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Graduate Program in Music
A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of
Philosophy
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A Study of Form and Structure in Pierre Boulez's *Pli selon Pli*

(Thesis format: Monograph)

by

Emily J. Adamowicz

Graduate Program in Music

A thesis submitted in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy

The School of Graduate and Postdoctoral Studies
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London, Ontario, Canada

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Abstract

In his 1963 treatise, *Penser la musique aujourd'hui*, Pierre Boulez proposes that there should be no distinction between serial materials and large-scale form. After his self-professed failure with *Structures Ia* and *Polyphonie X* due to the incapacity of the twelve-tone series to provide form in and of itself, Boulez reassessed and expanded his compositional approach to include what he refers to as “indiscipline,” which permitted him a new freedom to modify his materials as he saw fit through a plethora of new techniques, and to link these materials to large-scale forms that take their inspiration largely from literary influences. This investigation seeks to concretize Boulez’s proposed relationship between serial content and large-scale form in “Don” (1962) and “Tombeau” (1959), the framing movements of *Pli selon Pli*, largely by establishing the nature of their formal organization and the origin of the serial materials used in their construction. The course of this investigation traces the developmental history of materials used in “Don” and “Tombeau” which includes analyses of materials used in the unpublished *Oubli signal lapidé* (1952), the retracted drama *L’Orestie* (1954–55), the unpublished work for solo flute *Strophes* (1955–56), the *Troisième Sonate* (1955–57), *Le Marteau sans maître* (1953–55) and the inner movements of *Pli selon Pli*: the “Improvisation[s] sur Mallarmé I, II, and III” (1957, 1957, and 1959 respectively). The materials developed for “Don” and “Tombeau” are largely continuations of different lineages of serial materials developed for these earlier works and form constellations of structurally related materials that persist beyond the boundaries of individual works. Taken together, the works composed during the period 1952–62 are the most inspired and creative in

Boulez's compositional history. The trajectory of this investigation incrementally introduces the reader to increasingly larger-scale means of organizing serial materials that culminate in Boulez's evolving theory of discontinuous musical form.

Connections among works and their organizational structure are largely derived from sketch studies undertaken at the Paul Sacher Foundation in Basel, Switzerland.

Keywords

Pierre Boulez, music theory, musical form, integral serialism, serial music, Modernism, aesthetic theory, sketch studies, quotation, *Pli selon Pli*, *Le Marteau sans maître*, "Improvisation sur Mallarmé," *L'Orestie*, *Strophes*, *Oubli signal lapidé*

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Chapter One: A New Approach to Serial Composition

1.1. The Technical Musical Work

My first exposure to the music of Pierre Boulez was an analysis of the structure of *Structures 1a*. It was a straightforward analysis of the pitch-, rhythmic-, duration-, and articulation-series that govern the local form of the work. This chapter provides an overview of Boulez's critique of his own technique in *Structures 1a*, his rejection of the work as music on the grounds of its "theoretical exaggeration," and how a discussion of this work ultimately becomes a springboard for a more flexible approach to composition as evidenced by a group of works composed during the period of 1952–62, illustrated in the Fig. 1.1.

- Oubli signal lapidé*, 1952 (for twelve solo voices, unpublished score and autograph manuscripts available at the Paul Sacher Foundation)
- L'Orestie*, 1955 (incidental music for drama, retracted, autograph manuscripts available at the Paul Sacher Foundation)
- Strophes*, 1956 (work for solo flute, unpublished, score and autograph manuscripts available at the Paul Sacher Foundation)
- Don*, 1960 (an early version of the first movement to *Pli selon Pli*, for solo piano, later revised and rescored for orchestra, unpublished)
- Le Marteau sans maître*, 1955 (chamber ensemble, perhaps Boulez's most famous work alongside *Pli selon Pli*)
- "Improvisation sur Mallarmé I, II, and III," 1957, 1957, and 1959 respectively (the first two improvisations for chamber ensemble were composed together of similar style and length; the third was composed later and is more substantial, scored for orchestra; the three constitute the three central movements of *Pli selon Pli*)
- "Tombeau," 1959 (orchestral final movement of *Pli selon Pli*, composed at the same time as "Improvisation sur Mallarmé III")
- "Don," 1962 (orchestral first movement of *Pli selon Pli*, composed last, and revised from the earlier version for solo piano, and a second version for solo piano and soprano)

