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The (Idiomatic) Piano in the Structure and as a Structural Element in (My) Music

1. Structure and structural?

The distinction between structure and what one can consider a structural element in a musical practice may not always have defined borders and be clear. However, over literature focused on music analysis, one can get an overview of what has been considered as the fundamental elements of musical structure for centuries of written music of western tradition and find common ground to what composers themselves may consider as structural in their musical practice.

The present text starts from abstract widespread perspectives based on groundmusicological literature into the particularization of quite discernible musical situations to be presented in the second part.

As an abstract exercise to comprehend part of a music practice, one could look into a structure by different means: of a closed network of relationships, more than the sum of its parts; a concatenation of structural units; a field of data in which patterns may be sought; a linear process; and a string of symbols or emotional values[1]. Although a music practice is far more complex than the mentioned attributes, they represent an important part of it, particularly in music practices

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[1] I. Bent, A. Pople, "Analysis", entry in: *The New Grove Dictionary of Music and Musicians* [online], https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001. 0001/omo-9781561592630-e-0000041862?rskey=IGwu0p (access: 25.11.2020).

of written tradition where the music practitioners clearly reveal their interest in the comprehension of such features.

For many composers and as presented in many musicological studies, the bedrock for the presentation and hierarchization of such elements is based in formal aspects and the subdivision of formal elements into perceivable components. This appreciation should be perceivable to the ear, not necessarily in the sense of always being presented in clearest transparency, neither of a blatant redundancy, but in the sense of being discernible, even if one would need to have such elements pointed out and would require a reiterated listening process in order to understand the underlying construction that makes it tangible to an ear less costumed to such music codes. As Cedric T. Davie would put it, "in the time element to be listened to"[2].

A musical idea can have a starting point from an abstract construct or aspects that are more related to what is to be listened to and the perception of such musical events. If in the music of the past it may not be absolutely clear if an idea came from an abstract construct or was to be listened to, today one can find more clear evidence of the composers' intention. One can wonder about what was to be perceived from Machaut's *taleae*, which we now call isorhythm. We know it was not his invention, neither from Philippe de Vitry, that it can be found before the *Roman de Fauvel*[3]. But what does it tell us about the origin and conception of such important structural elements where identical rhythmic patterns can be found quite systematically? Was it a structural feature used by such composers as a way to organize themselves? Was it something that they would pay attention to, following such patterns even when the associated notes had different ones, making it harder to perceive as an ordinary pattern where one finds a full repetition of a melody? On the other hand, one can understand much better what was to be perceived by the audience when a composer has explicitly expressed it, as is the case in the text *The Art, to Listen*, by Stockhausen[4], explaining in detail his 1977 work *In Freundschaft*. Studying what is to be perceived in a work has been approached in numerous fields, from different perspectives. The present scope of this article does not intend to challenge the immense complexities of the term *perception* applied to musicological studies, very often crossing scientific

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[2] C.T. Davie, *Musical Structure and Design*, New York 1966, p. 11.

[3] See R.H. Hoppin, *Medieval Music*, in: *The Norton Introduction to Music History*, New York 1978, p. 566.

[4] K. Stockhausen, *The Art, to Listen (A Musical Analysis of the Composition 'In Friendship')*, Kürten 2002.

perspectives such as psychology, neurology and biology, sociology, *i.a.*[5]. I will here focus on what I know is the perspective on what a composer or group of composers would intend to be perceived in a specific work or tradition, and undeniably in my own perception.

In my personal experience, the insight of perceivable matters of a system that would not find common ground in predefined musical structures frequently used in musical practices associated to western music of written tradition, and that would be apprehended through the ear, was utterly embroidered in my listening and compositional practice while assisting to Stockhausen's analysis of his work *Hoch-Zeiten*, in Kürten[6]. The composer would demonstrate the structure of the piece by presenting multi-track examples of the click tracks, individual voices and so forth. The hours one would spend by listening and understanding the realms of complex musical filigree interwoven in multi tempi layers, connected to other parameters and musical characteristics displayed a new view when listening to the piece.

It can easily become clear where to focus the ear, the concentration of a listener, when there is an explanation from a composer. One can, at least, focus on what is expected to be listened to, what is to be hierarchized, what is the organization of the work, and what is its structure. When speaking of music that presents common characteristics among a wide range of literature, such as it was the case in western art music, one who has studied such practice will probably search for common ground with music previously acknowledged. With sometimes more or less obvious differences according to the proposed theoretical framework provided by each author (to name but a few: Erpf, Meyer, Dahlhaus, Riemann, *i.a.*), very often, the elements have been traditionally rooted in the following: motive, phrase, theme, form… What is considered the smallest coherent structural unit is not unanimous either, usually ranging from the motive[7], or being the phrase thought in terms of the smallest rhythmic unit[8] or as the smallest structural unit[9]. But are such elements sufficient to an overall abstract generic

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[5] See J. Reis, *Perception and Reception of Emmanuel Nunes's Musical Practice*, in: *Estes sons, esta linguagem'. Essays on Music, Meaning and Society: in Honour of Mário Vieira de Carvalho*, eds. G. Stöck, P.F. de Castro, K. Stöck, Leipzig 2015.

