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On René Staar's "Composing with chord realignments".

(translation from the original German by the author)

The following paper is the result of an attempt to make sense of René Staar's music not through the enumeration and renarration of his works (as is customary among program texts), but through the retracing of Staar's interests as a composer by means of analysis. The focus of my observation is on what Staar calls "composing with chord realignments": his specific way of creating harmonic coherence among pitches in a musical context that could largely be described as atonal or post-tonal. While of course this artistic concern of Staar's goes beyond specific pieces, it is in these pieces that we find its manifestation; for the texts that he has written on those technicals procedures are first and foremost commentaries on particular works, and it seems that the concrete application of those procedures is very closely tied to those works. I say this because the first pages of my essay present Staar's techniques in a way that might suggest that those techniques can sensibly be separated from his music (since I do not give musical examples until further below) and that they are what his music really is "about". This is, of course, not the case. However, I do believe that the detailed description of technical procedures will in many cases shed an incomparably clearer light on a composer than, say, the interpretation of his choice of titles or an account of personal listening experiences, even if this clarity results from the limitation of my observation to just one aspect of the subject matter, which is Staar's music as a whole. Ideally, the relation of these factors, interpretation and experience on the one hand to compositional technique on the other should have been investigated; but this is, as it were, one of analysis' utopias.

The subject of this essay, the procedures that Staar describes as "composing with chord realignments"¹, are not something that came about overnight in the course of the composer's career, but were instead subject to a continuous evolution. The temporal span of this evolution can be plainly seen if one considers the length of time within Staar's creative process bridged by the work cycles op. 14 and op. 22: Op. 14/1 was written in 1985, and op. 14/11, up to now the last "sub-cycle" within op. 14, dates from 2009. Op. 22a was begun in 1990, and op. 22n was completed just recently, in the summer of 2014. It can safely be assumed that a composer who takes himself seriously will more than once in the course of 25 years feel the need to modify the details of his methods.

Nonetheless, there are constants throughout these time spans. This can be seen, at least superficially, in the fact that Staar would in many cases rather add another item to an *opus* than give it a new *opus* number. I assume that this is because the variety of works listed under op. 14 or 22 all have something to do with each other. In what follows, I will attempt a

Staar's original German term, "Disposition", has been replaced here by the word "realignment", as proposed by Jeremy Day. However, the reason for this was not so much a difference in denotation between the English word "disposition" and its German equivalent; indeed, that difference is negligible. The problem is that there is no elegant way to create a corresponding transitive verb: "disposing a chord" doesn't seem to sound quite right. (Even in German, "disponieren" as a transitive verb is somewhat of a linguistic stretch, as I have to admit now, after completion of this essay,)

general presentation of Staar's modus operandi in op. 14, without intending to imply a strict inflexible system.

We should note that Staar's approach, despite superficial similarities to the *pitch class set theory*² propounded by Allen Forte in the 1960's and 70's, arises from quite different interests. Forte sees his theory as an instrument of analysis, whereas Staar developed his approach as a compositional tool. He is therefore not so much interested in the theoretical consistency of his methods, but instead in their compositional results.³ This difference, however, seems to be one of approach, not one of what is approached. Hence some of my observations, coming from an analytical-theoretical viewpoint, intersect with reflections already put forth several decades ago in the USA.

As Staar set out in 1979 to work with "chord realignments", it seems that he knew nothing of the *pitch class set theory*. Plausibly so, because this theory and its offshoots⁴ still rarely appear in the classrooms of continental Europe,⁵ and because the overlap between the two approaches has to do with features of posttonal harmony that become quite obvious after some study of serial techniques. Furthermore, in Staar's earlier sketches, a rather unpractical intervallic nomenclature (**Example 1**) can be observed, which differs from the one used by the *pitch class set theory* (and later also by Staar). Here Staar designates the minor second as 2, the major second as 3, etc., whereas *pitch class set theory* would have used 1 and 2. The latter method of counting has the advantage that the intervals can be conveniently added: in the new nomenclature 1 + 2 = 3, i.e. if you add a major second to a minor second, you get a minor third. In the old nomenclature, the same intervallic operation would have been represented by 2 + 3 = 4, which is arithmetically difficult to justify, so Staar eventually discarded this nomenclature.⁶

- ⁴ Most notably transformational theory: David Lewin, *Generalized Musical Intervals and Transformations*. New Haven 1987 (reissued Oxford 2007).
- ⁵ Its reception in German-speaking countries was for a long time marginal. Although by now there are several expositions of that theory in German (for example, the short chapter in: Christoph Wünsch, *Satztechniken im 20. Jahrhundert*. Kassel 2009), the earliest German-language search results in the *Bibliographie des Musikschrifttums* online (www.musikbibliographie.de) for "pitch class set theory" date from 1995. However, in the years immediately after the publication of *The Structure of Atonal Music* some book reviews did appear: *Melos/NZfM* 1 (1975), and *Musik und Gesellschaft* 25 (1975). Futhermore, I thank Gesine Schröder for the mention of *Funkkolleg Musikgeschichte* 1987/88 (SWF), where the topic was also covered: Michael Zimmermann, "*Vorkurs: Eine historische Anleitung zum Notenlesen*", in *Funkkolleg Musikgeschichte*, *Studienbegleitbrief* 0, issued by the Deutsche Institut für Fernstudien an der Universität Tübingen, Mainz, 1987, p. 71-77.
- ⁶ In this earlier, subsequently discarded form of notation, Staar as it were counts the chromatic piano keys that are included in the interval, i. e., both sounding pitches as well as those lying in between which are not played. This

² Allen Forte, *The Structure of Atonal Music*. New Haven, Ct. 1973. This theory, like Staar's manner of composition, is rooted in dodecaphonic thinking. Forte's reflections were decisively influenced by essays written around 1960 by Milton Babbitt, who had in turn taken particular forms of series used by Schoenberg and Webern as an impulse for his research and systematization.

³ Other compositional approaches sharing some common terrain with pitch class set theory include that of Elliott Carter (who, to my knowledge, explicitly references that theory): Elliott Carter, *Harmony Book*, Publ. Nicholas Hopkins and John F. Link, New York, 2002



In order to follow my remarks, the reader should note that groups of numbers connected by dashes (for example 4-11-2, 5-6-7-8, or 1-3) designate interval configurations, which one should, for now, think of as chords. The numerical succession from left to right corresponds to the succession from the lowest to the highest pitch in the chord, where only intervals between vertically adjacent pitches are counted, not e.g. the interval between the bass note and the third note from the bottom. This does not determine the starting pitch or the register of that chord: for example, 3-4 outlines the interval configuration of a minor triad in root position, but does not specify what the lowest pitch is. Thus, 3-4 can be realized through c - e flat - gin the highest register as well as through f# - a - c# in the lowest register. The register of the individual chord tones is only fixed to the extent that the sequence from bottom to top (or left to right) may not be altered, since we would then be dealing with an inversion (see below). The intervals building up the chord can however be expanded by an octave or more, so that for example 3-4 can also be realized as 15-28 (15 = 3 + 12 and 28 = 4 + (12 * 2)). There is, however, no case known to me where Staar uses such extreme expansions - he generally does not go beyond one octave. Hence, in my analyses minor ninths (13) are represented as minor seconds (1).⁷

In order to avoid possible misunderstandings I want to point out that a sequence of *n* numbers corresponds here not to a chord with *n* voices⁸ but to one with n + 1 voices. i.e., two numbers correspond to a chord of three different pitches, three numbers to one of four pitches, etc.