Fig. 1.1. Works composed during the period of 1952-62

The ramifications of serial technique on large-scale form are also introduced through *Structures Ia* in that there is little to connect the serial content of this work with any discernible large-scale form given the limitations imposed through Boulez's exclusive use of the series for organizing local form. Charles Rosen has observed that, in *Structures Ia*,

...the extreme nature of the work lies in this: that its form is minimal, not zero, but the absolute minimum of form that arises from the interaction of the morphological elements without (or almost without) the composer's intervention. The purpose of the piece is to expunge the presuppositions of a form that are traditionally embedded in the morphological elements, and thus to create the basis for a new language of music.¹

In essence, *Structures Ia* poses a fundamental problem to the development of large-scale form in serial music. In reaction to Schoenberg's merging of traditional form with serial techniques before the latter's potential had been adequately explored, Boulez felt the need to destroy any last vestige of traditional form in order to begin again unburdened by traditional expectations.

Theodor Adorno articulates the problem of a work like *Structures Ia* succinctly. He believes that the composer's use of a common denominator like serialization applied to all musical parameters—while intended to be an effort to liberate the musical work from any outside influence—instead has the effect of reducing the work to the collection of its elements. While with the musical work, Adorno asserted that the whole is usually greater than the sum of the parts, when serial techniques govern each element of the music, the whole is dissolved into its parts: it does not reach something greater.² The

¹ Charles Rosen, "The Piano Works," in *Pierre Boulez: A Symposium*, ed. William Glock (London: Eulenberg, 1986), 93–94.

² T.W. Adorno, *Sound Figures*, trans. Rodney Livingstone (Stanford: Stanford University Press, 1999), 201. Originally published as *Klangfiguren* in *Musikalische*

image of the composer mastered by his technique rather than vice versa is also captured by György Ligeti's infamous metaphor of Boulez's compositional process in *Structures Ia* as "inserting a coin in a slot-machine." The image of a slot-machine suggests that the composer is somewhat indifferent to the outcome, and that the process has been permitted to take precedence over the musical result. Ligeti made the following reference in his analysis of the work:

You stand before a row of automata, and are free to choose which one to throw into, but at the same time you are compelled to choose one of them; you build your own prison as you please, and once safely inside you are again free to do as you please. Not wholly free, then, but also not totally compelled.³

The image of the automaton, and of inevitable, forward-marching progress holds a particularly macabre sensibility during the 1950s, so much so that the fear of music assimilating these qualities was understandably cause for concern given the nature of recent and contemporary historical events. One need not look far for chilling reminders of scientific progress that coincide with musical progress. For instance, Mark Carroll observes that Boulez's *Structures Ia* was given its premiere the same day that a nuclear device was detonated in the Nevada desert.⁴ Such juxtaposition, though likely unknown to the composer at the time, illustrates the nihilism associated with progress and the dark tone that emerges when surveying the contemporary music scene. Carroll notes that, at

Schriften I-III, Vol. 16 of *Gesammelte Schriften*, ed. Rolf Tiedemann (Frankfurt am Main: Suhrkamp Verlag, 1978).

³ György Ligeti, "Pierre Boulez - Decision and Automatism in *Structures Ia*," *Die Reihe* 4 (1958): 36. Originally published as *Pierre Boulez - Entscheidung und Automatism in Structures Ia*.

⁴ Mark Carroll, *Music and Ideology in Cold War Europe* (Cambridge: Cambridge University Press, 2003), 142.

this point in history, imagination was no longer required as to where the initial breakthroughs in science and politics were to lead. With atomic weaponry, international war, and the outcome and effect of totalitarian regimes, the consequences were known, and known to be horrible.

The artifices created as a result of these pursuits were no longer ‘prisoner to the imagination’ because the research was initiated with no real sense of where it might lead, or what might be produced as a result. In this sense each even could well be regarded as the pursuit of earlier innovations to ultimately untenable conclusions. In *Structures Ia* Boulez effected a realization of the ultimate potential of Schoenberg’s emancipation of the dissonance; the atomic bomb was a practical consequence of Einstein’s theories regarding the behavior of atoms.⁵

There was a general sense that human morality had not prevented atrocities such as war, genocide, and political repression and, at the height of the Cold War, newfound technologies could bring about total global devastation. Having reached the extents and limits of technique in works like *Structures Ia* and *Polyphonie X*, Boulez’s primary goal with regards to his development of technique were to serve his subjective desires while maintaining a sense of logic and coherence to avoid the pitfalls of chance.

