Polyphonic Structures:

Modular models and modular forms

(a creative investigation of mobile musical architectures)

Portfolio of compositions and commentary

Thesis submitted for the degree of Doctor of Philosophy

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I hereby declare that the present work and the works in the accompanying portfolio are my own except as otherwise specified.

8. Conclusion and further research

This dissertation seeks to prove the possibility to interlacing the concepts of momentform and modularity. Therefore, the inquiry has become an impulse, a renewal of ideas and a tool to continue building up a creative environment. Momentform as a self-contained mobile structure has been the inception seed of the research. However, the development of new entryways into the topic evolved towards unexpected areas of development. The investigation created conceptual, musical and structural linkages between modular theory, fragmentation, multiplicity, replicability and discontinuity.

The philosophical background development is a consequence of the study of Russell's logic atomism and Deleuze's multiplicity/rhizome theory. Nevertheless, both concepts have been explored within the awareness that there is a profound contradiction of conceptual applicability of two opposed ideas in parallel. On the one hand, the *logical atomism* relates generative processes. On the other hand rhizome attempts to establish a non-generative model. However, the dissertation is entirely devoted to defining a personal creative musical framework. I do not attempt to pursue or formulate any amalgamation of both theories or produce a conclusion within a philosophical hypothesis.

Likewise, the research has developed broadly diverse relational hypothesis, proposed referential functionalities and related the ideas to current relevant figures. Moreover, the dissertation attempts to provide common strategies to define the compositional procedures included in the portfolio of works. These works explore significantly and progressively the use of modularity. In this manner, the work *Within Modular Objects* extensively exploits the various issues investigated in the research.

The premises involved in the first stage of the investigation, the development and definition of an atomic musical particle, became a strategy to define the formal elements as modular agents. Accordingly, a vital terrain to establish the musical syntax and the linkages between modules has been the exploration of a structural constructivist method based on a rhizome framework. Therefore, the musical and sound relations, by themselves, are the central element of the dissertation. Likewise, the research determines a methodology to settle: supra-structures, macro-structures, meso-structures, frequency/pitch system, non-pitch sounds relations, referential pitch and sound objects. The fundamental concept has been to approach the interrelation of the modular agents as units – One as subject or object (Deleuze and Guattari 1987, p.8) – and not as diverse unrelated sound dimensions. Furthermore, the experimentation with self-quotations and appropriation quotes highlighted the importance of the contextual relation with the inserts.

I developed a collection of categories which defines the analytical framework to map multiple elements. This hypothesis is an attempt to establish a structural unity within the modularity theory. Thus, the final composition is strongly related to the preparation stage of the material. This idea made it necessary to formalize the structure of the modular agents during the sketching process. It has been a study to define modularity as an analytical method and as a framework to channel creative thinking.

Moreover, the idea of multiplicity and rhizome has confronted linear strategies based on generative developments in a cause-effect action with singularities not dependant on the contextual development. Accordingly, the momentform concept applies in supra and macro structures and

meso and micro-events. The singularities are self-contained modular-cells mapped as positions in the formal skeleton. Thus, the final contextual continuity is dependant on the primary musical material fragmentation. Moreover, a rhizome framework entails parametric relations or linkages between these modular agents (*the matrix*) and the reuse of the fragmented modules in position (mapping).

> A multiplicity has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature.
> **(**Deleuze and Guattari 1987, p.8)

> All multiplicities are flat, in the sense that they fill or occupy all of their dimensions: we will therefore speak of a plane of consistency of multiplicities, even though the dimensions of this "plane" increase with the number of connections that are made on it. Multiplicities are defined by the outside: by the abstract line, the line of flight or deterritorialization according to which they change in nature and connect with other multiplicities.
> **(**Ibid, p.9)

The interrelations between sets of pieces as a whole body of work have been described with consistently unified criteria. The modularity theory has been used as an intersect model to define diverse modular forms in the system. Consequently, modularity has been applied to the momentform concept. The enforcement of these ideas in the instrumental domain enabled a time scale definition of the sonic event as a self-contained modular-cell. Modularity is a model of *content information* which clarifies the relationship between materials and delimits each sonic event as a singularity. Defining the modular-cells by time scales and not by other parameters, enables the free application of multiple compositional techniques within the cells. The implementation of musical time scales (Roads 2001, p.3-4), has led me to focus on the smallest sonic event.

The definition of the different musical elements is divided into capsules as gesture and the microcapsule as instrumental grain or as a sound object. In this musical environment, the gesture (capsule) and grain (microcapsule) are considered self-contained elements. These sonic events of meso and sound objects time scale became atomic particles of great importance. The inquiry for the atomic sonic element inevitably directed my learning process into the domain of electroacoustic music. Accordingly, this is an area of knowledge that the investigation process itself has made crucial. However, the development of related procedures in my actual compositional work has been mainly a conceptual analogy applied to instrumental writing.

The reader can trace the initial thoughts regarding the area of interest as linked concepts of a fragmentary process, together forming complex musical structures. This idea of modularity theory is reinforced, at the beginning of the dissertation, by a methodological top-down contextualisation – from the macro-level to micro detail. Consequently, I started fragmenting the structure into smaller time scale modules. Therefore, the supra and macro formal structural interest redirected to the meso, sound object and micro time scale. Thereby, the initial compositional hypothesis shifts from the top-down to the bottom-up process. Accordingly, my interests migrated towards the micro. The experimentation with the micro-particles led me to work on textures and masses that can evolve

polyphonically from the smallest musical event to the macrostructures. Therefore, parametrically and textually speaking, the micro-processes are better controlled and the macro-level richer. This change in perspective is a direct consequence of the inquiry itself. In particular, the consideration of the atomic particle (microcapsule) is as a singular unit. Furthermore, the subject-matter of a bottom-up compositional strategy had an impact on how I should move forward in future electronic and instrumental research.