The nine "Fundamental three note structures" ("triads")⁹

The starting point that René Staar chose for his harmonic concept is a series of formations made up of three different pitches neighbouring the three-note chromatic cell 1-1: The nine

happens to be how the diatonic designation of intervals works, e.g. when we confine ourselves to the white keys of the piano, in C major two adjacent keys make up a second, five a fifth, etc. Correspondingly, in Staar's earlier notation two keys that lie alongside one another, regardless of color, make up a "2" (minor second), and five make up a "5" (major third).

⁷ All interval designations are therefore to be understood as "modulo 12".

⁸ My writing about chords with so-and-so many "voices" generally precludes octave doublings Thus, strictly speaking they are chords with so-and-so many different pitch classes.

⁹ The term *triads* serves here as a translation of the German *Dreiklänge*; both of these terms can be said to refer to features of tonal harmony (a chord made up of three notes, where each note is spaced a third apart from the other), as in "major triad" or "minor triad"; or "Durdreiklang" and "Molldreiklang" in German. Staar, however, does not use that term to denote these tonal structures specifically – hence the quotes and bracketing in the translation and the replacement of the term with *three note structures*.

"Fundamental three-note-structures" from which, as we will see, Staar later derives harmonies comprising four or more notes (Example 2).



It is noticable that Staar, when laying out such fundamental structures, is not primarily concerned with the systematic declination of a structural pattern, but undertakes his explorations with a view to possible artistic applications of his discoveries. For example, 2-2 and 2-3 do not belong to the fundamental structures, although they would, so to speak, "fill the gap" between 2-1 and 2-4, and there seems to be no systematic reason for their omission.¹⁰ In 1979, they probably sounded too tonal.¹¹

We should keep in mind that it is not the transpositional level (whether the lowest pitch is c, c#, or d, for example) but rather the internal interval construction that is relevant to Staar's classification of these harmonies. In the notebooks that Staar has shown me, he notated all of his fundamental three-note structures with *b* natural as their bass note.¹² However, this fixation of the lowest note appears to have had no consequences in those same notebooks, nor for the further development of Staar's ideas.

Chord realignment

At this point we should make clear what Staar understands as "chord realignment": the interchange of the vertical position of individual intervals within the chord, whereby the number and quality of each interval remain unchanged (Example 3). See the last four "fundamental three-tone structures" above. Here 2-1 is a realignment of 1-2 (the second fundamental "three-tone structure"), 3-1 a realignment of 1-3, etc. In the Example 3, where each chord features four pitches, the possible realignments of 1-2-3 are: 1-3-2, 2-1-3, 2-3-1, 3-1-2, and 3-2-1. (Hence, we could also speak of them as permutations of the intervalic

¹⁰ This is a "gap" if the "declination" is such that, starting with 1-1, all possibilities of the upper intervals are gone through in ascending order (1-1, 1-2, 1-3, 1-4, 1-5, etc.), then similarly with the next larger *lower* interval (2-1, 2-2, 2-3, 2-4, 2-5), and so on (3-1, 3-2, ..., 4-1, 4-2, ..., etc.).

¹¹ This is how Staar put it as I spoke with him in August 2013. A different reason would have to be found for the omission of 1-5: this would generally be considered an acceptably "modern" chord (and was a favourite of the Schoenberg School, which led Allan Forte to designate the underlying pitch class set as "Viennese Trichord"). It seems to me possible that the reason could lie in the unequal size of the intervals 1 and 5. On the other hand, the choice of the basic three-part chords had to do with their possibilities of recombination into chords of four and more pitches. Perhaps the already available three-part structures provided sufficient latitude.

¹² Which was probably more elegant when it came to notation. Notation from *b* or from *e* upwards (b - c - d flat; e - f - g flat), avoids the collision of noteheads on the same line, such as can be observed in my example 2. I transposed the example to *c* so as to circumvent the exact question I am trying to answer in this footnote: Why start from *b*?

structure.) The sum of the three intervals is always 6, as one can see in Example 3, where the highest and lowest notes always remain the same.



The crux of this procedure is, in my opinion, that not all interval relations within a chord or pitch group are covered by the nomenclature that is a prerequisite of the process of realignment, namely the enumeration of the intervals only between vertically *neighboring* pitches. Apart from the intervals between vertically adjacent tones, other intervals also sound, namely those that can result from the addition of adjacent numbers (intervals). In the case of 1-2-3 these would be: 3 (1+2), 6 (1+2+3); the interval between the outer two pitches of the chord), and 5 (2+3).¹³ These, which I would like to call "implicit intervals", change according to the interval realignment chosen, and produce new interval content, which influences the sound of the resulting chord: For example with 1-3-2 the 4 (1+3) instead of the 3 (1+2) of 1-2-3. In the case of five-part chord constructions the changes can be quite significant (**Example 4**): While the chord 2-1-4-3 in Example 4 possesses two implicit fifths (7), these disappear completely in the 1-3-2-4 realignment and are replaced by two tritones (6).



The number of possible realignments of four-part chords can be calculated as 3 * 2 * 1 = 3 !, i.e. factorial 3; for five-part chords 4 !; for six-part chords 5 !, etc. (Thus, for *n*-part chords, it is (n - 1) !) When an interval appears more than once, such as in the five-part formation 11-8-8-6, the result must be divided by the factorial of the number of its appearances, in this case by factorial 2 (resulting in 4 ! / 2 ! = 24 / 2 = 12 possibilities. Another example: 1-1-1-3, with only 4 ! / 3 ! = 24 / 6 = 4 possibilities. In cases where two intervals occur twice, such as 1-1-2-2: 4! / (2!*2!) = 24 / (2*2) = 6 possibilities).

The point of these remarks is to illustrate the possibilities afforded to the composer by different interval configurations (chords). While the chord 1-1-3 can be realigned in three different ways through 3 ! / 2 ! = 3 (1-1-3, 1-3-1, and 3-1-1), and the chord 1-1-2-2 in six (1-1-2-2, 1-2-2-1, 2-2-1-1, 2-1-1-2, 1-2-1-2, 2-1-2-1), the chord 1-3-2-5 yields a considerably larger scope of 4 ! = 24 permutations. In analyzing almost any kind of music, one could be inclined to classify the (perhaps unconscious) compositional decision at a given point to use

¹³ The number of intervals, "implicit" and otherwise, in a given four-part chord would be 4 + 3 + 2 + 1 = 10, in a five-part chord 5 + 4 + 3 + 2 + 1 = 15, in an n-voice chord n + (n - 1) + (n - 2) + ... + 1 = n * (n + 1) / 2. In Forte's *pitch class set theory* these intervals would be subsumed in the respective interval vector.

one particular possibility out of 24 - and not the other 23 - as having more significance than the decision to use one among only three possibilities. The extent of available possibilities would thus inform our analytic judgment.

Since what is interesting here is probably not so much the underlying calculations but rather an approximate idea of the quanitiy of possibilities afforded by the different processes of realignment, I like to provide the reader with a table listing the respective numbers of possible realignments for three- to six-voice chords.

Quantity of different possibilities for realignments of three- to six-part interval configurations:

(Identical intervals are represented by identical letters, different intervals by different letters. Succession is irrelevant here. For example, 4-3-4, 2-2-1, and 9-5-5 are all subsumed under aab.)

three-part	four-part	five-part	six-part
aa: 1	aaa: 1	aaaa: 1	aaaaa: 1
ab: 2	aab: 3	aaab: 4	aaaab: 5
	abc: 6	aabb: 6	aaabb: 10
		aabc: 12	aaabc: 20
		abcd: 24	aabbc: 30
			aabcd: 60
			abcde: 120

It should be noted that Staar avoids the duplication of pitch classes (i. e. octave doublings) in his chord constructions. However, exactly this type of duplication can emerge through the process of realignment: for example through the realignment of 3-1-5-4 (c - d# - e - a - c#) to 1-3-5-4 (c - c# - e - a - c#). If octave doublings are to be precluded, then we must concede that in some cases the number of different possible realignments is lower than the one given in the above table. This applies to all configurations that include intervals that will add up to 12. For example, Staar would not use any realignment of 6-1-6, because 6-6-1 as well as 1-6-6 include octaves (6 + 6 = 12); and he would onle use one realignment of 4-1-4-4, namely 4-4-1-4, since the other ones (4-4-4-1, 1-4-4-4) include octaves.