[6] K. Stockhausen, *Stockhausen-Kurse Kürten Kompositions-Kurs über 'Hoch-Zeiten' (vom 'Sonntag' aus 'Licht') für Chor*, Kürten 2003.

[7] A. Pike, *The Perceptual Aspects of Motivic Structure in Music*, "The Journal of Aesthetics and Art Criticism" 1971, Vol. 30, No. 1, p. 79–80.

[8] C.T. Davie, op. cit.

[9] A. Schoenberg, *Fundamentals of Musical Composition*, London 1999.

study of musical practices? Although they are extremely useful and important to find a common ground of discussion about some sorts of repertoires, they cannot cover the full scope of the abundant imagination presented in a musical practice stretched over centuries, even when restricted by the study of one single instrument, such as the piano.

This represents a focus on the so-called motivic analysis, that can be applied to musical practices that integrate both a tonal paradigm, as well as other paradigms that I will allow myself to now describe with the broadest term, *i.e.* atonal paradigm. One can also find many other analytical perspectives: schenkerian, semiotic, phenomenological, timbral and textural, rhythmic, *i.a.*[10].

The emergence of finding structural elements that may ground a structure should be found on more abstract procedures. The identification of elements arises through the measurement of the amount of difference, or degree of similarity in order to illuminate the three fundamental form-building processes: recurrence, contrast and variation[11]. But even when realizing, for instance, what a recurrent element was, such as the mentioned rhythmic pattern of a *talea*, again I would have to ask: what could we say about the source, the motivation for such organization? It is in the structure and appears to be structural, in the sense that very often one finds such patterns connected to formal aspects of the piece. But is there such distinction between what one could call something one finds in the structure different from something that is structural? When analyzing not just the musical elements in a score, but understanding more of what such elements meant for the composer, it is possible to answer such question, as I hope to make clear in the second part of this text.

Although many analytical practices can be applied and help to fulfill the comprehension of a musical practice, very often one could find that they do not target the specificities of a work. The perspective of the producer, composer or creator is not always a starting point and therefore the aim is not pointed at what this person or group of people intended to be listened to, but only to what one, the musicologist, has contempt for. If this may be an unquestionable method for the study of an expressive practice of the past, frequently based on other documents that support such approach, there are many examples in the repertoire of western music of written tradition that point out different ideas that the composers would like to emphasize, that they would be asking the listener to focus on. The scope of this text is not to categorize holistically each proposed

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[10] N. Cook, *A Guide to Musical Analysis*, New York 2009.

[11] I. Bent, A. Pople, op. cit.

patch of listening that requires to focus on idiosyncrasies, but to point out examples, hopefully archetypally, on how the conceptions of composers may require forms of listening that are not based on traditional canons of the paradigms of tonal music. Numerous examples could be mentioned that escape the idea of having a motive or phrase as a prime structural model. I will mention very few that I have to consider representative and easy to grasp for one who has listened to them or who has a minimum idea of what they mean or meant for the people or group of people that have created and worked with them:

- Schoenberg's *Klangfarbenmelodie*, to focus on timbre[12];
- composers focused on what became known as acousmatic music tradition such as Pierre Schaeffer, Guy Reibel, François Bayle, Francis Dhomont, Annette Vande Gorne, *i.a.*, and their development of the *energy models*, focused on *archetypes* usually deduced from physical models[13];
- Ligeti's *micropolyphony*, as many other composers, focused on texture, instead of individual lines that can be heard in traditional polyphony[14];
- Stockhausen's connections between the perception of pitch, rhythm and timbre in moments of the work *Kontakte*[15];
- Spatialisation of timbre, as one can listen in works from Chowning and Normandeau, *i.a.*, where the listeners' attention should focus on the sound as a whole being spectrally diffused in a multi-channel environment[16].

These examples are paradigms of differentiated strategies that involve peculiar listening mechanisms. If one is interested in understanding more about what the composer intended to be listened to, and therefore establishing the closest relationship with the proposed communication system, one would have to adopt exceptional listening techniques to be able to approach it. Exceptional in the sense of focusing on what one knows the *music-makers* intended to be listened

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[12] A. Schoenberg, *Theory of Harmony*, London 1983.

[13] A. Vande Gorne, *Treatise on Writing Acousmatic Music on Fixed Media*, "Lien — Musical Aesthetic Review" 2008, Vol. 9.

[14] G. Ligeti, *Ligeti in Conversation with Péter Várnai*, Josef Häusler*, Claude Samuel, and himself*, London 1983.

[15] See K. Stockhausen, *Die Einheit der musikalischen Zeit*, in: *Texte zur elektronischen und instrumentalen Musik*. Band 1, Cologne 1963, p. 211–221.

[16] R. Normandeau, *Timbre Spatialisation: The Is the Space*, "Organised Sound" 2009, Vol. 14, No. 3, p. 277–285; J.M. Chowning, *Stria: Lines to Its Reconstruction*, "Computer Music Journal", Vol. 31, No. 3, p. 23–25 [online], http://muse.jhu.edu/journals/computer_music_journal/summary/v031/31.3chowning.html.

to, opposing a listening perspective solely based on one's own perception *per se*, within one's own unescapable constructs.

