as to what could be fertile areas to look for new material that I might like, based on the properties and structures of the material that I have already used and liked.

Of the 12 possible trichords, 11 have the potential to form a derived 12 tone row, by 4 repetitions, including inversions. The only one not capable of such an operation is "0,3,6", the diminished chord. See ex. 16 for a list of possible trichord based derived row families.

Symmetric/ Derived Rows overview

TRICHORD-BASED

A Trichord 0,1,2
(motive: 1,0,2)

B Trichord 0,1,3
(motive: 1,0,3)

C Trichord 0,1,4
(motive: 0,1,4)

D Trichord 0,1,5
(motive: 5,0,1)

E Trichord 0,1,6
(motive: I: 6,1,0)

F Trichord 0,2,4
(motive: 2,4,0)

G Trichord 0,2,5
(motive: 2,5,0)

H Trichord 0,2,6
(motive: 0,2,6)

I Trichord 0,2,7
(motive: 2,0,7)

J Trichord 0,3,7
(motive 3,7,0)

K Trichord 0,4,8
(motive 4,0,8)

L Trichord 0,3,6
(motive: 3,0,6)

ex. of Row 1 0 2

ex. of Row 0 3 2

ex. 4 3 0

ex. 0 5 4

ex. 5 6

ex.

ex. 3 0 5

ex. 6 4 0

ex. 7 5 0

ex.

ex.

Not compatible with symmetric 12tone-rows
- 100% derived row not possible

In a similar manner it would be possible to make a list of possible derived row families based on tetrachords, and even hexachords and dyads. For now, I will leave that with just saying that the tetrachords capable of forming derived rows are:

0,1,2,3
 0,1,2,7
 0,1,6,7
 0,2,3,5
 0,1,3,6
 0,2,5,7
 0,3,6,9.

Or, in music notation, ex. 17:

Ex. 17. Tetrachords capable of forming derived rows

The image displays seven musical tetrachords, each on a single staff in treble clef. Above each staff is a letter in a box and its corresponding intervallic structure:

- M**: Tetrachord 0-1-2-3. Notes: G4, A4, B4, C5.
- N**: tetrachord 0,1,2,7. Notes: G4, A4, B4, G5.
- O**: Tetrachord 0-1-6-7. Notes: G4, A4, F5, G5.
- P**: Tetrachord 0-2-3-5. Notes: G4, A4, B4, C5.
- Q**: Tetrachord 0,1,3,6. Notes: G4, A4, B4, D5.
- R**: Tetrachord 0-2-5-7. Notes: G4, A4, C5, D5.
- S**: Tetrachord 0,3,6,9. Notes: G4, B4, D5, G5.

A little less than half of the above mentioned families of motivic material had been present somewhere in the Habitable Exomusics processes as of the time of writing – but not much of it ended up on the albums.

Habitable Exomusics Analysis, Part III – Multiple grids & spectres etc.

Part III a: Multiple tonalities & tone grids

Bitonality and multiple tonalities are labels for situations where more tonalities are present simultaneously. Often each tonality belongs in a specific register or with a specific instrument, but that is not always the case.

I sometimes prefer the term "multiple tonalities" over "bitonality", mostly because when improvising in a "bitonal" situation, (with 2 tonalities identifiably present), my experience is that further tonalities will often present themselves in other registers. In the most recognisable version of this concept, each tonality is obviously identifiable somewhere.

Ex. 1 shows an excerpt from the Kinetics composition Wolf Flow.

Audio: <https://soundcloud.com/jacobanderskov/wolf-flow?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 1

opening: no intro, right on it

WOLF FLOW (Nuff)

Jacob Anderskov

$\text{♩} = 120$

3

etc.

Here, the piano plays a 2-hand accompaniment and (simultaneously) a singular melody. The octave doubling of the melody is not notated, primarily for graphic/readability reasons. The bass and the piano left hand are obviously in F minor, whereas the piano right hand and the melody are obviously in E minor. This tonal division continues in the entire composition.

At first sight, this is the simplest possible form of bitonality. However, my experience is that often in the transition from written material into the improvisation in such a piece, there is a risk that the degree of friction or tension might change unwillingly because the improvisation often might not have the needed strength to match the composed parts. In this piece, I chose to think of the material as having a “pivotal register” in & around the piano accompaniment: below the piano accompaniment, the tonality is clearly F minor, above the accompaniment, the tonality is quite clearly E minor. Within this pivotal register, both tonalities are equally present. I chose to stick to this during the improvisation, as can be heard on the recording on Kinetics (the Path): The bass stays in F minor, the piano accompaniment is a combination of the 2 tonalities, and the improvised material above the accompaniment is mostly in E minor. Thinking of it as pivotal registers made certain issues more clear to me, which might be seen in the following examples.

...

Ex. 2 shows material from “Statics part VIII”. This piece has already been dealt with during the chapter on derived rows. However, it is also relevant to consider how the main motive, the B-a-c-h – pitches, works as not just the tetrachord forming the derived row as explained above, but also as “pivotal register-material”.

(Audio: <https://soundcloud.com/jacobanderskov/statics-part-viii?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>)

Ex. 2 - from "Statics part VIII"

Main motive & pivotal register

In the improvised section right after the opening statement of the B-a-c-h motive, the material above the main motive is mainly in E minor, taking its tonality from the 2 top notes of the B-a-c-h motive (a and b natural). Whereas the material below the main motive is mainly in G minor, taking its tonality from the 2 bottom notes of the B-a-c-h motive (B-flat and c).

(A third interpretation of this piece could be that both systems notated in ex. 2 above adhere to the “few intervals” concept (see earlier chapter) almost through the entire passage. The intervals here are 2,3,5 – or, major second, minor third and perfect fourth.)

This is a typical example of how several simple concepts, when understood, digested and transcended, may combine and form new unforeseen compound systems. It could even be considered whether this is a very technical, but nonetheless quite descriptive example of how the creative mind deals with information. (And, while saying so, remembering that the creative mind deals with more than just information).

...

Ex. 3 shows the pitch material in the purely improvised solo piano piece Statics part X. ([Audio: https://soundcloud.com/jacobanderskov/statics-part-x?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii](https://soundcloud.com/jacobanderskov/statics-part-x?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii)). Here, again, we have an obvious tonality of C major in the mid-high register, an as obvious C# minor tonality in a central mid register, and later in the piece an addition of low A minor flavours. Though not exactly radical in its aesthetic, the section is a typical example of how in my dealing with multiple tonalities, every new element or every newly introduced register might arrive with prevalence to other tonalities than the ones already present in the situation.

Ex. 3 - from "statics part X"

The image shows a musical score for piano with three staves. The top staff is annotated with "etc. (C major) ..." and contains a melodic line with notes like G4, A4, B4, C5, and D5. The middle staff is annotated with "etc. (C# minor)..." and contains a melodic line with notes like D4, E4, F#4, G4, and A4. The bottom staff is annotated with "etc. ... (A minor)" and contains a melodic line with notes like C3, D3, E3, and F3. There are also some chordal textures in the bottom staff.