Chord inversion

Chord inversion – the octave displacement of selected pitches – can maybe be understood as the second dimension of Staar's harmonic thinking. Diverging from the "classical" theory of harmony going back to Rameau – or from that of jazz – Staar includes in his notion of inversion also such displacements as do not affect the bass tone.¹⁴ He provisionally refers to

¹⁴ Note that the concept of "inversion" in the dodecaphonic and the (older) contrapuntal sense (which is of course very different from chord inversion in classical harmony) is included in the concept of chord realignment. (The inversion of a dodecaphonic series is related to the prime form of the series in such a way that an interval upwards in the original row corresponds to the same interval downwards in the inversion: e.g., a rising minor sixth will be inverted to become a falling minor sixth, etc. The same procedures can be applied to chords, in

these as "inversions of second (third, fourth, ...) degree". In inversions of the first degree the displacement of the lowest note to the top changes the interval configuration. The lowest interval disappears, and a new one appears on top: the complementary interval to the previous outer interval. In most cases, this results in a change to the outer interval. (Ex.5).¹⁵ Staar also uses further displacements of not just one, but several pitches, but I am not aware of any special terminology for these.



I propose that we think about Staar's "inversions" as of a rearrangement (or permutation) of the vertical succession of pitch classes of a chord, and not as of the octave displacement of individual notes (e.g., c - e - b can be inverted to: c - b - e; e - b - c; e - c - b; b - c - e; b - e - c.). This diverges, of course, from Staar's own thinking, as his implicit hierarchy (his thinking in "degrees" of inversion) vanishes. However, I have not found any evidence that the provisional term "degrees" has any consequence for Staar's use of inversion. On the contrary, the listings of inversions in some of the sketches to op. 22g that I have seen seem to correspond more to the "combinatorial" way of thinking I have just proposed.

The quantity of "inversions" in the sense of possible vertical arrangements of x different notes (or pitch classes) amounts to x ! (for example, 5 * 4 * 3 * 2 * 1 = 120 in the case of a five-part chord). But this does not mean that each of these inversions *must* differ from one another in their interval construction, even though this is generally the case, as in Examples 5 and 6. In **Example 7** we see exceptions, as is possible in the case of intervals that evenly divide the octave: 2, 3, 4, as well as their complementary intervals 10, 9, and 8. For example 3-3-3 over *e flat* (what would be a diminished seventh chord in tonal contexts) can be represented as an inversion of 3-3-3 over *c*.



reversing the vertical order of the intervals.) This understanding of inversion, which Staar sometimes refers to as "mirroring", represents just a *special case* of realignment, just as inversion in the sense of changing bass notes in garden variety harmonic theory is, in Staar's understanding, merely a special case of inversion.

¹⁵ There is an exception only when the lowest interval is also the complementary interval to the outer interval. This is the case with 3-2-4 (lowest interval: 3, outer interval: 9), which can be inverted to 2-4-3, or with 5-2 (lowest: 5, outer: 7), which can be inverted to 2-5. In this case the resulting interval configuration could be described as an inversion as well as as a transposition of a realignment of the original chord.

What seems to be interesting for Staar in this kind of inversion is not so much the question whether a chord and its inversion could in a certain sense be the same thing (a thought which for Rameau in 1722 could have been a novel contrast to thoroughbass theory) but rather the observation that the interval content of a chord can change with its inversion, to the point of the "explicit" entrance of intervals that had previously been only "implicit".

Having presented Staar's basic pitch-related compositional techniques, I will now give some examples of the possibilities of the application of this "composing with chord realignment"; I will use small samples from the work cycles op. 14 and particularly op. 22. Through them, I wish to illustrate how these principles, which essentially serve to yield ever new harmonic material, bear upon concrete compositional situations.

Op. 14,3a: Bagatelles on the name György Ligeti, for piano

The *eight bagatelles on the name György Ligeti* (1989-1996) are a sub-cycle of the entire op. 14, an opus generally involved with the idea of the musical cryptogram, i.e. the interpretation of the letters of a name as note names (a famous example: b-a-c-h). Ligeti's name does not offer much in this respect, since most of the letters of his name have no equivalent in note names: So Staar is stuck with three times g and once e - basically just the interval of the minor third.¹⁶ This third is now interwoven in three different ways with one of Staar's "fundamental three-note structures", namely 1-4 (**Example 8**). Firstly, it is added below, so that 3-1-4 results, which can then be inverted to*a*: 4-4-3; then in the middle, where a minor third results when one interweaves 1-4 and its disposition 4-1 while retaining the ambitus; thirdly it is added above, resulting in 1-4-3.¹⁷



The **first Bagatelle** (see the reproduction on the next page) deals with the chord construction *a*: 4-4-3 and its dispositions (and also, to a lesser degree, its inversions). With respect to form the bagatelle can be described as A-B-A-B'-A. The harmony of the A sections is readily explained as just a succession of different realignments of the 4-4-3 chord, tossed out rapidly and *staccato*, in different dynamics and registers. No inversions are used here, and the succession from one chord to the next is determined by the rule that successive chords have

¹⁶ In a now discarded program text about the *Bagatelles* Staar speaks of an "invisible and inaudible connection to the name György Ligeti". In the later *Bagatelles* (VI-VIII) with their clear rhythmic emphases, the moment of note repetition – the three g's – comes increasingly to the fore. These later *Bagatelles* were composed after 1995 and belong to a different creative phase than *Bagatelles* I-V, which had been completed by 1990.

¹⁷ Notably, *c* and *a* are more closely related: 3-1-4, the initial stage of *a*, can be described as a realignment of *c*: 1-4-3. Vice versa, some inversions of *c*, for example 4-3-4, can also be understood as realignments of *a*: 4-4-3.



First page of Staar's manuscript for op.14/3a, Bagatelles on the Name György Ligeti.

no common pitch classes.¹⁸

The first B section (**Example 9**) proceeds quite differently. Chords blend into one another and can often not be clearly related to the fundamental structure *a*: 4-4-3.





The second B section further complicates this process, and also draws from another division of the material: No longer *a*: 4-4-3, but instead *b*: 1-3-1.¹⁹

¹⁸ Note how the wide dynamic ambitus, the fast tempo, and the aggressive touch provided by the high level of rhythmic activity often gives the chords a clangorous noise-like quality, in contrast to more emphatically chordal textures, where the interval content of the individual chords is clearly perceptible. A possible transition, in this and other situations, from "clangorous" to color to clearly articulated harmony has, to my knowledge, never been verbally articulated by Staar, but instead compositionally reflected.

¹⁹ I do not provide a music example here partly because I am unsure of my interpretation, since there is a (discarded) program text by Staar for the Bagatelles that contradicts my statement. Staar writes: "The first bagatelle is composed exclusively with the chord dispositions of the basic chord A: a [here referred to as *a*: 4-4-3]", while further down on the same page one reads: "The C section divides the four-part chords into four independent voices in interlocking movement, yielding a 16th note movement interspersed with syncopations." (This C section is what I have analyzed as B'.) But what this also "yields" is an accumulation of groups that can be analyzed as b: 1-3-1.