However, it does not mean that top-down development is not consistent with the established criteria and the main research area (polyphonic structures). Likewise, considering the fragmentary procedure applied and the microcapsule as a distinctive unit, discontinuity has been investigated in detail. If the structure combines modular-cells developing discontinuous and continuous syntax, the formal structure develops a bias towards a systematic dichotomy. Therefore, when the architecture of the entire sub-piece or set of sub-pieces relates to continuity, how and when to break the juxtaposition of confronted musical materials is one of the critical issues. The juxtaposition of fragments, which can be grouped in blocks by typologies, can be perceived as a structural confrontation of an [A-B-C and so on] situation. Consequently, using concatenated chains of related and unrelated modular-cells implementing distinctive principles and processes, is a recurrent compositional device. Nonetheless, the development of both vertical and horizontal strategies breaks down the cause-effect binary thinking. Likewise, the rhizomatic framework has an inherent capability of exchanging information on a platform of interactions between equals. This enabling of the application of referential musical elements creates a model that unifies reactive procedures. Moreover, it is an entryway to transitionally and mutability.

> If it is true that it is of the essence of the map or rhizome to have multiple entryways, then it is plausible that one could even enter them through tracings or the root-tree, assuming the necessary precautions are taken (once again, one must avoid any Manichaean dualism). (Deleuze and Guattari 1987, p.14)

Considering a net where the functions are not hierarchic but regions of similarities and aggregates of modular class sets, the basis of the transformations are the exchange of musical material. The model maps the positions of singularities and generates a matrix of relational linkages. This approach materialises as modular class sets and as relational parameters in the cross sets. Thereby, the use of self-referential and appropriation quotes relates the research to montage and collage. However, the compositions included in the portfolio deliberately avoid pastiche, or a clash of aesthetics by confrontation.

Thus, a very obvious strategy is the replication of the same outline to define a structural liaison. As mentioned before, the modular-agents allow subdivisions of the material into smaller layers of defined duration recombined with other modular-agents.

To conclude, a system based on modularity helps to work independently with a significant number of strategies – musical and sound information – and control the parameters in an isolated manner. Moreover, it creates a correlation between macro and microstructures, developing replicable structures throughout the entire formal stratum. Therefore, the implications of applying the momentform concept when considering the structure as a self-contained sonic event in the meso or sound object time scale, made me understand the event itself as a unit of sound, emancipated from

the contextual supra or macro structure. Moreover, discontinuity is highlighted and developed within a framework of dissociated linkages and positions. Therefore, the modular model is applied in all the working stages of the creative process: it defines the material by typologies of self-contained elements and clarifies the position of linked modules in cross sets. The consequence is a contained and defined framework to map and create musical unity within the independent sub-pieces. In this manner, this conceptualisation of the musical environment emerges as a new creative perspective with personal compositional implications that made me rethink my work as a composer: the musical and non-musical time scales, the procedures applied and the nature of the musical sound object. These elements form the body of action in what Deleuze and Guattari (1987, p.4) would call "the plane of consistency".

As a result of this, this concept – the plane of consistency – had enormous implications on my compositional approach in organising the musical elements parametrically and structurally. Therefore, the initial defining model of the polyphonic structures as horizontal/sequential and vertical/overlapped structures has been expanded and reinforced by understanding fragmentation not as an end but as an opportunity for new connections within an endless chain. This principle framed the sonic event within the idea of a "gestalt" where the whole is more than to the sum of the fragments. Moreover, when the fragment becomes an independent unit not dependant on a specific context, it germinates as a signifying referentiality. Consequently, the research provides a unified ecosystem of metamorphic musical entities. In this manner, this systemic mutability derived from both the transformation of the unit or the context, provides the adequate skeleton where multiplicity and modularity theory can be understood as a possible milieu within which the conceptual contradiction inherent in parametrical processual context (linear) and momentform (dimensional) are brought together as a whole.

Thus, the contribution of this dissertation is a constructivist framework development within a cross-linkage system and with no end. However, it is also a framework to relate form, structure, context, narrative and sonic events in a bottom-up process. To sum up, the initial idea of momentform as a polyphonic structure continues being vital to the general development and to my system of composing. However, I can assert that the interrelation of non-linear sequential traces is what opened the window for parametric relations in different time scales and moments as polymorphic and polyphonic structures, and it is which has so inspired my compositions.

> You always have to start any kind of argument from something which appears to you to be true; if it appears to you to be true, there is no more to be done. You cannot go outside yourself and consider abstractly whether the things that appear to you to be true are true. (Russell 2010, p.3)

In accordance with Russell, even in philosophical argument, there is a degree of personal conviction on what is true. Undoubtably, it also happens in composition. Although the subject-matter explored in this dissertation is vividly true to me, may not be immediately apparent to others. Yet, despite that, I am convinced that the reader has found inspiration in the ideas presented above. I have pursued a rigorous process to materialise the concepts explored into compositions, as presented in the portfolio of works. This dissertation, therefore, is both a personal artistic statement as well as a documentary evidence of the research process.

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