...

In ex. 4a is shown the opening melody from the composition Cous Cous ([video: https://www.youtube.com/watch?v=ZFnUowlRVZI](https://www.youtube.com/watch?v=ZFnUowlRVZI)). This piece has earlier been covered in the chapter in multiple arpeggios. However, it is no coincidence that the tetrachord in use here (0,3,9,11 or a-c-f#-g#) generates material that can be perceived as having multiple tonalities in each their specific registers.

Ex. 4a. Cous Cous melody opening

The image shows a musical score for a single melodic line. It starts at measure 2 with a dynamic marking of *mf*. The melody consists of notes: D4, E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6. There is a box labeled 'A' above the first measure. At measure 7, there is a dynamic marking of *mp* and a slur over the notes: D4, E4, F#4, G4, A4, B4, C5, D5, E5, F#5, G5, A5, B5, C6.

The melodic material in this excerpt has a tonal pivotal point between c and c# in the melody, as can be seen in ex. 4b, where all melody notes below c# have been moved to another stave. Now we see two segments of material in each their register, being in obviously each their tonality.

Ex. 4b. Cous Cous - registral tonalities in melody opening

Later in the same composition, at the end of the A melody, a similar thing happens with a lower pivotal point:

Ex. 4c shows the melody in itself.

Ex. 4c. Cous Cous - melody ending of A-section

14

Ex. 4d shows the same melody split out by register, thus also splitting it by tonality.

Ex. 4d. Cous Cous - registral tonalities in ending of A-section

...

Ex. 5a shows an excerpt from the A-section of the composition March Charm.

Audio: <https://soundcloud.com/jacobanderskov/march-charm?in=jacobanderskov/sets/kinetics-the-path-habitable>

3 Ex. 5a - Excerpt from March Charm, A-section, piano only

LH:
2nd X only

p

5

The pitch material in March Charm is mainly based on the grid shown in ex. 5b – in this composition the grid is actually treated identically in every octave -

Ex. 5b - tone grid for March Charm

- and as such, the composition is theoretically using only one tonality. However, with the way the 2 piano parts interact and react to each other, we sense a quite obvious D minor in the upper voice, against an as obvious A flat minor counterpoint in the lower voice. The bitonality happening here between the two piano parts is in this case a result of the way we (choose to) listen or perceive the material rather than a result of the coexistence of two mutually exclusive tonal realities.

Ex. 5c shows the entire A-section from March Charm.

Ex. 5c

March Charm

Intro: Loose bass & drum duo,
setting up of groove
or similar material

Jacob Anderskov
2014

$\text{♩} = 150$

3 **A**

LH:
2nd X only *p*

Very loose *simil.*

5

7

9

Part IIIb: Twisted spectres

The term "twisted spectres" can be thought of as a specific branch of multiple tonalities. Or it can be considered as a very loose usage of concepts from spectral music in the tradition of Per Nørgaard, Gerard Grisey, Tristan Murail & Georg Friedrich Haas.

"Twisted spectres" is most exact as a description when the tonal discrepancies between different registers have some kind of relation to or perceived friction against the overtone series of the material in the lower registers. This friction, however, need not be against the "correct" overtone series, but can also – with interesting results – be against an almost-correct (hence: "twisted") overtone series. Or the harmonic material can be further twisted beyond the tempered/untempered dichotomy, into obviously "wrong" overtone series.

Examples:

Ex. 6a shows the three opening chords of the improvised piece Statics part VII.

(Audio: <https://soundcloud.com/jacobanderskov/statics-part-vii?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>)

Ex. 6a - opening harmonies in Statics Part VII

1 2 3

Note how each new chord sounds as a new filtering of the previous chord. The core material here is: the bass root and its 7th overtone in the natural overtone series. The 7th overtone is the first overtone being considerably off compared to the tempered scale, approximately a quartertone (or, actually 31 cents) lower than the tempered a.

It is necessary here to explain how micro-tonal effects are possible also on a completely tempered piano.

In ex. 6b, showing the first dyad in the piece, we do theoretically hear 2 a's – the welltempered one, played by the keys/the hammers, and the lowered a, heard as the overtone to the low b natural – as shown in bar 2.

Ex. 6b - opening harmony

Aural experience includes:

Consider ex. 7a:

Ex. 7a

sounding:

When playing this on an acoustic piano, we hear that the mid-register-a is hanging over. But on a good piano, listening carefully, we also hear that this a, while hanging over, **moves gradually downwards in pitch**, to end at the lowered a, theoretically 31 cents lower than the tempered a – as shown in the last 2 bars of ex. 7a. This is of course because the 7th partial of the b natural in the bass is an a-natural, lowered 31 cents.

Vice versa, a similar thing is happening in ex. 7b.

Ex. 7b

sounding:

Here the sounding effect (after the decay of the bass note) is that of the un-tempered lowered-a (31 cents low) **moving gradually up** to the tempered a held down.

(The night after first starting to work on these issues, I had a dream where I went to a piano and hit exactly this interval – and thereby caused an earthquake...)

In this project, I was playing only acoustic piano, with no treatments, and no preparations, and these thoughts were a help to create untempered sounds within this completely tempered condition.

The third chord in the piece, shown in ex. 8a contains the tempered version of three of the “least tempered” overtones to the b natural bass note:
 the 7th partial (in the overtone series actually 31 cents low),
 the 11th partial (in the overtone series actually 49 cents low), and
 the 15th partial (in the overtone series actually 12 cents low).

Ex. 8a - third harmony in Statics part VII

15th partial (12 cents low)
11th partial (49 cents low)
7th partial (31 cents low)

Root (1st partial)
8^{vb}-----

I will claim that the presence of three notes struggling to such an extend with the overtones of the root on the intonation realities is quite important here. It is, I think, one of the reasons for the quite dizzying effect this harmony has in terms of its tonal suggestions.

If this chord is played several times with different dynamics, as shown in ex. 8b and ex. 8c,

Ex. 8b

Ex. 8c

ppp f

ff p

f ppp

ppp f

8^{vb}-----

- we hear something quite similar to a filtering or gradual distortion of a simple bass note. Our ears are then – especially in ex. 8b – in doubt if the notes we hear are played or just part of the overtone series of the low note. We hear the upper notes as an interpretation or a gradual filtering of the bass note.

Or, as in much spectral music, we might hear – in ex. 8c – that the mid register harmony suggests a specific bass note, that we later hear gradually appearing.