The **second Bagatelle** will bring us to question the terminology of *chord* realignment and *chord* inversion that we have, for more or less didactic reasons, been using up to now. Staar uses these principles not only for the vertical structuring of simultaneously sounding pitches ("chords"), but also for successively sounding pitches ("melodies", "lines", etc.).²⁰ It is, however, questionable whether it would be sensible to drop the designation "chord" from the group of pitches to be realigned or inverted, and instead use a more abstract term such as "harmonic segment". My opinion is that a more complex terminology does not necessarily lead to more ordered thinking. I will therefore generally not invest much energy in trying to avoid writing about "chords", and rather at the appropriate point address the misunderstandings that could arise from this "sloppy" terminology.

We have reached such a point now: at the beginning of in the second bagatelle, well before the piece increases in complexity towards the end, the application of chord realignment technique is very transparent, even though one would not describe the music as chordal. One voice plays what is virtually a passacaglia bass line²¹ in longer note values made up of quarters and dotted quarters. The other voice tosses in arpeggi in 32nds. **Example 10** shows us how the voices of both hands can be traced back to the realignments of the basic chord b: 1-3-1.



Ex. 10: Second *Bagatelle*, m. 1-3. I is shorthand for "inversion", e.g. 2-3-8 is an inversion of 1-1-3. Empty noteheads denote octave displacements.

Since what is here being treated with the means of *chord* realignment technique does not consist of chords but rather of pitch sequences, it could be asked why the method should carry that name. Are the realignment or the inversion of pitch sequences derived, subordinate, secondary procedures, or are these on the same level as the realignment of actual chords, and should one thus treat the designation "chord realignment" pragmatically and not take it all too literally?

²⁰ This is also the case in *pitch class set theory*. It speaks of "sets" of pitch classes, not of chords. A set can be expressed either as a chord or as a horizontal sequence of pitches.

²¹ Unlike in the historical model, the bass line is not repeated here.

Even without answering that question, we can put on the record that the description of this technique as "realignment of chords" has one advantage: that the question does not (or not so soon) arise as to what the reasons might be why just these particular pitches – and not others in their vicinity – should be grouped together as a realignable or invertible segment. In the lower two systems of **example 10** I have combined the part of the left hand into chords. Looking at the second measure of this example, one could ask why the c^4 is counted as part of the "chord" g-a#-b-c, when I could instead have included the next pitch in the bass line, the $g^{\#3}$ in measure 3, resulting in g-g#-b flat-b natural. The chordal representation in the lower two systems passes over this problem.²² In textures such as the A section of the first bagatelle (see above) the problem is nonexistent²³, since the individual chords are already present as segments, and must not be deduced from a melodic structure. Insofar as this problem is not one of the *composer* – who certainly always knows which note belongs to which harmonic segment – the designation *chord* realignment shows that Staar's system is not oriented towards analysis, but towards composition. The analyst, on the other hand, will soon stumble upon such difficulties in pieces like this second *Bagatelle*.

The problem of segmentation (the question which segment or "chord" the successively sounding pitches are to be attributed to) that is brought up by the expansion of the concept of realignment into the horizontal dimension, is not as drastic as in some applications of the above-mentioned *pitch class set theory*, since we already know Staar views certain types of chords as building blocks, i.e. as segments; accordingly, the assumption that we can disassemble (analyze) the piece according to these principles is legitimate.²⁴

In this context it is worthy of consideration that, even though the intervals within the individual harmonic segments are fixed, the distances between notes of different segments, for example c^4 and a^5 at the beginning of the second measure of **example 10**, are apparently not covered by the system; here Staar allows himself some freedom of compositional choice. However, in the further course of the second *Bagatelle* it is indeed the case that the vertical relations between the voices can be described as realignments of 1-3-1. The "arpeggi" in 32^{nd}

²² Of course there are nonetheless plausible reasons for grouping together these four pitches: the bar lines, and the fact that this division reveals realignments of the basic chord b: 1-3-1, as well as the composer's own statement that these are the basis of the piece.

²³ Whereas the B section (Example 9) offers yet another variation of the problem: vertical structures with four pitches are present from the beginning, but some of the can not be analyzed as realignments of *a*: 4-4-3. An example in the middle of the measure is: b flat-d flat-f#-a. In order to explain how Staar arrives at such verticalities the analyst must decide which notes belong to which harmonic segments. (In the case of b flat-d flat-f#-a one could maintain that the d flat "actually" belongs to the next segment.)

²⁴ This does not apply, to quote a prominent example, to Allen Forte's analysis of Schoenberg's *Three Piano Pieces* op. 11. This analysis and its criteria of segmentation rest on the unlikely premise that Schoenberg at that time consciously worked with pitch class sets, in this case sets revolving around the cryptogram derived from the name Schönberg (*e flat* – *c* – *b natural* – *b flat* – *e* – *g*. Of course this only really works with the german note names *Es*-*C*-*H*-*B*-*E*-*G*). The composer, who later made heavy use of sketches for even the most trivial serial operations, left behind no notes or sketches that would support Forte's assumption. (See Haimo, Ethan: *"Atonality, Analysis, and the Intentional Fallacy",* in: *Music Theory Spectrum* 18/2 (1996), p. 167-199. Cf. Forte, Allen: *"The Magical Kaleidoscope: Schoenberg's First Atonal Masterwork, Opus 11, No. 1",* in: *Journal of the Arnold Schoenberg Institute* 5 (1981), p. 127-168.)

notes, on the other hand, increasingly elude this mode of description. They gradually take on the function of complementing the two slower voices in such a way that the resulting verticalities are inversions of 1-3-1, which in turn often yields the result that the four successive 32^{nd} notes can *not* be assigned to one of the four-note structures relevant to op. $14,3 - \text{ or if so, probably only by chance. In the following$ **example 11** $the first of the three <math>32^{nd}$ note groups can be inverted to 4-4-3 (*b*-*d*#-*g*-*b flat*), but not the second (*e*-*a*-*c*-*d*-*flat*) or the third (*a flat*-*c*-*d*-*f*#).

Ex. 11: op.14, 3a, No. 2, m.15. Colors are for orientation only, I is shorthand for "inversion" (e.g.: 4-6-1 is an inversion of 1-1-4). Empty noteheads denote octave displacements due to inversion.



As the piece proceeds, harmonies occur that I cannot entirely explain, such as the beginning of this example. It begins with a tritone relation of the principal voices (tied over from the preceding measure) – but the reservoir of four-pitch structures available for op. 14,3 is characterized by the fact that there is not one among them to feature a tritone. Hence, the relation between these two voices cannot have come about through recourse to one of these four-pitch structures. Another peculiar feature in **example 11** is the first segment in the upper stave (which I have reduced to 1-1-4, *c-e-b flat-b* natural) as well as the fifth segment (*a flat-c-f#-g*). These feature tritones as well: while in the latter case I think an erroneous accidental might be possible (that instead of *c* there should be *c flat*, therefore *a flat-c flat-f#-g*, invertible to 1-1-3), in the first case I would rule out such an error, since the alto's horizontal succession c#-c-e-f constitutes the segment 1-3-1. If we were to include the g^3 in the bass voice in this segment and omit the e^5 in the alto voice (yielding g-c-b flat-b natural), this would yield an inversion of the segments 3-1-1. But this seems implausible because the e^5 , sounding under *b flat⁵* and b^5 , should be more significant to segmentation than

the c^5 , which lies further back and now no longer sounds. I assume that Staar proceeds here in an associative manner and does not urgently wish to have the piece reducible to the op. 14,3a four-pitch structures, or even to just 1-3-1. The passages we have just noted should not be considered systematic "mistakes",²⁵ but rather a kind of swerving out, an aside.