1.2. *Le Marteau sans maître* as the Turning Point

Beginning with *Le Marteau sans maître*, Boulez developed an approach to composition that would satisfy his need for greater creative freedom through the incorporation of flexibility into his technique. In an attempt to avoid the over-technicalization of music that he viewed as a symptom of the systematic suppression of subjectivity in serial music, he developed the means to wield it in a way that would serve his momentary impulses as well as his longer-term goals. Boulez had said in an interview

⁵ Ibid., 143.

with Célestin Deliège that, with works like *Structures Ia* and *Polyphonie X*, he wished “to bring everything into question again, make a clean sweep of one’s heritage and start all over again from scratch, to see how it might be possible to reconstitute a way of writing that begins with something which eliminates personal invention.”⁶ One could argue that *Structures Ia* was a historical necessity, a constructive exercise, or a theoretical document, that provided Boulez with a departure point from which to reinitiate the exploration into the extents and limits of serial technique on his own terms.⁷ Boulez unflinchingly engaged the technical impulse he felt was necessary for the rebirth of the serial technique.⁸ However, the notion of making a clean sweep of one’s heritage refers as much to rejection of traditional form that he found so contemptible in Schoenberg’s approach to form in serial music. Boulez treats the tradition selectively, contextualizing certain composers and works as worthy of idealization while others are discarded—mining the tradition for what he found to be valuable. While he acknowledged the limitations of a work like *Structures Ia*, subjectivity could not simply be reinstated without discarding that which had led to its destruction in the first place.

⁶ Pierre Boulez, *Pierre Boulez: Conversations with Célestin Deliège* (London: Eulenberg Books, 1976), 56.

⁷ Rosen refers to this work as a “kind of manifesto” while Edward Campbell refers to it as an “epistemological metaphor.” Both suggest, in line with Boulez, that *Structures Ia* is not necessarily music but is, rather, about music.

⁸ Boulez argues: “But how could the new technique be properly tested if one took no trouble to find specifically serial structures? And by structure I mean everything from the generating of the component materials right up until the global architecture of the work. In a word, Schoenberg never concerned himself with the logical connection between serial forms as such and derived structure.” Pierre Boulez, “Schoenberg is Dead,” in *Stocktakings from an Apprenticeship*, ed. Paule Thevenin, trans. Stephen Walsh (Oxford: Oxford University Press: 1991), 212. Originally published as “Schoenberg est Mort,” in *Relevés d’apprenti* (Paris: Editions Seuil, 1966).

The burden levied upon composers of Boulez's generation to discard and disown certain aspects of their tradition must be understood in order to contextualize the destructive impulse of a work like *Structures Ia*. Disengagement from the past became necessary, a vital sacrifice, even, as the past was too much with them to be able to move forward.

It is really only in this context that we can fully grasp the rebellion of the radical young composers against all the traces of the traditional building blocks of a musical language, and ultimately against musical meaning itself. What they reject in music is everything that reminds them of language, and they reject it in order to put an end to the false peace that is radiated today by everything redolent of language and meaning and that therefore denies negativity, the agent of tension.⁹

After the catharsis of *Structures Ia* and *Polyphonie X, Le Marteau sans maître* functions as a springboard for the complex methods that Boulez developed to endow his music with manifold interconnections that he believed would guarantee the unity of the musical work and organically generate large-scale form without the imposition of traditional formal schemes. Boulez's goal was to create a system of techniques that would allow large-scale form to arise from serial content itself in combination with technique, as the series itself was insufficient. Because Boulez uses similar compositional techniques throughout works of this period, and because he derives new materials for the later works from earlier ones, it is necessary to think of the groups of works spanning *L'Orestie* and *Pli selon Pli* as an integrated and interrelated collection that, as a whole, exhibits the shift away from the serial work as a succession of unfolding series, to the serial work that, although deriving its materials from an originating row, bases its content on accumulated developments of particular components of the series.

⁹ T.W. Adorno, "Criteria of New Music" in *Sound Figures*, trans. Rodney Livingstone (Stanford: Stanford California Press, 1999), 180.