Having a weakness for mid register harmonies containing a minor 9th interval inside the voicing, some of my preferred mid register quasi-spectral harmonies would be these:

Partials 6-10-13

Partials 7-11-15

Partials 8-13-17

Partials 9-14-19

- As shown in ex. 9

Ex. 9 Examples of mid register quasi spectral left hand harmonies

partials:

13th
10th
6th

partials:

15th
11th
7th

partials:

17th
13th
8th

partials:

19th
14th
9th

8^{vb}-----

The relation to the previous chapter (on multiple tonalities) can be demonstrated this way:

In the before mentioned piece Statics part VII, the mid register harmonies become multiple tonalities pivotal register materials.

In ex. 10, a transcription of the pitch material in the opening sequence is shown. (Audio: <https://soundcloud.com/jacobanderskov/statics-part-vii?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>).

Ex. 10 - Pitch material in opening of Statics part VII

Do note the way the first harmony (overtones 7-11-15) lay out a new tonality above its register, based on the overtones of the actual harmony.

The pitches above the mid register voicing, are very consonant compared to the mid register voicing, but quite foreign to the bass note and the lower register's implications of a B natural tonality:

- An octave above the "f" in the mid register voicing, we have – as part of that f's overtone series – a f (2nd partial), and a c (3rd partial).
- An octave above the b flat in the mid register voicing, we have a b-flat (2nd partial).

These notes (f, c & b-flat) are the core pitch material in the upper register motivic activities during the first minute or so of the piece.

So, here you have it: the vertically pivotal harmony (mid register) is binding or uniting the harmonically unrelated top and bottom registers together as one resonance. And, doing so by use of its relation to as well the overtone series of the bass note as the overtone series of the mid register notes.

...

In ex. 11a, the opening of Statics part XI is transcribed.

Ex. 11a - Opening of Statics part XI

In the opening of Statics part XI, the low bass and the lower half of the chord form a completely regular $D7, \#11$ chord. With the addition of the upper half of the chord, the picture is less recognizable. The upper half of the chord is simply an amplification of the 3rd partial of each of the notes in the lower half of the chord. We could call it a “repetition by an interval of octave-plus-perfect-fifth”. (Audio: <https://soundcloud.com/jacobanderskov/statics-part-xi?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>)

Because of the nature of the chord repeated, which contains no perfect fifths, but 2 tritone intervals, the relation between the chord and its “3rd-partial-amplification” is quite dissonant. The last 2 bars of ex. 11a shows how dissonances are abundant in the compound chord. This happens even though a repetition at the 3rd partial would normally be a quite peaceful event in terms of dissonance.

Staying on track of the interrelations between the concepts, note how in ex. 11b, the pitch material in the compound chord, when arpeggiated, form the “cous cous”-row dealt with in the chapter on “intervallic consequence”.

Ex. 11b - relation to "Cous Cous" row of notes

...

Quasi spectral approaches are also present on the trilogy in a more freely associative way in:

- The Terrain, part III, from Dynamics (the Terrain), opening sequence, <https://soundcloud.com/jacobanderskov/the-terrain-part-iii?in=jacobanderskov/sets/dynamics-the-terrain-habitable-exomusics-volume-iii>
- Sleeveless, the intro, from Kinetics (the Path) - <https://soundcloud.com/jacobanderskov/sleeveless?in=jacobanderskov/sets/kinetics-the-path-habitable>
- Diamonds are for unreal people IV, the piano outro, from Kinetics (the Path). <https://soundcloud.com/jacobanderskov/diamonds-are-for-unreal-people?in=jacobanderskov/sets/kinetics-the-path-habitable>

Part IIIc: Dissonance consistency

Related to terms such as “repetition by an interval of octave-plus-perfect-fifth”, used above, is a concept that I would call “Dissonance consistency”.

A simple example of this, already presented, would be the piano accompaniment in Wolf Flow, see ex. 12 (<https://soundcloud.com/jacobanderskov/wolf-flow?in=jacobanderskov/sets/kinetics-the-path-habitable>).

Ex. 12



The two hands play exactly the same material at a distance of a major 7th. So, the degree of dissonance is consistent. (I am not stating here that all consistency of dissonance is a sign of profound quality, but only that the mental picture of this kind of consistency has proved to be a creative tool for me in my processes).

In Statics part V (audio: <https://soundcloud.com/jacobanderskov/statics-part-v?in=jacobanderskov/sets/statics-the-map-habitable-exomusics-volume-ii>), a freely associating intro gravitates towards a slow accompanying piano part, on top of which some recognizable motivic material occurs. One structurally unifying principle here is the presence at all times of the interval of a minor 9th in the harmonies.

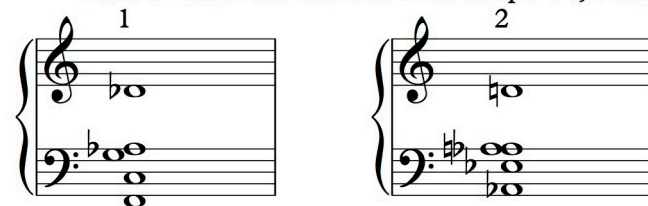
Ex. 13 shows the opening sequence. All motives gravitate towards or at least include a minor 9th somewhere. The minor 9th intervals are marked with x's.

Ex. 13 - Pitch material in opening of Statics part V



After a 40 second association, what will become the main harmonies of the piece are established. These also share the presence of a minor 9th in the harmony. See ex. 14.

Ex. 14 - main harmonies in Statics part V, from 0.40-



Habitable Exomusics Analysis, Part IV – Rhythm, durations & proportions

I knew very early in the process, right around the formation of the Kinetics ensemble, that the question of rhythm would play a crucial role in the Kinetic repertoire as well as in my preparations for the other parts of the recordings. *(Though I did not know that I would later chose the name “Kinetics” for the ensemble).*

After working on the drafts for the first Kinetic compositions, which were more sketchy in their rhythmical framework than the finished compositions became, I realised that the compositions would lack a certain kind of elasticity and tension if I did not approach it differently than just loose textural sketches and the kinds of deliberate uncertainties that I have a strong preference for. I will be covering the reasons for these decisions in the blog chapter “The Path”. Here I will go into the actual rhythmic concepts that I chose to use.

Similarly to the way I made a mapping of my pitch organisational structuring principles as shown in the analysis parts I, II & III, I chose to make a mapping of certain tendencies in my approach to rhythm. This also proved to be an opportunity for sharing some of my thoughts on the matter in this text, after having worked on creating these concepts during most of my professional career, without much earlier dissemination on the concepts.

The concepts are here labelled:

- **Golden mean & Fibonacci Rows, &**
- **Complex polyrhythm and inexact polyrhythm.**

I have also added a chapter called “**The untempered metronome**”,- which I will explain in due time.

Part IVa: Golden mean and Fibonacci rows

I have been working for years on golden-mean-rhythmic-proportions.

The golden mean is – as we know – found many places in nature, including in the proportions of the human body. It has been used in art & architecture since ancient times, probably because it is pleasant to the eye, especially in terms of architectural size relations.