²⁵ I assume that only those who, like me, lean towards skepticism and pedantry would speak of "mistakes" in art. Even in the case of renowned composers like Boulez and Ferneyhough one finds mistakes of compositional technique relative to the system, for example through notational errors (e.g., when copying from sketch to fair copy) or through momentary slips of the mind. These have virtually no bearing on the aesthetic quality of the piece. A "systematic" approach to composing (false opposite to a supposedly "free" approach) simply has the result that it becomes theoretically possible to identify such technical "mistakes". But that is all.

Some highlights of the chord realignment technique in Staar's op. 22

I will now present a further series of examples of the use of the techniques described above. While the following examples are all taken from op.22, this extensive opus comprises many ramifications of compositional thought, and the instrumentations range from solo piano to string quartet to quasi-concerto to oratorio. Hence, even within this opus, which Staar refers to as his "theory of harmony [Harmonielehre]", many different perspectives on our topic can be found.

On the basis of two passages from "La Fontaine de Sang" for violin and large orchestra I will adumbrate how different ways of applying the technique might contribute to the building of a large-scale form. Underlying the music to the oratorio "Hammabbul", there is an ambitious plan for the systematization of Staar's harmonic technique; it is also an opportunity for me to briefly touch upon how the categories of that technique can be semantically charged in music oriented towards text and action. Finally I take a look at a piano intermezzo, in which Staar explores the possibilites for connection of five-note chord constructions; in turn, I try to bring to light the conditions of his artistic exploration.

Op. 22b: La Fontaine du Sang for violin and large orchestra

One can gather from Staar's homepage and in the introductory text of the score that this work started out as an attempt of Staar's to come to terms with the loss of his father, who had also been a violinist and had passed away in 1992. This painful experience provided an initial impulse for the creation of what was then intended to be the first movement of a multi-movement violin concerto. While the choice of Baudelaire's poem "La fontaine du sang" as a conceptual background is also tied to this experience of loss, it was only in 1995 that this poem assumed a role so central to the work that it would eventually provide its title. A formal reorientation toward a single-movement structure in turn led to a delay of the work's completion – when it was finished in 2001, only the first 40 measures of the original 1992 sketch had been used.

Here I can only sporadically illustrate the relationship between chord realignment technique and the formal outline of the work. Comprehensive statements would require examining the use of the technique throughout all 435 measures of the piece. What can perhaps be demonstrated without having to refer to the work as a whole is how Staar uses different applications of the technique in different sections and thus contributes to formal organisation. The parts of the total form are therefore set off from one another not just by melodic character, instrumentation, or dynamics, but also by their specific ways of dealing with the chord realignment system. From the foregoing examples it should already have become evident that Staar's technique offers a wide scope of possible musical applications. Thus, I will now try to highlight how this bandwidth of possible ways of "composing with chord realignments" unfolds within *one* single work and helps each of its segments to find its own profile.

The harmonic basis of op. 22 a-f consists of new four-part basic chords, drawn out of new combinations of the nine fundamental three-part structures. This is different from the

approach in op. 14 insofar as this time, no musical cryptograms are used to generate these four-part chords. The choice of these six four-part combinations does not appear to have followed systematic criteria. One notices for example that three of these combinations (1-4-1, 4-1-1, and 1-1-4) bear relations of realignment to one another; similarly 3-1-2 and 2-1-3. Two further realignments could be attained through recombination of the basic three-note structures (2-3-1 from 2-4 and 3-1, and 2-1-3 from 2-4 and 1-3), but these are not explicit parts of the basic four-part chords. Upon closer examination it becomes evident that these six combinations were chosen with view to their respective number of similar and dissimilar intervals (as it were, a premonition of the systematization found in op. 22g). The type featuring a combination of two equal intervals with another, different interval (which I call *aab*) appears three times (1-4-1, 4-1-1, 1-1-4). The type with three different intervals (*abc*) appears twice (3-1-2, 2-1-3), and that with only one interval (*aaa*) just once (2-2-2).



The opening measures of La Fontaine du Sang (**Example 12**)²⁶ are divided between melody (violin) and accompaniment (orchestra). Each horizontal four-note group of the violin corresponds to a vertical four-tone group, i.e., a four-voice chord. These interlocking four-tone groups of melody and accompaniment have no shared pitch classes; the interval configurations of the accompanying chords can however be derived from inversions of the melody (For example, the first melodic group 1-4-1 can be inverted to 6-5-8, which

⁶ See also the score excerpt on Staar's website: <u>http://www.staar.at/images/pdf/22b-lafontaine-partitur.pdf</u>

corresponds to the structure of the first trombone chord), or at least from a realignment of the interval configuration of the melody (in measure 3 the string chord 11-10-6 is the inversion of 2-1-3; this is in turn a realignment of 3-1-2, the basis of the solo violin's melodic material in this passage.) The accompanying chords are spaced in a wide register, presumably for better transparency. This can only be achieved when the basic four part chords are inverted (i. e., when tones are moved an octave out of the original narrow ambitus of the basic four-part structures.).

Perhaps not immediately noticeable but nonetheless striking in these first measures is that each measure appears to be based on just one fundamental chord type, from which melody and accompaniment both draw their material. In the first measure it is not only the violin that twice plays 1-4-1; the accompaniment uses 6-5-8 and 5-8-5, two inversions of 1-4-1. Measure 2 is similar, but both 3-1-2 and 2-1-3 are present (These interval configurations are of course realignments of one another and thus closely related). In measure 3 we again have exclusively 1-4-1 and its inversions; in measure 4 once again 3-1-2 and 2-1-3.²⁷ This clear separation of the measures from one another, not only through the instrumentation of the accompaniment but also in respect to harmony, might seem almost classicistic. Looking at details like this, it is easy to imagine that it could be Staar's more or less (I suppose: less) secret intention to retain aspects of tonal syntax onto the ground of post-tonal harmonyby creating a harmonic framework where clearly differentiated harmonic areas can be juxtaposed. (Not every contemporary method of handling harmony is even interested in this.)

The horizontal succession of interval configurations in the violin part as well as that in the accompaniment is regulated by a tendency towards a certain number (two, for the most part) of constant pitch classes in directly consecutive harmonies. In the first measure, for example; violin: d# and g#/a flat; brass f# and f natural. This precondition, along with that mentioned above (that melody and accompaniment should have no shared pitch classes), seem to be the reasons why in measures 1 and 3, in the narrow space of 2 * 2 groups of pitches, all twelve pitch classes occur at least once. But upon closer inspection this turns out not to be the case. Among the 30 possibilities that correspond to these requirements (a) Use only inversions of 1-4-1, b) Horizontally directly successive groups should have two pitch classes in common, c) no common pitch classes in vertical relation, i.e., between two groups sounding at the same time) there are 14 that yield only 10 different pitch classes, whereas there are only eight different possibilities for including all twelve.²⁸ Hence, the fact that all twelve pitch classes sound in measure 1 as well as in measure 3 cannot be explained solely by the systematic requirements, which seem to point in another direction. From this, a twofold conclusion can be drawn: firstly, the choice of application of Staar's harmonic methods is not always an economic one, i. e. in respect to the most direct and uncomplicated achievement of his compositional goals; secondly, that he does not always follow the tendencies this method might exhibit (as it were, he first sets a current and then swims against it.)

A further passage (Example 13) seems to me worthy of mention due to its clear-cut way of handling the chord realignment technique. Towards the end of the piece a homophonic brass

²⁷ There is one exception: the second chord of the accompaniment in measure 2 can be traced back to 4-1-1.