2. The idea of idiomatic style as a ground and consequence for the structure of a (piano) work

2.1. *Idiōma*

When proposing a relation between compositional elements and a specific instrument, in this case, the piano, one should tackle the peculiarities of such instrument or, at least, reflect on the corpus of significant repertoire.

It has been broadly studied that before the mid-17th century composers made a little stylistic distinction between one keyboard instrument and another, and players used whichever happened to be available or was best suited to the occasion and whatever instruments suited the parts[17]. In this sense, literature has presented us with the realms of shared crosswise notions among keyboard instruments that emphasize what they have in common, athwart the peculiarities of one instrument in particular.

During a lecture in 1992, Karlheinz Stockhausen briefly described what he considered to be about four hundred years of clavier music, particularly in Europe (compared to other regions of the globe), developing through the *Kielflügel*, *Hammerklavier*, fortepiano, and modern piano, to the synthesizer and he joyfully suggested that such tradition would apparently continue as long people have ten fingers[18]. In the same text, one can also find important pieces of information on his impressions on how to listen to his music. Although Stockhausen here was focused on the overall characteristics of keyboard instruments in general, most of his clavier music, if not all, was conceived in a way that it would be immensely complex to keep its essence if it would be transposed into a different instrument. While pieces such as *In Freundschaft* exist in versions for specific instruments, K. Stockhausen wrote pieces that could be played in any instrument, like *Tierkreis*; or pieces that were specifically described as being written for a melody

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[17] See J. Caldwell et al., "Keyboard Music", entry in: *The New Grove Dictionary of Music and Musicians* [online], http://www.grovemusic.com (access: 25.11.2020); H.M. Brown et al., "Performing Practice", entry in: *The New Grove Dictionary of Music and Musicians* [online], http://www.grovemusic.com (access: 25.11.2020)

[18] K. Stockhausen and J. Kohl, *Clavier Music 1992*, "Perspectives of New Music" 1993, Vol. 31, No. 2, p. 136–149.

instrument with microtones such *Xi* and *Ypsilon*, (these ones with versions for basset horn; alto flute or flute); *Solo* for a melody instrument; and he was very specific in some of his *Klavierstücke* pieces, sometimes even advising on which piano model they would sound better, or have been tested there; and other such as *Himmelfahrt* for soprano and tenor and either organ or synthesizer; and *Synthi-Fou* (*Klavierstück XV*) for a player of electronic keyboard instruments[19]. Although in his lecture/article Stockhausen[20] talks about clavier music preferring to present it taking into consideration the shared characteristics of the different instruments, rather than focusing on one of them, such as the piano, he has developed his own compositional approaches that are exceptionally detailed for the instrument writing and that could hardly be achieved in most other "keyboard" instrument.

The concept of an *idiomatic style* for an instrument, namely for the piano, has been widely studied and the term employed with different meanings and in divergent contexts.

Idiomatic, from the Greek *idiōma*, in the sense a peculiar phraseology, is often applied to contexts of adaption of a linguistic term into a different language, but also in discourse contexts that require a lot more abstraction, such as the musical discourse. Even without going through the many studies that reflect on how music communicates differently in its many significances, either in the view of C. Lévi-Strauss[21] or B. Nettl[22], or even the ones that raise questions about the objectivity of an *idiom*[23], I will share very few examples that will hopefully reveal how this concept exists in compositional and musicological texts. Probably for its myriad of contrasting conceptions, many music dictionaries and encyclopedias do not include an entry about the concept of idiomatic style, which is not the case of *The Harvard Dictionary of Music*, where it is presented as a style appropriate for the instrument for which particular music is written[24].

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[19] In this short list, although in some pieces it is required electronic music/sound projectionist, that Stockhausen would consider as an essential performer, it has been omitted here for practical reasons.

[20] K. Stockhausen and J. Kohl, op. cit.

[21] C. Lévi-Strauss, *Regarder, écouter, lire*, Plon 1993.

[22] B. Nettl, *The Study of Ethnomusicology: Thirty-One Issues and Concepts*, Champaign 2005.

[23] See M. Vieira de Carvalho, *Meaning, Mimesis, Idiom: On Adorno's Theory of Musical Performance*, in: *Expression, Truth and Authenticity: On Adorno's Theory of Music and Musical Performance*, Lisboa 2009, p. 83–94.

[24] See "Idiomatic Style", entry in: *The Harvard Dictionary of Music*, ed. W. Apel, Harvard 2000, p. 401.

The term *idiomatic* can be found in many different contexts with dissimilar meanings. One can speak about it this way when, for instance, denoting the specificities of composing for a natural horn and a valve horn. Historically, both coexisted for about fifty years and the composition style was inevitably linked to the idiosyncrasies of each type of horn. The expression *idiomatic* also seems to carry a historical weight according to other constraints rather than the technical changes in an instrument. This can be read in the way one can consider idiomatic to use a *scordatura* in a double bass[25], rather than, I would say, in a violin, where it is obviously possible and it has been used but it did not take part in the regular compositional and instrumental practice. Indeed, one can still see it today as a more common practice in the first than in the second instrument.