I would argue that certain things in mankind’s sensation experience of rhythm are acting similarly – that we often like durations to be divided not exactly in the middle, but rather with proportions close to the golden mean ratio.

I happen to find certain aspects of the golden mean relations very applicable in terms of musical duration, primarily in a way where “important” points of a groove are placed in the time spots relating to each other by the golden mean.

The golden mean can be described in many different ways:

1) Two proportions are in a golden mean relation to each other if the ratio of their sizes is the same as the ratio of their sum to the larger of the two proportions.

2) This means, in algebra, with the proportions named a & b, that a & b are in a golden ratio to each other IF:

$$a/b = (a+b)/a =_{def} \varphi$$

3) This equation has the solution $\varphi = 1,61803\dots$

4) In the very commonly known Fibonacci row (1, 1, 2, 3, 5, 8, 13, 21, 34, ...), where each number is the sum of the two previous numbers, the ratio between two consecutive numbers will approach the golden ratio closer and closer. As can be seen, at e.g. $8/5 = 1,6$, we are about one percent away from $\varphi = 1,618\dots$, and moving closer while moving up the sequence.

5) It is less commonly known, but simple to show, that any similar row of numbers starting with two natural numbers will also approach the golden mean ratio, and that it happens quite early in the sequence no matter which numbers you start with.

E.g., in the row 1, 3, 4, 7, 11, 18, 29, 47, ..., we reach a less than half percent distance to total φ accuracy at 29/18. And, in the row 1, 4, 5, 9, 14, 23, 37, ..., the ratio is 0,6% away from φ at 37/23.

As always, the interesting thing in relation to the golden mean and the Fibonacci row is not the system in itself, but the system's properties. And in this text, that means the system's rhythmical properties.

...

I will start with an example from the Kinetics album:

Ex. 1a - Stop Pots, basic groove

$\text{♩} = 90$
Swing

Piano

drums

"swing" in 7/4 (3+4), time, plus: etc., simil..

In ex. 1, the basic groove of the Kinetics composition Stop Pots is shown.

Audio: <https://soundcloud.com/jacobanderskov/stop-pots?in=jacobanderskov/sets/kinetics-the-path-habitable>

If we count the beat durations between the hits in the drum part as 8th note triplets, we get the following durations during one cycle of the groove: 5, 3, 8, 5 triplets.

- See ex. 1b.

Ex. 1b - Durations in "Stop, Pots" groove

Durations: (in triplets) 5 3 8 5

8 13 21

Here we have several golden mean relations:

Chronologically, 2 times: first 5 – 3, then 8 – 5.

They can be heard as “a small long-short “(5-3), then “a larger LONG SHORT” (8-5).

These two halves of the groove are in a golden mean ratio to each other – as a short-golden-mean pair to a long-golden-mean pair – here as 8 to 13.

And, the long part of that, the “13”, is in a golden mean relation to the whole bar (21 triplets).

These kinds of golden ratio groove cycles have a specific kind of balance that I like a lot, they seem to allow a certain kind of groovy architectural satisfaction. (And we could stop right here by just stating that I like it – except that then I might not have found some of the other stuff that I will show in a short while).

But to try to explain how and why these proportions works like they do on our ears, body, and nervous system, and why I use the concept the way I do, we will need a little detour:

Let me first show a few types of translations of the Fibonacci row concept into rhythm:

Fibonacci rhythm by induction:

The three first numbers in the Fibonacci row are 1, 1, & 2. Played as a rhythm, that could look like ex. 2a.

Ex. 2a

Durations: 1 1 (2)

2

The first two notes have the duration “1”, here one 8th note. The last note as well as the sum of the two first notes have the duration “2”, meaning two 8th notes.

If the same rhythm is played with swung 8th notes, as regular triplet swing, the durations will be as shown in ex. 2b.

Ex. 2b as 2a, but swung: (triplets)

Durations: 2 1 (3)

3

Note that in ex. 2b, the durations are from one step further up the Fibonacci sequence:

2 to 1, with a sum of 3.

If the exact same durations as in ex. 2b are distributed in an even-8th-setting, that means, if they are metrically transposed from triplet-8th to even-8th, we arrive at ex. 2c. Same durations, new notation.

If the ex. 2c notation is played with swung 8th notes, we arrive at ex. 2d.

Ex. 2c as 2b, but metrically transposed:

Ex. 2d as 2c, but swung: (triplets)

Again, the durations are one step further up the Fibonacci sequence; 3 to 2, with a sum of 5.

(The duration of the last note is not the point here. The two first durations, and the sum of them, is the issue.)

If the durations from ex 2d are again metrically transposed to even 8ths, we arrive at ex. 2e. Again, same durations, new notation. If that notation is played with swung 8th notes, we get ex. 2f.

Ex. 2e as 2d, but metrically transposed:

Ex. 2f as 2e, but swung: (triplets)

Again, the durations are one step further up the sequence; 5 to 3, with a sum of 8.

Note the similarity of ex. 2f to the rhythm in ex. 1b.

Fibonacci rhythm by subdivision:

Another way around a similar chain of thought:

In ex. 3a, we see again a regular even 8th rhythm.

In ex. 3b, this rhythm is played swung, meaning, with a subdivision of the beat into not 2 8th notes, but 3 triplet 8th notes.

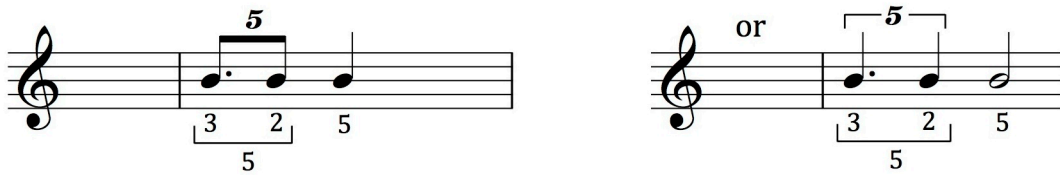
Ex. 3a

Ex. 3b

We are moving up the Fibonacci sequence in terms of subdivisions.

In ex. 3c, the subdivisions of the beat is in 5 quintuplets.

Ex. 3c



In ex. 3d, the beat is divided into 8 subdivisions.

Ex. 3d



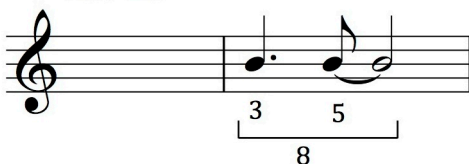
With the exception of ex. 3a, all these rhythms (3b, 3c & 3d) will sound **very similar** to each other, if played isolated. We can meaningfully say that moving through these examples, we are approaching a **“golden mean division of the beat”** in terms of the proportions of the subdivisions.

I will mention that a golden mean division of the beat is quite similar (but not identical) to certain kinds of swung subdivisions. Especially subdivisions where the swing is close to triplet swing, between triplet swing and even 8th notes.