²⁸ This was "calculated" using pen and music paper; for more complicated calculations of this kind, I tend to use PWGL (see below).

chorale appears, bearing the inscription "comme un choral étrange" (like a strange chorale). Unlike in a very well-known violin concerto of the 20th century, this chorale is (to the best of my knowledge) not quoted from a historical source that could be assigned to a specific semantic field. In any case, the homophonic setting of this passage does not so much recall one of Bach's more famous chorales (some of which are quite elaborate), but rather simpler compositions (which can be assumed to have been much more common).

With respect to the chord realignment technique, it is striking that the two lower voices always move in parallel tritones, while the upper two voices do not strictly follow this parallel movement. This entails that the intervallic relations of the voices in parallel tritones to the upper voices are changing: which precludes the possibility that two successive verticalities might belong to the same chord type.



On the other hand, the parallel voice leading in tritones is not difficult to arrive at: the tritone is after all the outer interval of all four fundamental four-part chords, and all chords used here are inversions of these fundamental structures, which automatically include the tritone. In spite (or because) of this, the emphatic use of parallel motion is something that Staar generally seems to avoid; this case is an exception.

Because of the relatively sparse instrumentation of this passage (at first only brass, with a few chord accentuations by celeste and harp and some unpitched percussion that I have not included in **Example 13**) these procedures are rather transparent to the listener. The brass parts are structured so that, contrary to the usual practice of instrumentation, the narrowest interval of each chord (i.e. the tritone) is played by the lowest voices, the trombones. The intervals between the upper voices, the trumpets, alternate between sevenths and sixths, i.e. wider intervals than the one separating the two trombones. The largest interval is generally that between the first trombone and the second trumpet, where even 11ths sometimes occur. This makes it possible to hear the four-voice setting as being divided into two pairs of voices, not as four brasses but as two trumpets and two trombones. Thus, chord realignment is presented here in a fairly evident and audible manner. In more complex passages, on the other hand, following the technical procedures is generally possible only through analysis and not by ear.

Op. 22g: the oratorio "Hammabbul" and the five levels of five-part harmony

The oratorio "Hammabbul" (hebrew: The Deluge), the final version of which was completed in 2008, is underpinned by an interesting harmonic concept. Here, as in the works previously discussed, a rich harmonic texture is drawn out of just a few (this time five-part) basic chords. This material is also, in accordance with diverse criteria, arranged (or, as Staar likes to say, "filtered") onto five levels, which can in turn serve as starting points for new derivations.

This time the basic harmonic material consists of ten five-note chords, namely the six possible realignments of 1-1-2-2 (1-1-2-2, 1-2-1-2, 1-2-2-1, 2-1-1-2, 2-1-2-1, 2-2-1-1) and the four possible realignments of 1-1-1-3 (1-1-1-3, 1-1-3-1, 1-3-1-1, 3-1-1-1). Staar proceeds to organize his harmonic system with reference to both these types, which I wish to designate as *aabb* (twice two equal intervals, for example 1-1-2-2) and *aaab* (three equal intervals, and one different, for example 1-1-1-3).²⁹

To begin with, these ten chords are subjected to the process of inversion (in Staar's wider application of the term, see the paragraph on inversion above). Since there are 120 different possibilities for the vertical structuring of a segment of five different pitch classes (see above), i.e. since there are 119 inversions to a given five-part chord – this is equivalent to an expansion of the material from 10 to 1200 harmonic configurations. In view of this abundance of material Staar's desire for order is understandable.

Thus, the resulting inversions are classified according to whether they belong to the *aaab* type with three equal and one different interval (such as 1-6-1-1, inversion of 1-1-3-1, Example 14a), or to the *aabb* type with two times two equal intervals (such as 4-7-4-7, also an inversion of 1-1-3-1, **Example 14, a**. However, the larger part of the inversions belongs either to the type *aabc* (one interval appearing twice, and two different intervals, e.g. 11-8-8-6) or *abcd* (four different intervals, e.g. 8-5-2-1).



Ex. 14: Derivations of chords of different types (aaab, aabb, aabc) from the basic chords

Above all, it is the *aabc* type that plays a special role for René Staar, for this type could be imagined as a point of contact between the *aabb* and *aaab* types: an interval appears twice, as in the *aabb* type, while there is also an interval that appears only once, as in the *aaab* type.

²⁹ Staar's designation is different: he speaks of a "BI type", and a "BG type", since he had originally designated his ten basic chords with letters A through I. This designation seems unnecessarily complicated for the purposes of this presentation, and it has had no systematic consequences. Hence I chose to omit it in favor of the more descripitve *aaab* and *aabb* designation.

Among chords of the same type, those that are related by realignment are grouped together, i.e., those that have the same number of similar intervals, for example 1-3-1-6 and 6-1-1-3. In most cases, only configurations arising from the inversions of basic chords of the same type stand in relation of realignment to one another. 1-3-1-6 and 3-1-1-6 are inversions of 1-1-3-1 and 1-3-1-1, arising from the *aaab* type. 2-6-1-1 and 2-1-1-6 are drawn out of 1-1-2-2 and 2-2-1-1, the *aabb* type – see **Example 14, b**.

Sometimes this is not the case, namely where inversions of the *aaab* type stand in relations of realignment to inversions of the *aabb* type. 8-6-8-11, for example, is an inversion of 1-1-2-2, but 8-6-11-8 is on the other hand an inversion of 1-3-1-1 (**Example 14, c**).

Staar attributes particular importance to these chord groups. Especially the structure 11-8-8-6 (with its 11 realignments), the so-called "Hammabbul chord", takes on a central meaning within the oratorio. Some of these chord groups will later serve as basis for other works, for example 8-8-6-3 in the piano *Intermezzi* op. 22j, which I will discuss below.

The division into levels works like this:

Level 1: 10 basic chords (for example 1-1-2-2 or 1-3-1-1)

Level 2: Inversions of basic chords pertaining to the *aabb* type³⁰ (for example 11-11-10-10)

Level 3: Inversions of basic chords pertaining to the *aaab* type (for example 2-2-2-7)

Level 4: Inversions of basic chords pertaining to the *aabc* type (for example 11-8-8-6)

Level 5: Inversions of basic chords tpertaining to the *abcd* type (for example 8-5-2-1)

The fourth level is conceptually the most important, since with the "Hammabbul chord" it contains the point where, as it were, the first three levels converge, and also the point from which the fifth is, supposedly drawn:

"Inversion of the interval structure, new categorizations and several repetitions of these procedures lead to a harmonic hierarchy and then to a central chord, which focuses the ten five-part chords and, like a prism, ejects the postdiluvian chords [i.e., the fifth level]."³¹

Staar's explanation should probably not be taken too literally, since it seems to me that the fifth level can also be derived from the basic chords, without the intermediate step of the fourth level. However, this isn't really a problem, since all forms of musical "logic" rely on people staging that logic through their practice. If somebody (Staar, or myself) says a musical element is *doing* ("focusing", ejecting", etc.) something, the speakers mostly mean that the element has a certain function within their thinking, or in a particular piece of music. But the only one actually *doing* something is the composer (or the analyst) in ascribing this function to that element and writing his piece (or analysis) in such a way that this ascription remains

³⁰ Strictly speaking, inversions of the chords 1-1-2-2, 2-2-1-1, 1-3-1-1, and 1-1-3-1.

³¹ From handwritten notes by Staar. German: "Umkehrung der Intervallik, Neukategorisierung und mehrmalige Wiederholungen dieser Verfahren führen zu einer harmonischen Hierarchie hin zu einem Zentralakkord, der wie ein Fokus die zehn fünfstimmigen Akkorde bündelt und als Prisma die nachsintflutlichen Akkorde wieder auswirft."

plausible. This is also the case here: 11-8-8-6 simply has the function of a harmonic center, and it is probably just a matter of taste how rigorously one seeks to "logically" justify this function.