Regarding the compositional style, one can also read the use of the term *idiomatic* in many situations. It has been applied to 17th-century French composers who would write for both lute and keyboard and would combine the technique style *brisé* as an idiomatic arpeggiation shared by both instruments with a growing awareness of the contrapuntal possibilities of the newly intricate texture[26]. Such extrapolations are often associated not only with historically informed performance practices but with the general tradition of learning a musical instrument through written western tradition within academic contexts.

Boulez talks about it in the broad sense of a musical language[27], rather than in a perspective of what common instrumental techniques form an *idiom*; he and other authors use the term in the sense of the description of an idiom, or as Blum could put it, regarding a description of 'styles', 'stylistic strata' or 'dialects', being the paths one could choose for a systematic description in the study of musical types[28].

2.2. Structure and structural in the piano *idiōma* (since 1945)

Idiomatic writing is a matter of prime concern for composers particularly from the 20th century onward and in orchestral scoring, since of the elements that start to be more and more valued is the way the various parts exploit the

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[25] See D. Boyden et al., "Scordatura", entry in: *The New Grove Dictionary of Music and Musicians* [online], http://www.grovemusic.com (access: 25.11.2020).

[26] See M. Little and S. Cusick, "Allemande", entry in: *The New Grove Dictionary of Music and Musicians*, [online], http://www.grovemusic.com (access: 25.11.2020).

[27] P. Boulez, *Leçons de Musique*, Paris 2005.

[28] See S. Blum, *Analysis of Musical Style*, in: *Ethnomusicology: An Introduction*, ed. H. Myers, New York–London 1992, p. 165–218.

technical and sonorous resources of the instruments without exceeding them[29]. Getting back to Stockhausen's work, in his *Klavierstück VII* one can listen to how the pitch *C#* is colored each time with a different resonance. Although the composer argued it had no very great timbral differentiation[30], he was developing detailed writing to compose timbral differences for the piano since his first pieces — *Klavierstücke I*, *II*, *III*, *IV*, *V*. Possibly being influenced by Messiaen's *Mode de valeurs et d'intensités* and Webern's music, under Goeyvaerts influence[31]. In *Klavierstück VII*, he creates a multitude of timbres around the same pitch within constraints that are specific for the piano, such as when the keys are to be silently depressed, the dampers of sympathetic strings can be released, or they may be raised through the use of the middle pedal and be set into vibration by striking dampened strings and creating numerous timbres for the same pitch, which the composer says this could otherwise be achieved only with an orchestra of many instruments, or by the mixture of different instruments[32].

Klavierstück VII can be seen as an archetype of the piano as a structural element in music, rather than in piano in the structure of the composition. Without the specificities of the piano, the idiomatic or rather idiosyncratic resonances, the pieces would not exist as it was conceived. One can affirm quite assertively that Stockhausen took the piano as a departure point to which he articulated other structural elements. As a contrast, one could say that his *Klavierstück XIV*, also designated *Geburtstags-Formel* (the birthday formula), could be considered an archetype of the piano in the structure of the composition. In this piece, Stockhausen uses a portion of *Licht*'s *superformula*. The piano conveys this musical material, the material itself does not derive from the piano, but it is imposed here. It does not mean a lack of *idiomatism*, but rather that Stockhausen's creative spring emanates from *Licht*'s overall attributes, which also include the use of keyboard music, but not from a specificity of the piano, such as in the timbral characteristics one can find in *Klavierstück VII*.

It has been comprehensively studied that a significant number of composers from the Baroque period have exploited the individual characteristics of the organ, harpsichord, or clavichord. Since scoring was not entirely fixed and probably one could still play much music on whatever instruments suited the parts,

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[29] See "Idiomatic Style", op. cit.

[30] K. Stockhausen and J. Kohl, op. cit.

[31] K. Stockhausen, *Stockhausen on Music — Lectures and Interviews*, London 1989.

[32] K. Stockhausen and J. Kohl, op. cit.

we assume a less idiomatic writing and that only in the latter half of the 18th century a more distinctive style for the piano has emerged[33].

Albeit many exquisite and peculiar music practices for the piano were developed in the 19th century[34] that I would say are absolutely idiomatic for the piano (and many instruments) were also arising in the 20th century, particularly in its second half. Some of the repertoire derives from the previous centuries' tradition, while one can also find pieces that reinvent the piano in completely new ways.

György Ligeti's first étude — *Désordre* — similarly to a significant number of pieces in the piano repertoire, takes advantage of the position of the hands integrated with his own compositional technique in order to achieve a complex rhythmic web-based in repertoire from the Romantic-era piano music of Chopin and Schumann, the musical practices of sub-Saharan Africa, and also inspired by Conlon Nancarrow's player-piano music, as well as computer-generated images from chaos theory and fractals[35]. In this case, the chromatism of twelve notes is achieved by having a distribution of the seven pitches of white keys in the right hand, and the five pitches of black keys in the left hand, to which he applies procedures of displacement of rhythmic patterns[36] that will lead to the perception of processes of transition from metric order to disorder[37].