Fibonacci rhythm by combination:

If the last examples above (e.g. ex. 3d) seem far-fetched, consider how prominent the reverse order of the same (Fibonacci) durations is in music from around the planet: (ex. 4a)

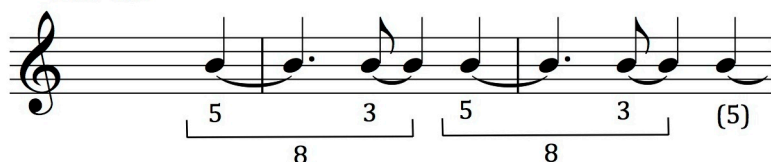
Ex. 4a



This rhythm is probably among the most common rhythms mankind has been dancing to during the last hundred years.

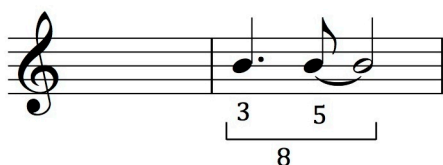
If the same figure is displaced to start elsewhere in the bar, we can arrive at another classic, a montuno, as in ex. 4b.

Ex. 4b

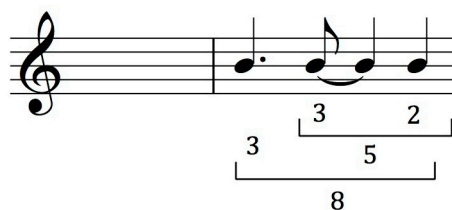


Or, if with a similar starting point, ex. 4c, we divide the longer part of the golden mean relation (the “5”) into its golden mean division (3 and 2), we arrive at ex. 4d, known as a “Tresillo” or “Baïão” rhythm, central to several entire traditions of music.

Ex. 4c



Ex. 4d



I find it interesting, to the level of puzzling, that some of the most prominent rhythms that mankind has developed or preferred for centuries, can actually be regarded as golden mean divisions of relatively small durations into smaller durations.

When considering that until the 20th century, notions like “correct” intonation and “objectively” even 8^{ths} were probably subject to vast regional cultural differences almost anywhere in the world, it is interesting to wonder whether the preferred smaller divisions of time in music were generally bent even more in this direction before we started to rationalize our ideas of rhythm, and to measure time with modern clocks and metronomes...

Fibonacci rhythm Algebra:

The earlier mentioned “**golden mean division of the beat**” can be thought of as a division of the beat by e.g. 5-to-3 or 8-to-5, or similar Fibonacci sequences from further up the Fibonacci row.

A rhythmic translation of the golden mean algebra could go like this:

The algebraic definition of the golden ratio,
(a & b are in a golden ratio to each other

IF:

$$a/b = (a+b)/a =_{def} \varphi,$$

means, in rhythm, that:

A division of the beat is (theoretically) a “**golden ratio division of the beat**”,

IF, with the same subdivision in each rhythm,

the following rhythms sound identical (see ex. 5a).

Ex. 5a



...

All this being said, it should now be understandable when saying the following about the “Stop Pots” example:

I will claim that what we experience when listening to multiple repetitions of a rhythm like ex. 1b,

Ex. 1b - Durations in "Stop, Pots" groove

Durations:
(in triplets)

5 3 8 5 13

8 21

includes this rhythm's **ability to hint at ALL of the following "sub-rhythms" simultaneously** (ex. 5b):

Ex. 5b

Audio: <https://soundcloud.com/jacobanderskov/stop-pots?in=jacobanderskov/sets/kinetics-the-path-habitable>

Or, more generally put: Certain sequences of durations derived from somewhat up the Fibonacci row will imply a number of simpler rhythms (or duration sequences) nearer the base of the same sequence. For instance: the durations 5,3,8 played with no pulse indication will sound like 5,3,8 **and** like 3,2,5 **and** like 2,1,3.

So, "Stop Pots" suggests a very slow swing beat – or rather, an abundance of possible slow beats, by hinting at these sub-rhythmic layers "beneath" the directly audible beat. I think of it as an invitation to hear this quite complex 7/4 triplet beat as something much simpler that we will deep down recognize.

And, working with this, continuously, over time, I believe it has changed the way I actually think of the simple patterns shown in ex. 5b.

...

What I did in the Habitable Exomusics project in terms of this was that I decided in the Kinetic repertoire to make an almost exhaustive "catalogue" of these rhythms in the music, parallel to the pitch-organisational decisions covered in the earlier chapters.

Two more Kinetic examples – build on the "alternative row of 1, 3, 4, 7, 11, 18, 29":

...

Ex. 6a shows the bridge of "March Charm".

Audio: <https://soundcloud.com/jacobanderskov/march-charm?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 6a

B LUDE: freely on golden mean hits:

(Optional use of following pitches:)

The figure in the piano right hand becomes central to the whole band in this section. (even though we deconstructed it quite radically at the recording). Proportion-wise, we are again in a hierarchical golden-ratio-durational system, the first bar as 7-4-7, the next as 7-4, 4-3 – see ex. 6b.

Ex. 6b

B LUDE: freely on golden mean hits:

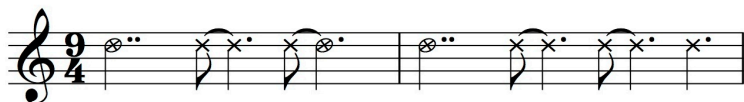
(Optional use of following pitches:)

All of these sizes relate to each other in an almost-golden-ratio-relation. (the “almost” comes from the fact that this early in the 1,3,4,7,11,18-series, we have not arrived at a specifically exact golden mean ratio yet).

Similar to the “Fibonacci sub-rhythm implications overview” of the Stop Pots groove in ex. 5b above, ex. 6c shows the implied rhythms of the March Charm lude:

Ex. 6c

The March Charm Lude:



Hints at a.o.:



and at:



and at:



...

Ex. 7a shows the main groove of “Diamonds are for Unreal People IV” from the Kinetics album. Audio: <https://soundcloud.com/jacobanderskov/diamonds-are-for-unreal-people?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 7a

Diamonds are for unreal People IV

NB:

START DIRECTLY ON A

Jacob Anderskov
1 jan 2015

very Redux Bass line:

For reference only:

♩=200

This bass line came about as a deliberately worked out golden-ratio-hierarchy, starting on the pick up for each new loop – see ex. 7b:

Ex. 7b

Redux Bass line:

The durations between the loudest / most important notes in the 29/8 beat, are:

11 – 7 – 11 (F – D-flat – F#). Or: long-short-long.

Or, between the lowest notes: the F relates to the F# in the duration 18 to 11 (out of 29). Or: long-short.

All of these relations are quite exact golden ratio relations. And, within each of these sections, there are tendencies to an even further detailed almost-golden ratio division. (7-4 or 4-7, and 4-3 – not that exact, but in the same series 1, 3, 4, 7, 11, 18, 29)

Ex. 7c shows the implications of the “Diamonds are for Unreal People IV” – Groove, when only the slowest moving golden mean proportion (18 to 11) is taken into consideration.