Another noteworthy aspect of op. 22g that I cannot expound on here is the semantic coding of the different harmonic levels within the oratorio. For example, the harmonic material is divided into "antediluvian" and "postdiluvian" harmony, a particular chord, 11-8-8-6, is designated as the Hammabbul (deluge) chord, and within the "antediluvian" harmony, different characters and concepts are assigned different chord materials. Indeed, the "staging" of structural functions mentioned above is clearly connected to the semantic dimension of the oratorio; what is interesting, however, is that Staar retains the thinking in harmonic "levels" even for other works in op.22 that have no direct semantic connection with *Hammabbul*.

From: op. 22j, 5x5 Short Intermezzos, Volume I, No. 2: "...Der gelenkte Mensch..." ("...Manipulated Man...")³²

Staar's systematic attention has up to now been generally directed upon the construction of individual chords. It was this construction that constituted cycles of works and their respective subcycles (for example, op. 14, 3a). In notes pertaining to the 5x5 Short Intermezzos op. 22j (2011-12) Staar for the first time explicitly mentions the type of *connection* between chords as relevant to the constitution of a cycle of works:

The five parts (volumes) investigate the fundamental chord [8-8-6-3] and the chords of the fifth level [see the remarks on Hammabbul] and their connections to the fundamental chord. The first piece is assigned to the category where two chords have four common notes; in the second piece they have three common notes, and so forth, until finally in the last piece no common notes between chords are allowed."³³

My analyses of volume one, however, suggest that its pieces are in a different sequence:

- I. three common notes
- II. two common notes.
- III. one common note

IV. develops from chords sharing four common notes to chords sharing no common notes. V. no common notes.

³² The English translation of this title as "Manipulated Man", proposed by Jorge Lopez, seems to me to withhold the more clearly mechanical connotations of the German "lenken". "Lenken", of which "gelenkt" is a past participle, could also be translated as "steering" (a car), while "manipulation" can be a more subtle, psychological process that is only occasionaly implied by "lenken". Also note that the German "Mensch" bears no obvious gender connotations, i.e. it stands for "man" as in "mankind", and not for "man" as in "woman and man".

³³ From a handwritten note by René Staar. The original German: "Die fünf Teile (Hefte) untersuchen den [...] Grundakkord [8-8-6-3] und die Akkorde der fünften Ebene [zu den Ebenen s.o die Anmerkungen zu Hammabbul] sowie deren Verbindungen zum Grundakkord. Das erste Stück ist der Kategorie mit vier gemeinsamen Tönen zwischen zwei Akkorden zugedacht, das zweite jenen mit drei gemeinsamen Tönen und so fort, bis schließlich das fünfte und letzte Stück keine gemeinsamen Töne zwischen zwei Akkorden zulässt."

An aside: On "post-piece-titles".

Staar's individual Intermezzi in op.22j are provided with titles that are printed below the last staff of each piece, a pianistic topos that immediately recalls Debussy's *Préludes* (1910-13). With Staar, as with Debussy, the titles appear at the end of the piece and between "...", for example "... Erwachen [Waking] ... ", thus hinting at a rather noncommittal programmatic connotation. The point of Debussy's "post-piece-titles" (as I dub them here for lack of a better word) is in my opinion that the programmatic idea "behind the piece" is relevant only to the extent that it is already bound to a musical concept, and therefore already a musical idea. (The music, on the other hand, precedes the title in print, thus quite literally having priority.) A title *above* the first staff of the music will on the other hand likely be understood as indicating what the subject is to be; already while listening, one will be inclined to relate the music to that subject matter. Thus, the "post-piece-title" tries perhaps to allow for a listening to the music as music, but without renouncing all connection to the non-musical world, as the idea of "absolute music" attempted to do. (One could also see elegance in the idea of the "post-piece-title" in that it uses "musical means" to this end: One might read the title after reading the piece, pretty much as it is important to music's functioning that one might listen to one musical phrase *after* another musical phrase.)

Staar's term "chord connection" should not be understood as implying a cadential or tonal progression. (Note that this difference does not primarily rest on the fact that Staar's music is not tonal.) Firstly, "chord connection" refers to only *two* successive chords (or "harmonic segments"). Secondly, these must not necessarily be situated in a larger harmonic context (whereas a tonal progression would ultimately have to in some way be connected to a tonic). Thirdly, while here the movement from chord *b* to chord *a* is just as possible as that from chord *a* to *b*, in the case of tonal progressions this would be possible only to a limited extent: for example, the progression from subdominant to dominant can be used more or less everywhere, but the progression from dominant to subdominant – a so-called "harmonischer Rückschritt"³⁴ – only under certain circumstances.

I will now examine the second *Intermezzo* from the first volume (see next page for an excerpt). This intermezzo deals with the connection of chords that have two common notes: those two common notes are assigned to one hand (at first, the left hand), and the other hand takes on the other three notes. The notes common to both chords are presented in measures 1-3 as an oscillating minor second movement in eights, the other notes as arpeggi in triplet eights.

It is fairly evident here that the connected chords are interchangeable with respect to the order of their appearance. At the beginning, the harmony oscillates back and forth between 6-1-1-3 (m. 2, first and third beats; inversion of 6-8-3-8) and 4-1-3-3 (second and fourth beats; inversion of 8-8-3-6); then in measure 8 between 1-10-4-4 (inversion of 3-8-8-6) and 1-7-6-3 (inversion of 8-6-3-8), and in measure 11 between 11-7-4-5 (also an inversion of 8-6-3-8) and 11-9-6-2 (inversion of 3-6-8-8).

One sees from this analysis that all the harmonic segments can be described as inversions of realignments of 8-8-3-6. This was, of course, Staar's intention, a prerequisite that he set for his composition. An interesting question for an analysis to investigate would be what a compositional decision within this apparently so restricted pool of material could look like.

³⁴ This term, which is not uncommon in German, could be literally translated as "harmonic step backwards" or "harmonic regression". I was unable to locate the origin of this term.



Intermezzo op.22j., No. 2 ("...der gelenkte Mensch...") of vol.1., measures 1-16.

In this context I find it appropriate to weigh the significance of the decision as being relative to the number of alternative possibilities available within the self-imposed frame of rules. As mentioned above, a decision taken between few alternatives would have to be assessed differently from one between many alternatives.³⁵

Thus, let us assume that in the middle of a piece Staar comes to a certain chord a, and that this chord is a realignment of 8-8-3-6. The first requirement is that he following chord b also be a realignment of 8-8-3-6, albeit not the same as chord a. As we can see from the table on page 6, there are twelve different realignments of 8-8-3-6. The one used in chord a can be excluded; hence, for chord b, we choose from a pool of eleven possible realignments. These

³⁵ At this point I call attention once more to the fact that the following observations are likely to reflect not so much Staar's compositional thinking (upon which they build) as my own specific analytic perspective.

can in turn be based on 12 different pitch classes as bass notes (i.e., there are 12 different transpositions of the chosen realignment). So the scope of possibilities is actually somewhat larger than expected: there are 11 * 12 = 132 possibilities.

However, many of these have to be ruled out, because they do not fulfill the second requirement of having *exactly two* pitch classes in common with the preceding chord – and here the calculation becomes more difficult, because intersection of pitch classes is dependent both on the pitch structure of the respective chords and also on the intervallic relations of the bass notes to one another.