This peculiarity of the hand positions and operations is certainly idiomatic for a keyboard instrument, but would it be specific to the piano? No. This would be the case of the keyboard as a structural element in music, rather than the piano and it could be explained by saying that such technique would not be suitable for a wind or string instrument. The essence of *Désordre* comes from the keyboard and although one could play the same music, let's say, in a string or wind instrument arrangement, it would not be the same music. In other words, one can confidently affirm that the material emanated from the piano's keyboard rather than being abstractly preconceived that applied to this instrument.

In a different approach, one can find the piano in the structure of the composition in a wide extension of the instrument's repertoire. It does not make such works less (or more) dedicated to the piano, but it means the substance of the

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[33] See "Idiomatic Style", op. cit.

[34] P. Ablinger, [Peter Ablinger Web Page], https://ablinger.mur.at/speaking_piano.html (access: 25.11.2020).

[35] S. Taylor, *Ligeti, Africa and Polyrhythm*, "The World of Music" 2003, Vol. 45, No. 2, p. 83–94; L. Shimabuco, *A Forma Como Resultante Do Processo Composicional de György Ligeti No Primeiro Livro de Estudos Para Piano*, Campinas 2005.

[36] Ibidem.

[37] G. Ligeti, *On My Etudes for Piano*, Cambridge 1988.

piece was applied to the instrument, rather than deriving from it. In Milton Babbitt's *Semi-Simple Variations*, the composer makes use of processes that were materialized in a structure within the piano keyboard. By creating pitch sets and aggregates that form his compositional needs in necessary terms to define elements that arise compositionally, but are not predefined systematically[38], the composer makes use of the piano characteristics to serve such purposes. If I am allowed to put it dichotomically, not to say that these approaches are exclusive in music composition, but just to mark this point, I would say that Babbitt's approach opposes having the piano as a structural element of this piece and even dare to say that the essence of the piece could be maintained if translated into a different instrument that would allow a representation of the materials and processes.

The final Karlheinz Stockhausen's composition cycle — *Klang* — comprehends about 140 minutes of piano music in the twenty-four pieces from *Natürliche Dauern* (Natural Durations), the *Dritten Stunde* (Third Hour) of *Klang*. The *natural duration* is to be understood as the natural duration of the sound in an acoustical sense as the natural duration of the instrumental (piano) action[39], as the natural breathing duration of the pianist and determined by the resonances of the Japanese temple instrument *rin*. The approximate duration and its variation according to pitch register, intensity, articulation and the use of the sustain pedal was tested in different pianos, as Leopold Siano's describes in detail[40], by analysing the work and mentioning the contacts between the composer and the pianists with whom Stockhausen primarily worked in his later years and for the composition of the *Dritten Stunde*[41]. Not all pieces from *Natürliche Dauern* are only governed by the initial concept of letting the tempo and rhythms be determined by how long the piano notes resonate, in the sense of how long they can be

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[38] See C. Wintle, *Milton Babbitt's Semi-Simple Variations*, "Perspectives of New Music" 1976, Vol. 14/15, No. 2/1, p. 111–154.

[39] Several pieces have no tempo indication.

[40] See L. Siano, *Karlheinz Stockhausens Letzter Kompositionszyklus: Klang. Die 24 Stunden Des Tages*, "Signale aus Köln" 2013, Vol. 19.

[41] The pieces were premiered and dedicated to Frank Gutschmidt (3, 5, 7, 10, 13 and 14), Benjamin Kobler (2, 4, 6, 8, 9, 11, 12 and 15) and Antonio Pérez Abellán (16 to 24). The first piece was premiered in New York by Philip Edward Fisher. I have assisted the premiere of the pieces 2 to 15, in Kürten and came on the airplane from Cologne to Lisbon with Francisco Pessanha de Meneses, Karlheinz Stockhausen, Kathinka Pasveer, Suzanne Stephens, Antonio Pérez Abellán along with some of his family members, to attend what was Stockhausen's last public concert, with the premiere of pieces 16 to 24, by Antonio Pérez Abellán, in Gulbenkian Foundation.

heard while sustaining their sound. One can contemplate not only the sound itself in its physicality, but also abstract tonal arrangements, geometries and numerical relationships[42]. However, as a core concept, it represents what I would claim to be a very strong paradigm of the piano identity as being structural in a composition.

2.3. Extrapolations: pianos, *idiōma*, *medium*

If the term keyboard was already challenged in respect to the present text's scope, the idea of an automatized piano[43] could raise peculiar questions in terms of its own idiom. Already on a relatively early stage of such pianos, one can see the peculiarities in them when analyzing Conlon Nancarrow's *Studies for Player Piano* and their complex rhythmic variations beyond the ability of a human pianist.

James Tenney's 1974 work *Spectral Canon for Colon Nancarrow* for player piano is based on the idea of a correspondence between rhythmic and pitch interval ratios, with a 24-voice canon, where all voices share the same series of decreasing durations (*accelerando*), and superimpose to one another following a precisely determined pattern obtained by calculating the intervals between successive partials of the harmonic series, starting with the eighth one, 9:8, corresponding to a major second[44]. Besides the peculiarities concerning the piano tuning for this piece, the speed and complexity of the rhythmic patterns that are developed make it impossible for the human hands to achieve such dense, fast and precise musical results.