Ex. 7c

The slowest moving hierachies in the "Diamonds are for Unreal People"-Groove hints at

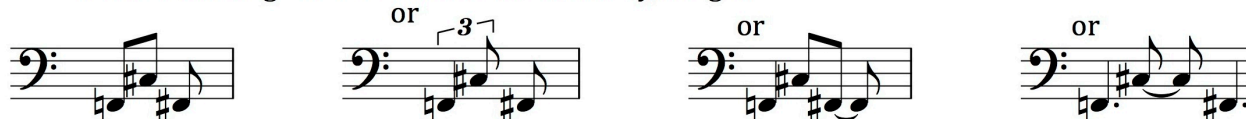


NB: when composing the piece originally, I chose that the golden ratio relations start at the pick up to the loop, on 8th note before the barline. But, as the composition got meat on the skeleton, the down beat cried out for more prominence, which I ended up giving it – to an extend where the down beat (the low f) is here notated, not the pick up (the high f). That means that the anchoring points have been moved. But the overall implication is still intact, I think.

If also the next level of golden ratios is included, we get the implied rhythms shown in ex. 7d:

Ex 7d

When including the next level of the hierachy, we get:



etc...

Again: I am not claiming that the listener directly hears these proportions, but my almost obsessive interest in these issues over the years have a lot to do with the sensation I experience that these proportions evoke. That it becomes a kind of syncopation that the listener can trustfully lean into, without understanding it, and in that syncopation find a subconscious satisfaction or recognition.

During rehearsals of this specific groove, I realised that to make this composition work, I needed to clarify the hierarchical structures in the groove, and that the perfect way to do that would be to choose dynamic specifications based on each note's prominence in terms of golden mean ratios. So, I amplified the “most prominent golden ratio points” in the groove, and turned down the others to different degrees, based on their place in the subordinate golden-mean hierachies.

Starting with the most prominent points and moving downwards in the hierarchy, that became a simple process, as shown in ex. 7e:

Ex. 7e - hierarchical rhythms in "Diamonds...", converted to hierarchical dynamics

1st level: f

2nd level: f & mf

3rd level: f, mf & mp

4th level: f, mf, mp & p

5th level: f, mf, mp, p & pp

The lowest staff in ex. 7e, where all dynamic levels between *pp* and *f* are present, became an exercise that has been following the ensemble ever since.

It is in many ways much harder than just playing the groove, but after doing it slowly for some time, and focusing on making a notable difference between *p* and *pp*, even right after a *f*, it opens up perspectives in the groove, weirdly enough making it easier to play it than without the dynamic signs. And, the entire repertoire was not the same after playing this one simple exercise together for some time. In the end, the exact dynamics were abandoned as a fixed agreement, but the effect remained with the ensemble, I believe.

..

A couple of other golden-ratio-based grooves were composed and rehearsed with Kinetics, but did not make it to the album or concerts.

The composition “Deified” was also dividing a 29/8 groove in 11-7-11 (though quite different from the “Diamonds...”-groove, but the composition failed to live through the initial rehearsals.

An almost-golden-ratio-spell was in use at “Sleeveless”, and still is visible in the score, but ended up being prioritized less than the other material in that composition during the rehearsal, and thus is almost inaudible in the recordings. More in this in the next section...:

Part IVb: Polyrhythm

Ex. 8a shows the opening of “Pull Up” from Kinetics (the Path).

Audio: <https://soundcloud.com/jacobanderskov/pull-up?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 8a

A

$\text{♩} = 140$

Highly energetic,
all possible meters present

Pull-up
(Sym 5)

Jacob Anderskov
2014

Meters: (ref. use only) - KEEP WRITTEN TIME ALSO

5

Pno

B

Dr.

etc., simil

This is an almost prototypical example of my use of what we could call complex and inexact polyrhythms.

The Drums clef shows the two main meters present:

- With stems down, the pulse that we read the music in, &

- With stems up, a slower pulse, equally strong in terms of audible presence in the music. The relation between these two meters starts out as a regular 4 against 5 (or 4 against 10), but later in the loop they both start to deviate slightly. In the end of the loop cycle they are obviously beyond the 4 against 5 polyrhythm, but not further away than allowing the sensation of both meters continuing through the loop, and being stretched together and apart.

Ex. 8b shows the same excerpt with meters counted, and with the slower beat durations spelled out.

Ex. 8b - "Pull Up" beats & durations

The score for Ex. 8b consists of three staves: Piano, Bass, and Drums. The Piano staff is in 4/4 time and features a melodic line with stems up, marked with a '3' above it. The Bass staff is in 4/4 time and features a bass line with stems up, marked with a '3' above it. The Drums staff is in 4/4 time and features a drum pattern with stems up, marked with a '3' above it. The score is divided into two sections. The first section has 8 beats, with the following durations for the slower meter: 1 (5/8), 2 (5/8), 3 (5/8), 4 (5/8), 5 (2/4+1/6), 6 (2/6+1/4), and 7 (5/8). The second section has 7 beats, with the following durations for the slower meter: 8 (5/8), 9 (5/8), 10 (5/8), 11 (5/8), 12 (2/4+1/6), 13 (2/6+1/4), and 14 (5/8).

The score for Ex. 8c consists of three staves: Piano, Bass, and Drums. The Piano staff is in 3/4 time and features a melodic line with stems up, marked with a '3' above it. The Bass staff is in 3/4 time and features a bass line with stems up, marked with a '3' above it. The Drums staff is in 3/4 time and features a drum pattern with stems up, marked with a '3' above it. The score is divided into two sections. The first section has 5 beats, with the following durations for the slower meter: 5 (3/8+3/10), 6 (7/10), 7 (5/8), 8 (5/8), 9 (5/8), 10 (5/8), 11 (5/8), 12 (2/4+1/6), 13 (2/6+1/4), and 14 (5/8). The second section has 4 beats, with the following durations for the slower meter: 15 (5/8), 16 (5/8), 17 (5/8), and 18 (5/8).