Le Marteau has become the masthead of Boulez's new and flexible approach to technique, a watershed moment in his endeavor to explore the potential of serial techniques, endow them with his unique brand of logic, and use them as a vehicle for exploring the boundaries of musical form and musical time itself. According to Adorno,

Boulez's *Le Marteau sans maître* is a modern *Pierrot Lunaire*, forty years younger, not just because of its assembly of brief forms, the colorful contrasts of the chamber orchestra and the plenitude of thematic figures, but above all because it achieves expressiveness through an articulation oblivious of self.¹⁰

And yet by naming the work *Le Marteau sans maître*, or the “hammer without a master,” Boulez elicits caution about the constant battle to retain control over technique.¹¹ *Le Marteau* seems to translate the composer's awareness of the condition of serial music as a constant interplay between technical restraint and subjective freedom. *Le Marteau* is, in a sense, restitution and an attempt at reconciliation between technique and creative freedom. It is ironic that, by reinstating his creative will and consequently reengaging his mastery over the work, the title is a functional warning of the double-edged blade of technique. In an essay discussing the relationship between literature and the *Troisième Sonate*, Boulez provides the following observation on the nature of the novel, which also works as a particularly apt analogue at describing the manner in which *Le Marteau sans maître* professes the composer's awareness of the challenges of maintaining control over technique in the contemporary musical environment:

The novel observes itself *qua* novel, as it were, reflects on itself and is aware that it is a novel—hence the logic and coherence of the writer's

¹⁰ T.W. Adorno, *Quasi una Fantasia: Essays on Modern Music*, trans. Rodney Livingstone (London, New York: Verso, 1992), 219–20. Originally published as *Quasi una Fantasia* (Frankfurt: Suhrkamp Verlag, 1963).

¹¹ Adorno, *Sound Figures*, 180.

prodigious technique, perpetually on the alert and generating universes that themselves expand. In the same way music, as I see it, is not exclusively concerned with “expression,” but must also be aware of itself and become the object of its own reflection. For me, this is one of the primary essentials of the language of poetry, and has been since Mallarmé, with whom poetry became an object in itself, justified in the first place by poetic research, in the true sense.¹²

There have been numerous attempts to decode the message behind the title and text of *Le Marteau* and Boulez’s selection of this particular text. Susan Bradshaw, Peter Stacey, and Joan Peyser have attempted to decode the intended meaning of the work, focusing largely on the title and the text by René Char. The complete text is provided in Fig. 1.2.

Bradshaw focuses her interpretation on the title of the work, suggesting that:

The title of the work...immediately suggests something of its extraordinarily hypnotic, almost oriental quality, achieved through the setting in motion of a number of musical gestures which are then allowed, as it were, to develop their momentum. The poems themselves (three of which are woven into the fabric of the music), although obscure in detail, would appear to evoke the eternal struggle of Everyman and his efforts to escape from the enclosing circle of material existence, from a [civilisation] that marches inexorably towards its doom, regardless of the individual... hence ‘the hammer without a master’. Boulez’[s] musical evocation of artistic endeavor as the struggle to master, rather than to be mastered by, the machinery of its own technical creation, is equally vivid.¹³

A more involved examination of the text of *Le Marteau* is provided by Peter Stacey who endeavors to uncover the meaning of Char’s surrealist poetry and the composer’s setting of the text. Stacey proposes that “it is possible to read the text as a commentary on the hopelessness of political involvement, the inevitable failure of

¹² Boulez, “Sonate, que me veux-tu?,” in *Orientations: Collected Writings*, ed. Jean-Jacques Nattiez, trans. Martin Cooper (London: Faber and Faber Ltd., 1986), 144. Originally published as “Sonate, que me veux-tu?,” *Meditations 7* (1964): 61–75.

¹³ Susan Bradshaw, “The Instrumental and Vocal Music,” in *Pierre Boulez: A Symposium*, ed. William Glock (London: Eulenberg Books, New York: Da Capo Press, 1986), 159–60.

revolution and political idealism. The opening line of the first poem, significantly entitled *l'artisanat furieux*, presents one aspect of an unacceptable society—the repressive institution of the prison.”¹⁴

L'artisanat furieux

La roulotte rouge au bord du clou
Et cadavre dans le panier
Et chevaux de labours dans le fer à cheval
Je rêve la tête sur la pointe de mon couteau
le Pérou

The furious artisans

The red caravan on the edge of the nail
And the corpse in the basket
And plowhorses in the horseshoe
I dream the head on the point of my
knife Peru