A more recent example, Peter Ablinger's *Speaking Piano*[45]. As G. Douglas Barrett[46] describes it, the composer mechanically turns experiences of sound into language, a concept he calls phonorealism and that consists of the sound of

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[42] See L. Siano, op. cit.

[43] In the sense of a so-called player piano, pianola or Bösendorfer's reproducing piano, or Yamaha's Disklavier, or Godfried-Willem Raes' PlayerPiano I & II, *i.a.*, but not referring to a digital piano, electric piano.

[44] C.P. Santana et al., *Modeling and Simulation: The Spectral Canon for Colon Nancarrow by James Tenney*, "Sound and Music Computing", Paris 2013 [online], http://repmus.ircam.fr/media/depaiva/smc2013.pdf (access: 25.11.2020).

[45] Constructed by Winfried Ritsch as the Computer Controlled Piano, and using a software design by Thomas Musil from the Institut für Elektronische Musik und Akustik an der Universität für Musik und darstellende Kunst in Graz (IEM).

[46] G. Douglas Barrett, *Window Piece: Seeing and Hearing the Music of Peter Ablinger* [online], https://ablinger.mur.at/docs/barrett_window_piece.pdf (access: 25.11.2020).

speech being transduced into musical tones via the musical automata of the player piano. In Ablinger's 2009 work *Deus Cantando* (God, Singing), the source of the 'speaking piano' transformed in such a way that comes from a young voice reciting the International Environmental Criminal Court declaration co-authored by the XIV Dalai Lama, in German. The recorded sound was analyzed and re-synthesized by passing it into MIDI and acoustically played by Winfried Ritsch's *Computer Controlled Piano*, making it acoustic, transformed back into sound through tones played across the range of the piano by the device sitting atop the keyboard. With practice or by using an accompanying printed text, one can actually discern the original speech, reconstituted only by piano tones[47]. The result is a very complex web of intricate outcomes that indeed sounds very close to the text and words. The piano is a key to this outcome, but I would dare to say that one could possibly achieve such a result for instance, in another sort of musical automata such as those one can find in Logos Foundation Robot Orchestra, or other similar ones.

In a different way, but taking advantage of similar possibilities, 1989 Jean-Claude Risset's *Duet for One Pianist*, where the Disklavier presents different levels of interactions with the pianist and what could be the automatized world of the device[48]. The composer used levels of interaction with, let's say, the machine, that would be virtually impossible for a performer, using both the piano conveying a musical structure that was conceived in quite a peculiar way, involving a way of thinking of playing the piano, but also the piano as an automatic element.

In the mentioned situations, although there is no direct human intervention in the role of the performance traditionally speaking, the piano sound is a key for the result. The works result from a structure that was imposed into a piano, in this case, some sort of automatized piano. Although the musical conceptions are fully tied to the instrument, in this case, it is more the idea of an automated instrument that rules, and not so much the piano characteristics in the traditional way of timbre, techniques and so on. If one would wish to see the piano and not an automatized instrument, it would appear for the piano to be in the structure and not so much being presented as structural for such works.

Also challenging what could be considered the traditional piano sound world, John Cage's prepared piano pieces set a mark on how the piano can be

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[47] P. Ablinger, [Peter Ablinger Web Page], https://ablinger.mur.at/speaking_piano.html (access: 26.04.2009); see G. Douglas Barrett, op. cit

[48] J.-C. Risset, *Composing in Real-Time?*, "Contemporary Music Review" 1999, Vol. 18, No. 3, p. 31–39.

transformed in such a way that it becomes structural for the piece, in the sense that such idiosyncratic acoustic sound processes became iconic in the musical practice of this and other composers who followed.

With a different method, but also reinventing the traditional piano sound world, Helmut Lachenmann's famous piano piece *Guero* can also be used to set a mark on how one can shift the paradigm of performing an instrument, while still being completely dependent on the sound result of this instrument[49]. In this case, by composing in ways that relate to the way of playing the Latin American instrument *guero* (or *güiro*) in different ways, such as using the friction of the nail against either the white keys of the piano with one hand and of the black keys with the other hand, playing the pegs and other ways, the composer would deconstruct the traditional way of playing the piano in a way of thinking that he early described in his 1966 article *Klangtypen der Neuen Musik* (*Sound Types for New Music*) and that was closely connected to Pierre Schaeffer's thoughts on what he called 'musique concrète' and what became known as Lachenmann 'musique concrète instrumentale'[50]. In both cases, the piano sound world is a key for the structure of the pieces, making it absolutely structural, but not as mentioned earlier in the other examples.