The durations of both meters are shown in ex. 8c – under the headline “if you REALLY need to know”:

Ex. 8c - "Pull Up" proportions - If you REALLY need to know:

Length of each beat in the "Slower tempo":

1	2	3	4	5	6	7	8	9
5/8	5/8	5/8	5/8	2/4+1/6	2/6+1/4	5/8	3/8+3/10	7/10

Length of each beat in the "Faster tempo":

1	2	3	4	5	6	7	8	9	10	11
2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/4	9/16	3/16+2/5	3/5

If these fractions are further investigated (which I, to be completely honest only did thoroughly after finishing the piece), it will be seen that the tempo goes slightly down (or the durations up), though only a few percent, in each of the two meters, near the end of the loop. In ex. 8d, the durational sizes are shown in 240th of a bar:

Ex. 8d - "Pull Up" proportions part 2 - If you REALLY REALLY need to know:

"Slower tempo" Length in 240ths of a bar

1	2	3	4	5	6	7	8	9
150	150	150	150	160	140	150	162	168

"Faster tempo" Length in 240ths of a bar

1	2	3	4	5	6	7	8	9	10	11
120	120	120	120	120	120	120	120	135	141	144

The frictional irrationality in the ending of the loop is supposed to (by means of repetition and extended rehearsals) spread like a virus to the whole beat, so that no subdivisions can be rationally counted on in the entire loop. To underline this, I chose to rehearse the groove with different, mutually exclusive subdivisions. Not to perform the composition that way, but to make sure it was internalized as a gesture independent from its exact subdivision-structure, e.g. like the 2 examples of attitudes to the rhythm of the beat shown in ex. 8e:

Ex 8e - Pull Up rehearsal bendings

1) only even

2) only triplets

Note that none of these alternative phrasings of the groove have the exact same length as the original composition. This, combined with the very frictional attitude in the flow, and a continuous forward momentum, gives a specific kind of flavour to the groove that I like a lot, and that I have earlier used quite extensively in compositions for especially Anderskov Accident.

...

Ex. 8f shows the opening of Tattarrattat.

Audio: <https://soundcloud.com/jacobanderskov/tattarrattat?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex 8f - Tattarrattat as recorded

Tattarrattat

Sym b2

Jacob Anderskov
2014

Originally, I had actually intended this composition, in a similar vein as Pull Up, to be very frictional, and had written the groove closer to the way it looks in ex. 8g:

Ex 8g- Tattarrattat, first draft

However, that did not in rehearsals give me the sound I was looking for, and thus the translation was reverse, from quintuplet to a consistently even 8th or even 16th notation. When the phrasing in the sounding groove does bend the written out evenness of ex. 8f slightly in the direction of the quintuplet-based ex.8g, it is more the sound I wanted than what I got when the paper showed quintuplets.

...

Ex. 9a shows the written material of "Sleeveless", after the piano introduction.

Audio: <https://soundcloud.com/jacobanderskov/sleeveless?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 9a

INTRO: Pno solo on form,
rubato, loose.
Then 2 times A, without melody.
bass & drums join on bar 5.

Sleeveless

Jacob Anderskov
2014

FAST, even eights
♩=210

A

"Cm+maj"

"Dm+maj"

5

Pno

Bas

P

B

The bass line in combination with the low piano harmonies form an exact 7 against 5 polyrhythm. The lowest notes in the bass line constitute the slower 5-meter, the higher notes form the faster 7-meter. The low piano chord is the down beat in both these fictional meters. See ex. 9b for counting the meters.

Ex. 9b - counting of the meters

A

Pno

Bas

7-meter: 1 2 3 4 5 6 7

5-meter: 1 2 3 4 5

5

P

B

1 2 3 4 5 6 7

The 5-meter is placed on every 7th eighth -note, and the 7-meter is on every 5th eighth note, thus making the polyrhythm “exact”, and giving us the “written” meter 35/4 (7x5=35, and 35/4 equals two times 35/8). The “written pulse” (4/4 or 2/2) is not audible at all in the bass line, but rather clear in the melody, in the drumbeat, and the improvisations.

In the D section, shown in ex. 9c, this structure is cut off, and a slower drone is heard in a tempo that relates to the first polyrhythm as (almost) 4 against the 7-against-5. Sometimes in the improvisations, the 7-against-5 would also be played simultaneously with the 7-against-5, but generally, that did not happen as much as I had originally planned.

This slow 4-beat is unstable, each beat duration being mostly 9 eighth notes, but sometimes 8 eighth notes – in a fashion similar to the “Pull Up” example already covered.

Ex. 9c - Sleeveless, D-section

D Rubato on top of groove

28

P

B

4-meter:

1 2 3 4

32

P

B

1 2 3 4

While composing this piece, I also imagined using not just 4 against 5 against 7, but also to use the proximity of the $35/8$ durations (7 times 5 eighth notes) to the number 34, because of the latter's status as a Fibonacci number.

So, while composing, I did plan for the piano right hand mid-register chord to divide the short loop ($35/8$) in a golden mean ratio at 21 – to “13” (14). That does actually happen, in the beginning of the double-loop, and on the recordings in some spots, but I soon realised that it was better to only hint at it, and not make it an important point of the piece, nor to continue this idea through the piece.

This might be one reason among many for the next $35/8$ being divided evenly (18 to 17) instead of in the golden ratio (see ex 9d). Another reason was my growing feeling that these compound polyrhythms in combination with the golden mean proportions were becoming too hard for me to perform with the needed breathing and elasticity.

Ex. 9d - golden mean on top of 7-against-5

A

Pno

Durations (in eighth notes): 21 "golden mean" "13" (14)

7-meter: 1 2 3 4 5 6 7

5-meter: 1 2 3 4 5

P

18 "middle" 17

B

1 2 3 4 5

...

Ex. 10a shows the opening of "Rat Star" from Kinetics (the Path).

Audio: <https://soundcloud.com/jacobanderskov/rat-star?in=jacobanderskov/sets/kinetics-the-path-habitable>

Ex. 10a

Rat Star

"Metronome =
Pno Right Hand =
120 BPM"

(Un-tempered Metronome, quintuplets #II & slight symmetries)

Jacob Anderskov
2014

♩=180 Build (from nothing?) X 4 (?)

Piano

Bass

Drum Set

7 **A** SOFT!
loose!

Pno.

B

Note how the main beat is here constantly divided in 5, and these “quintuplets” are then in the piano (left hand) grouped in 3’s, resulting in a 5 over 3 sound. However, the two rhythms do not meet at the down beat, but on the third beat of the slow 3-beat implied in the music.

This way of working was coming out of series of pieces that I wrote during the project, called “The Untempered Metronome”. That requires a section of its own...:

Part IVc: The Untempered Metronome.

In the fall 2014, around mid-way through the project, I was having certain aesthetic frustrations on rhythm issues in the project. It was not so much about the compositions. But I realised that I was struggling with 2 obstacles that could be related, and proved to require a similar solution:

The first obstacle was that I had written very hard music for the Kinetics ensemble, and that one of the reasons why it was so hard was that it almost demanded to performer to have made the exact same 20 year labour on complex polyrhythms as I had been doing. And that it almost had to be the same exercises as I had made for myself over the years. How could I make my music more welcoming to new fellow travellers? What would be the necessary essence of my own practicing processes for musicians who had not been playing with me since the beginning of my career?

The second obstacle was that in my own improvised solo performances, I was wishing to create another attitude to rhythm than was the case at that point. It felt as if I needed some conscious osmosis in my processes as for the rhythmic dimension, similar to what I had already been doing exhaustively in terms of pitches in the project.