Bourreaux de solitude

Le pas s'est éloigné le marcheur s'est tu
has fallen silent
Sur le cadran de l'imitation
Le Balancier lance sa charge de granit réflexe
reflex granite

Hangman of solitude

The step has gone away, the walker
On the dial of imitation
The Pendulum throws its load of

Bel édifice et les pressentiments

J'écoute marcher dans mes jambes
La mer morte vagues par dessus tête
Enfant le jetée promenade sauvage
Homme l'illusion imitée
Des yeux purs dans les bois
Cherchent en pleurant la tête habitable.
habitable

Stately building and premonitions

I hear marching in my legs
The dead sea waves overhead
Child the wild seaside pier
Man the imitated illusion
Pure eyes in the woods
Are searching in tears for the head

Fig. 1.1. English translation of René Char's *Le Marteau sans maître*¹⁵

The political aspect of his interpretation is furthered by Joan Peyser, who proposes the following:

¹⁴ Peter F. Stacey, *Boulez and the Modern Concept* (London: Scholar Press, 1987), 66.

¹⁵ The author's translation.

...the composer's alterations of tempo, his holding back and thrusting forth of movement, his startling breaks in sound are characteristic of the piece and serve to further Char's message, which is that we are in the grip of a [civilization] that is marching inexorably towards its doom, independent of the individual. For Boulez, the "hammer without a master" appears not only to be [civilization] in general but an [automatised] musical system in particular, a 'timetable of trains' he has called it, 'that never move'...Here Boulez exhibits a complete union of word and sound and does that despite the use of a poem in which each word has a weight and meaning of its own.¹⁶

Steven Winnick compares the aesthetics of Char's poetry to the structural disposition of the work: "*Le Marteau*'s glassy, ethereal sound of pulverized, constantly changing pitches, dynamics, timbres, and rhythms mirrors the surrealist poetry of René Char upon which the composition is based. This kaleidoscopic soundscape seems as fragmented as the text, and both transmute the irrational chaos of our age into music."¹⁷

Given these readings of the text's meaning, the observation that innocence had been lost gains greater significance. *Le Marteau* can be read as Boulez's acknowledgement of the consequences of fetishized technique. The system could no longer be an end unto itself. There is some irony to the fact that it is in *Le Marteau* that Boulez seeks his freedom and begins to expand well beyond the traditional serial techniques in a manner that allowed him a remarkable deal of flexibility and freedom. In an observation of the artist Paul Klee, Adorno provides a poignant observation:

It is up to the composer to decide whether to make it easy for themselves by relying on the method, or whether they will learn that the method, if it is ever to be anything more, will make it harder for them without their ever being able to evade its demands. Klee's comment that art starts at the point where

¹⁶ Joan Peyser, *Boulez* (London: Schirmer Books, 1976), 102.

¹⁷ Steven Winnick, "Symmetry and Pitch-Duration Associations in Boulez's *Le Marteau sans maître*," *Perspectives of New Music* 24, no. 2 (1986): 285. Also see Wayne Wentzel, "Dynamic and Attack Associations in Boulez's *Le Marteau sans maître*," *Perspectives of New Music* 29, no. 1 (1991): 142–70.

the system no longer works, a comment which in an artist as methodical as Klee of course presupposes the system, is an insight that has not yet been appropriated by the latest generation of composers.¹⁸

Yet Boulez does appropriate this philosophy and intentionally builds into his systems the potential for innumerable musical realizations. The system *is* presupposed, meaning that it would be inconceivable for a composer such as Boulez to abandon systemization. Yet in *Le Marteau*, he also reserves the right to modify or manipulate systematically generated materials at any given moment and in any manner conceivable. Boulez has been quoted as saying: “I have the sort of temperament that tries to invent rules so as to have the pleasure of destroying them later: it is the dialectical evolution between freedom of invention and the need for discipline in invention...The difficulty is to find a point of balance, or at least a constant interchange, between these extremes.”¹⁹ While this sentiment was perhaps designed to be inflammatory, it alludes to a philosophical stance that pervades Boulez’s compositional theory: composition does not so much begin where the system ends, but the system must be sufficiently flexible and extensive so as to make composition itself possible.

1.3. The Genealogical Approach to Analyzing Boulez’s Music

This investigation is not strictly technical, while it does suppose a basic premise that a basic knowledge of a work’s physiognomy, and the techniques it employs is a crucial component of the analytic process. As Adorno has observed, the word “technique,” after all, points to human agency in the creation of meaning: it reminds us of

¹⁸ Adorno, “Criteria of New Music,” 181.