But what could one say about other musical practices that use the piano sound for the base of a composition? There is an untraceable number of pieces in musical practices that use recorded sounds of the piano. But does a single use of a piano sound give it a related structural effect? No. Possibly the first one that is most well-known would-be Pierre Schaeffer's 1948 third study from *Cinq études de bruits — Étude violette* (with sounds recorded for him by Pierre Boulez). The piano sounds do not seem to be the focus of Schaeffer, but a way to create new sounds and sound organizations, in an identical manner he would do in the same period with sounds of percussion instruments, the voice, or trains. As it might be interpreted by knowing his texts and music from this period, gently condensed here by the author in a note written in his journal in April 1948:

> Bien entendu, l'expérience ne paie que si elle donne lieu aussitôt à une expérimentation: des accords de piano passés à l'envers ne sont intéressants que moyennant certaines précautions.

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[49] For a more recent musical examples on such idea, I would suggest listening to Francesco Filidei's 2002 *Programming Pinocchio*, for piano, live electronics and amplifier, and his 2000 *Prélude et Toccata*, for piano, both published by Ars Publica (Filidei Francesco, Francesco Filidei's Personal Website [online], https://francescofilidei.fr/ (access: 02.01.2020).

[50] See H. Lachenmann, *Klangtypen Der Neuen Musik*, in: idem, *Musik Alsexistentielle Erfahrung: Schriften 1966–1995*, Wiesbaden 1996.

On peut tirer ainsi du piano des sonorités d'orgues, ou des volées de cloches. L'instrumentiste alors n'est plus Prix du Conservatoire, mais ingénieur du son[51].

However, not all composers were searching for the piano as means to achieve something else, some other sound world or idea. In some pieces that use recorded piano sounds, the way of playing them, the identity of the first sound construction that builds the work is inherent to the structure of the composition, making it interesting objects to reflect on in view of the present discussion.

How to think of Hans Tutschku's 2011 electroacoustic composition *Klaviersammlung*, where the composer uses recordings of old pianos from the University of Cologne musicology department performed in what he considered '*un-pianistic*' sonic expressions[52]? Being an acousmatic music piece, the performance requires an expert in sound diffusion, in the art of spatialization, not a pianist. However, the piano sounds became an important part of the structure, became structural, but not in an idiomatic way as previously described. The performer playing these pianos was Tutschku himself, both directly reinventing these old pianos, and also by the computer operating the transformations that are inherent to such acousmatic music creation.

What to say about Stefan Prins' *Piano Hero* pieces (first began in 2011–2012), that require a performer that activates digital devices evoking pre-recorded pianos and reframing them into different worlds? As the composer puts it,

the keyboard now is an electronic one, the computer serves as the transmission and the strings are played by a virtual pianist — the avatar of the pianist of flesh and blood sitting on stage — while the wooden resonating body is substituted by a set of electro-mechanical speakers[53].

In *Piano Hero #1*, the traditional idiomatic expressions of the piano are challenged since one is not directly playing on a piano, but rather an electronic

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[51] P. Schaeffer, À *la recherche d'une musique concrète*, Paris 1952, p. 17. Translated in the English version as: "Of course, the experiment only pays off if it gives rise immediately to experimentation: piano chords played backward are only interesting subject to certain conditions. Then you can get organ sounds, or peals of bells from the piano. The instrumentalist is then no longer the winner of the Prix du Conservatoire but the sound engineer." (after: P. Schaeffer, *In Search of a Concrete Music*, California 2012).

[52] H. Tutschku, *Klaviersammlung — 16-channel Electroacoustic Composition (2011)* [online], https://tutschku.com/klaviersammlung/ (access: 02.01.2020).

[53] S. Prins, *Piano Hero (2011/2012)* [online], https://www.stefanprins.be/eng/composesInstrument/comp_2011_01_pianohero.html (access: 02.01.2020).

device that activates the computer operations for each of the *Piano Hero* pieces. The piano recordings made by Frederik Croene became structural for the piece, they became a body from which the structure derives.

One could, of course, explore examples of how the piano sound transformed in real-time sound processing repertoire, or when listened to with fixed media sound sources in the realms of the so-called live electronics and mixed music, respectively. However, the medium, being the piano itself, a specific piano sound or group of sounds, or the transformation of its sounds does not significantly make it more or less structural or a part of a structure. It is not the actual means implied that are important, but the use one gives to them.

2.4. Short reflections on personal compositional situations

Shortly reflecting on my own compositional perspective, I will give a few examples of how the notions of the piano are perceived by me as being part of a structure, or as a structural element. The septet *Sangue Inverso — Inverso Sangue*[54] uses the piano as a key element to convey certain elements of the composition structure. *Sangue Inverso* (Blood Converse) is structured in seven movements, and, quite symmetrically, so is *Inverso Sangue* (Converse Blood). *Sangue Inverso — Inverso Sangue* integrates the seven movements of *Sangue Inverso* and the seven movements of *Inverso Sangue*. Each movement of either *Sangue Inverso* or *Inverso Sangue* can be performed individually. *Sangue Inverso — Inverso Sangue* implies that movement I of *Sangue Inverso* is to be performed with movement I of *Inverso Sangue*, and so forth. When the pieces are superimposed, although different tempi are adopted in each, there are specific moments in which they coordinate and synchronize. The piano is the only instrument that plays from beginning to end. Underneath those structural and semantic features, *Sangue Inverso — Inverso Sangue* further refers to the central concept of *time*. Though ultimately connoting eternity, time in this piece is seized in a number of ways, *i.a.* absolute durations and those dependent on the performer, modulations of tempo and within tempi, rhythmic contractions and expansions, all of which inflect the perceptions of interwoven flows as caused by — or reflected in — pitch, tempo, timbre, or textures[55]. In most of the compositional organization, rhythmic structures are superimposed into the instrumental writing and it is very often the piano that guides the listeners focus on such rhythmic subtleties,

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[54] For piano, flute, oboe, clarinet, violin, viola and cello.