Using the computer program PWGL³⁶ I was able to calculate that, starting from 8-8-3-6 as chord a, 57 of the aforementioned 132 possibilities for chord *b* with exactly two overlapping pitch classes remain available.

In order to be able to think through these constraints in detail, it would be sensible to provisionally fix one of the parameters that will influence our scope of possibilities. These parameters are: the interval structure (realignment) of the first chord; the interval structure (realignment) of the second chord; and the interval between the bass notes of those chords.

I will now give two examples where the first chord is always constricted to 8-8-3-6. In the first example, the second chord is fixed to 8-3-6-8, but the interval between the bass notes of the chords is flexible. Observe how the number of shared pitch classes changes with the interval chosen (**Example 15**).





On the other hand, we could constrict the interval between the bass notes to, say, a major second, and, conversely, play through all available realignments for the second chord (the alignment of the first chord being fixed). See **Example 16**.

³⁶ A tool for algorithmic composition that can also be used for analysis. It is based on the programming language Common Lisp, and closely related to Open Music. It is currently being developed by Mika Kuuskankare at the Sibelius Academy. Web: <u>http://www2.siba.fi.PWGL</u>

Ex. 16: Shared pitch classes of two chords with fixed intervallic relations between their bass tones (major second), fixed realignment for the first chord (8-8-3-6) but changing realignment for the second chord. Shared pitch classes are highlighted through empty noteheads.



As can be seen, even if the realignment – or instead the interval between the bass notes – is predetermined, we are often left with several possibilities (five each in the above examples). Thus, Staar's self-imposed restrictions do not relieve him of the responsibility for small-scale compositional decisions.

* * *

In what follows, I will classify these types of connections on the grounds of what interval class obtains between the two pitches that are shared by both chords. ³⁷

On the basis of this classification I will then try to investigate if and to what extent Staar's local compositional choices (i.e., the choice of what chord to write next) are guided by his systematic premises, or if he tries to resist the tendencies that these premises exhibit.

My calculations have shown that there are 350 different ways of connecting two different realignments of 8-8-3-6 in such a way that they will share two pitch classes. In 32 % of those connections, the pitch classes shared by both chords form an interval of a major third / minor sixth (ic 4); in 23 %, they form a minor second / major seventh (ic 1).³⁸

In the above example, I spoke of 57 different ways of connecting 8-8-3-6 to another realignment of itself. Of course, the fact that there are only 57 possibilities in this case is due to the choice of chord a (8-8-3-6) limiting the available choices for chord b. However, I find it interesting to observe how within these 57, the percentages of connections whose chords

³⁷ This criterion of classification is appropriate for this particular piece, since the two notes common to both chords function as a clearly articulated musical layer and not as an obscure compositional principle only the composer would notice. It would have been equally appropriate to classify the connections by the relation of the changing notes to each other – but not equally easy to calculate, since this type of relation is not one of two pitch classes to each other, but of two pitch class *sets* with three pitch classes each.

³⁸ The exact numbers are: ic 1: 81 times; ic 2: 30 times; ic 3: 49 times; ic 4: 111 times; ic 5: 26 times: ic 6: 53 times. This was calculated with PWGL and Common Lisp. One could double these numbers without changing the proportions, since whenever a connection from chord x to chord y is possible, the reverse is possible as well.

share pitch classes forming a certain interval are slightly different from the percentages among the 350 (where chord *a* was not yet decided upon): ca. 28 % (16 of 57) share ic 4, and ca. 25 % (14 of 57) share ic 1.

From the examples 15 and 16 above – in which shared pitch classes are symbolized by empty note heads – it can be seen that this distribution can be very different depending on our starting position and on what requirements we want the connection to satisfy.

Hence, Staar's harmonic space is not a homogenous vacuum where any chord can follow any other chord without effort if the composer so wishes, but that space, by the application of certain rules, is turned into a complex terrain that needs to be negotiated rather carefully.

Now I would like to see how this "terrain" of possibilites, i.e. the statistics outlined above, is reflected in what Staar has actually written (or, if we want to take the metaphor further, what path he has taken through it). Analysing the piece in this respect seems an easy task at the outset, but as the piece gets rhytmically more complex – as the three-part chords in the right hand are dissolved into arpeggi in measure 54 - I find it increasingly difficult to decide which note belongs to what harmonic segment.

Fortunately, Staar hoards piles of sketches at his studio; thus I could "solve" that analytical problem by consulting the harmonic sketch to this piece.³⁹

The following table compares the distribution among connections Staar actually uses in his second *Intermezzo* (left side of table) to the distribution among the total amount of connections that would have been possible:

common.						
	of 65 used		of 350 possible			
ic 1	23	35.4 %	81	23.1 %		
ic 2	4	6.2 %	30	8.6 %		
ic 3	3	4.6 %	49	14.0 %		
ic 4	16	24.6 %	111	31.7 %		
ic 5	3	4.6 %	26	7.4 %		
ic 6	16	24.6 %	53	15.1 %		

op.22j, Volume 1, No.2: Connections of chords that have exactly two pitch classes in common.

From this table, it can be seen how the individual piece differs from the scope of possibilities I have outlined above: As expected, the distribution among connections that Staar has chosen to use in his piece is different from that among all possible connections that satisfy his double requirement of a) the two chords having exactly two pitch classes in common and b) both chords being different realignments of 8-8-3-6.

The preference given to intervall classes 1 and 6 is especially strinking, as well as a certain neglect of ic 3.

³⁹ This "solution" concerns, of course, solely Staar's approach to constructing the piece, and not necessarily the listener's approach to making sense of it.

If we were to explain these decisions, we could find that the preference for ic1 seems (in this case) to stem from the decision to develop the piece from a trill-like figure (initially in the left hand). Thus, we could see this preference as an instance of how Staar's harmonic and structural framework (chord connections with two shared notes) is mediated by his musical and gestural ideas.

We might also be inclined to evaluate the avoidance of thirds (particularly the minor third ic3) and of sixths as connecting intervals as being a catious way of dealing with these characteristic building blocks of tonal harmony. This might not be so immediately convincing in respect to music composed in 2011, but since Staar's music also very noticeably and consistently avoids octaves, one could see in these avoidances of particular intervals a stylistic characteristic with decided connections to the harmonic practice of the Schoenberg School.

(However, an analysis of just one short piece seems an unstable grounding for broad stylistic claims like these; the method outlined above would have to be applied to more of Staar's pieces to provide a more nuanced image of his music.)

Conclusion:

In this paper, I attempted to eludicate one aspect of René Staar's artistic work, his "composing with chord realignments." While this aspect is certainly an important one, it is by no means the *only* important one, and indeed Staar's music as a whole should not be reduced to the domain of pitch relations.

In the introductory chapter, I have shown how realignment and inversion serve to form a loosely delineated "system" of "composing with chord realignments." This has then been applied to analyses of selected pieces: In examining the *Bagatellen auf den Namen György Ligeti* op.14/3a, I have pointed to harmonic ambiguities and questions of segmentation confronting the analyst; in my observations about *La Fontaine de Sang* op.22c I have hinted at the potential of Staar's system for shaping large-scale form; in presenting the different "levels" of Staar's five-part harmony in *Hammabbul* op.22g, I have very superficially touched upon the issues of musical "logics" and semantics, while – in a way – the most detailed analysis in this paper is that of the *Intermezzo* op.22j, 1.Volume, Nr.2, where I have tried to correlate Staar's self-imposed structural restrictions with his compositional decisions within these restrictions.

While it is understood that I could not shed light on every part of Staar's manifold harmonic procedures, I hope that the reader will emerge with a clearer picture of what composing (in general, and not just ,,with chord realignments") means for René Staar.

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