I was wondering what I needed to do in my own practice to solve the second obstacle, and how I could share my now-second-nature approach to the kind of rhythms covered above with others, to solve the first obstacle. I realised that one way to point to the essence of my way of listening to polyrhythmic possibilities could be conveyed through a series of exercises, that became "The Untempered Metronome".

The concept can be explained by a parable:

A musician is stranded on a deserted island. In his or her belongings is a metronome, wrecked by the same circumstances that brought him or her to the island. So now the metronome cannot be turned off, and it cannot change its tempo. To avoid going insane from the continuous sound of one tempo beating all the time, the musician starts to wonder: how many meters can I play in without changing the settings of the metronome?

The answer is of course, quite a few.

(I myself happened to be stranded on an Island called Manhattan while composing most of the series in October 2014).

Setting a metronome to e.g. 80 BPM, as in the first two series of exercise, I worked out material for relating to the metronome, hearing it as all of the following gestures, one at a time:

(Important detail: In ALL of the exercises the metronome does NOT coincide with the 1-beat.)

"Squares":

The metronome is

- every second 16th note (or 8th note)
- every third 16th note
- every fourth 16th note
- every fifth 16th note
- every sixth 16th note

"Rounds":

The metronome is

- every second 8th note triplet (or quarter note triplet)
- every third 8th note triplet
- every fourth 8th note triplet
- every fifth 8th note triplet
- every sixth 8th note triplet
- every seventh 8th note triplet

"Stars":

The metronome is

- every second quintuplet
- every third quintuplet.

In the notated versions, the piano plays the same figure as the metronome is. The exercises can be played by one instrument (e.g. bass), alone with a metronome. In that case, the metronome is the piano part, and the musician plays the bass line – and then improvises on the metronome, heard in the same syncopation (written in the piano part).

It was never my main intension that the Kinetics ensemble should perform or record these pieces. They were just exercises. *(One of them made it into the live repertoire and the Kinetics album, after some adjustments: “Rat Star”, covered above)*

But I realised that I really needed to finish the entire series. Partly to end the chain of thought, and arrive at some kind of peace of mind. But also because I found out that this series of metronome quests shows one kind of distillation of what my rhythm exercises had made me count on from the musicians when composing. And I felt that this series of exercises points to certain virtues that have evaporated in some fractions of the improvisation scene – for good and for bad. I also believed that if anything in the Un Tempered Metronome series was hard to play, that would point to some essential challenge in the Kinetics repertoire as well.

I used the “untempered metronome” material extensively also in my preparations for my solo concerts during the rest of the fall in 2014, and it seemed to do the trick I had hoped in terms of conscious osmosis: my flow and rhythmic attitude in the improvisations changed to something that I liked better.

All the Untempered Metronome sketches are available online at the following addresses:

Squares – The Untempered Metronome #1:

http://jacobanderskov.dk/wp-content/uploads/2015/08/Squares-UTM-I-_-Exercise-Sketch.pdf

Rounds – The Untempered Metronome #2:

<http://jacobanderskov.dk/wp-content/uploads/2015/08/Rounds-UTM-II-Exercise-Sketch.pdf>

Stars – The Untempered Metronome #3:

http://jacobanderskov.dk/wp-content/uploads/2015/08/Stars-UTM-III-_-Exercise-Sketch.pdf

However, the main thing in them is not the written music on the paper, but the ability to actually HEAR the written meter in the inner ear or the “feel it in the inner body”, while reacting to a metronome playing the written syncopations. Good luck. *(And, remember to breathe. I saw more than one musician almost faint while trying to do it...)*

Conclusion

In conclusion, I would like to stress that, regarding the pitch organisational principles, I try to relate to the whole process of grasping and digesting these approaches to technical musical structures on a very intuitive level, although a lot of thought has gone into the earlier structuring phases. That means, the player is acting intuitively in the creative moment on the basis of certain simple information, which has been totally digested and transcended, trying to narrow the main structures down to the most necessary information. The mentioned concepts are not significantly more complex, intellectually, than e.g. church modes or tonal chord-scale relations. These concepts are not harder to understand, at least not intellectually. However, it might of course be harder to perceive these elements compared to tonal structures, depending on a person's aural sense and what kind of music he or she is used to. For some reason, I did not have a hard time hearing it, which is probably another reason why I like these phenomena.

Another important point I want to mention is that these structures are not recommended if you do not love that sound. Any system, even the description of a major chord or a pentatonic scale, is just a system of thought, until there is curiosity and love involved. We know from experience that major and minor tonalities become second nature on an instrument at some point, if you work on them for some time. I am interested in asking myself which other systems would have the potential for becoming as natural after extended immersion with an amount of work similar to that which many people are ready to contribute on the altar of conventional tonal theory. What could the immersion into these parallel or complementary systems do to our intuitive reactions later on.

The way the overviews were made may seem like a rather cold system. But not completely unlike the study of grammar in languages, which many authors still acknowledge can be helpful as a creative tool when used in a relevant way. Also, all the questions I asked myself in the process are based on my search for the sounds I have liked over the last couple of decades. I realised I was interested in some of these structures, so I started to search for similar material.

In working on e.g. derived rows, I would aim for getting used to the trichords or tetrachords in many different ways; thinking about each of them as a motive, a sound, a chord, an arpeggio, a mental picture, or the physical shape on the piano. Like a vibe, a feeling, a specific mystic space. Not just memorising where it transposes to form a redundant 12 tone structure, but also digesting AND transcending that chain of thought. And, of course, trying it out in many different spacings, textures, densities, momentums, rhythms and feelings.

Sometimes this process would be frustrating and unfruitful, and sometimes it would take some time before it would become music. A major relevant skill is the intuition to realise in due time if a process has gone too far without a quality outcome and when to continue. I found some of the structuring concepts really hard to use for music making at the beginning, but I had reasons to believe that something interesting would come out of them. Most of them became welcoming to music making in the end.

As has already been stated elsewhere, it was never my intention to objectively analyse music beyond my own works in this text, nor was it my intention to say anything normative about what other musicians should or should not do. The entire analysis in this text is highly idiosyncratic, and all I am saying is that it actually applies quite exactly to certain specific areas of my own music, at least the ones belonging to the Habitable Exomusics project. These structures were consciously present in my mind while working towards the trilogy albums.

However, several of my other activities as a composer and performer, outside of the Habitable Exomusics frame, do not follow the concepts at all. The text here presents a view specific to a branch of the tree that forms my music, and maybe only a leaf of the possibilities within improvised music in general.

But I do believe that the activities described partially in this text were central to the gradual change I experienced in my ways of making music during the project. Also, I was at a point in my life and in my artistic development where I wanted to spice things up in my music, throw things a little around, or in Bob Dylan's words, "disorient myself". I feel that the project gave me exactly what I had hoped for. I radicalized my language, documented the process in terms of artistic outcome, and might now be moving on to something radically different after the final presentations of the project.

August 2015,

Jacob Anderskov