[55] J. Reis, CD: *Solo and Chamber Works*, Munich 2021.

making it an example of how the piano conveys the structure of the piece. Concomitantly, in some movements of *Sangue Inverso — Inverso Sangue*, the *time* of a musical moment is driven by, for instance, natural resonances of the piano. Here, such characteristics make a structural element being added to the structure.

Lysozyme Synthesis[56] is the second piece of a cycle whose structure is inspired by the process of protein synthesis. In the construction of the whole piece, complementarity is a constant. It is present in different forms, in parameters such as rhythm, dynamics, timbre, and pitch. The whole piece rests upon a set of rigorous and deliberate compositional principles — discreet perhaps at first, though easily discernible in the score[57]. In this piece, although the structure was developed having in mind the piano and its own possibilities, again one could say that it would be an example of how the piano conveys the structure of the piece. The subtleties of articulation, gestures, the use of the three pedals and other elements were conceived to enhance a musical form that had a prior conception. The piece was conceived to take advantage of the piano timbres and general features, but I couldn't say that the structure fully derives from the piano.

In a different set of pieces, the cycle *Essence*, which began in 2017, is based on principles that directly derive from the instruments' *idiom*[58] in order to construct the musical *idiōma*[59]. The piano is seen as a structural element in pieces such as *Monólito. Ébano*[60], where the compositional technique refers back to autotelic processes. The development of the materials comes from intrinsic elements of the piano itself and it is intended for the listener to take pleasure in the acoustic connections of different gestures that ultimately are guided by connections of common pitches, timbres and resonances.

3. On the use of *structure* and *structural*: final remarks for the comprehension of a musical practice

If by one hand, as stated in the beginning, the distinction between structure and what one can consider a structural element in a musical practice may not always have defined borders, it hopefully became clear on how the use of an *idiōma* when applied to an instrument, at least the piano, can give an important

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[56] A 2003 piece for solo piano.

[57] J. Reis, op. cit.

[58] In the sense of the instruments' idiosyncrasies.

[59] In the sense of the way the music is structured, of the (musical) language peculiarities.

[60] A 2019 short piece for solo piano, dedicated to Ana Telles, in memoriam José Luís Ferreira.

sight on musical practice and contribute to the comprehension of the role of an instrument in a musical compositional practice.

This overall reflection can hopefully help one to understand:

– how and why the mentioned and other composers in this field make music in terms of the way a work may be organized regarding the role of the instrument, or even the media as a specificity,
– and learn about their process of composition in their relation to the specificities of the piano,
– more about the uses and functions (of the piano) in music,
– what some of the shared cultural concepts are of a group of musicians (meaning the composers, the musicians that were working with them and others who still play this music) in this field that value certain perceptive listening criteria over others.

Hopefully making such reflection meaningful to other researchers, creators, performers, and so forth, and allowing them to verify if applying such analysis on music practices can also be useful for them to understand better these or other musical practices.

The key elements here are not connected to the piano *per se*, but to the role that can be assigned to it, the way one decides to enhance the specificities of the piano in order to convey a musical idea, and to understand to what extent the main musical ideas are dependent on the piano. In other words, when the piano is here seen as a vehicle for a musical idea that does not necessarily come from or absolutely requires the piano, it is when one could argue that the piano is mainly a part of a larger structure. On the other hand, when the conveyed ideas derive absolutely from the piano characteristics, sounds, idiosyncrasies, one may be facing the piano as being a structural element. Both ideas may coexist in a piece of music independently, but also as not distinguishable. When used in a different context, with analogous examples, most likely, instead of the word *piano*, one could use another word, another musical instrument to extrapolate such thinking into other musical practices, realities and *idioms*.

SUMMARY

Is there a difference between structure and a structural element in a musical work or practice? How can one tackle such a question methodologically? Are these concepts part of an abstract construct or are they perceivable to the ear? And about whose ear would one be talking about? When does one speak about an idiomatic style (for the piano) and how much of this idea is materialized in music? Is such reflection useful to understand a musical practice? In this text, I propose a view of the piano playing the main role in the structure and as a structural element by describing compositional situations and giving a counterpoint on them. This paper is organized as follows: a short theoretical framework where the first questions are challenged, along with paradigmatic examples on how the piano has been used in the structure and as a structural element in western art music, mainly from the second half of the 20th century and nowadays, including short considerations on how and the rationale why I have used it in some of my music compositions.

KEYWORDS: Reis Jaime, piano, structure, structural, contemporary music, idiomatic

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