¹⁹ Boulez, *Conversations with Célestin Deliège*, 64.

the human subject, however that may be constituted.²⁰ But I attempt to move beyond the limits of technique as a means of connecting local structural phenomena, derived largely from predetermined material to large-scale form, which cannot be explicated by systematic means. It is in the construction of large-scale forms that Boulez begins to reveal his inspirations, and constructs these forms according to abstract spatial metaphors inspired largely by philosophical and extra-musical ideas. The realization of these forms is largely attributable to the general ordering and sequences of events suggested by materials designed to organize local form. The organic generation of large-scale form, and its coincidence with ideas of form borrowed from the literary and visual arts that present themselves largely as abstract, spatial metaphors in Boulez's designs, challenge the notion that the systematization of serial materials cannot yield form. While this is indeed the case in works such as *Structures 1a* and *Polyphonie X*, Boulez's rapid expansion of serial techniques, and his fundamental reconception of the series from a traditional theme to a generalized series of intervals that provides the foundation of extensive constellations of developed materials, allows systemized elements from local structural organizations to influence large-scale form. While systemized materials have influence over the large-scale form of works from this period, their influence is determined by the composer, and is not followed in the same manner as in earlier, technical artworks where serial succession governs all aspects of local form. Beyond succession, Boulez employs the concepts of symmetry, circularity, and above all, the interweaving of threads of developed materials, as a means of bringing art and freedom to

²⁰ Adorno, *Sound Figures*, 198.

the construction of large-scale form and, consequently, supersedes the restrictions of the integral serial system he had previously placed upon his own creative endeavors.

Because Boulez employs both highly complex procedures for transforming serial materials alongside passages that have defied explanation despite multiple endeavors to characterize their organization, there is a coexistence of materials that are immediately accessible to the analyst and those that remain beyond reach. Consequently, there are two streams of approaches to the analysis of Boulez's music, one that addresses musical phenomena as they arise, and one that more heavily involves engagement with the precompositional domain as a vehicle for informing later incarnations of Boulez's seemingly continuously developing materials. The former can be referred to as the *phenomenological approach*, the latter the *genealogical approach*. The phenomenological approach to Boulez's music involves the appreciation of, not necessarily the "surface" of the music, but its experiential power: the perception of the temporal and gestural elements and the near-subconscious apprehension of form taking place that many writers have attempted to describe with a mixture of aesthetic and technical language. The genealogical approach largely begins with the phenomenal, which acts as somewhat of a seducing agent to lure the curious in to attempt an explanation for the perceptible tension and alternation between organization and creative freedom that pervades the music, and its power to speak to the artist's complex to be both craftsman and creator. While certain elements of the music can be articulated according to both strict and loose governing agents, others are left pleasantly inexplicable other than to be ascribed to Boulez's spark of creative genius. I will wholeheartedly admit being biased towards the desire to explain the systematic and capricious organizational forces

within Boulez's music by heavily relying on the pre-determined aspects of materials developed in the precompositional domain, but that does not preclude my approach from moments of phenomenological preoccupation, particularly with regards to Boulez's treatment of and seeming power to manipulate the experience of time through his approach to musical form.

The genealogical approach is predicated largely on the study of sketches and involves musicological sleuth-work to locate the composer's paths of deriving structures that ultimately appear in the musical score. In this endeavor, I am in the company of analysts including pioneers Lev Koblyakov and Robert Piencikowski, and my primary contemporaries and mentors, Catherine Losada and Erling Guldbrandsen, among others.²¹ While the majority of analytic methodologies focus on tracing lines of descent, the modes of generating materials unique to Boulez are particularly complex, and have largely defied analysis due to the restricted access to his sketch materials that comes with their

²¹ Lev Koblyakov, *Pierre Boulez: A World of Harmony* (London: Harwood Academic Publishers, 1990); Catherine Losada, "Complex Multiplication, Structure and Process: Harmony and Form in Boulez's *Structures II*," *Music Theory Spectrum* 36, no. 1 (2014): 86–120; idem, "Isography and Structure in the Music of Boulez," *Journal of Mathematics and Music* 2, no. 3 (2008): 135–55; idem, "Simplifying Complex Multiplication," (paper presented at the annual meeting of the Music Theory Society of New York, Saratoga Springs, NY., April 2006); Robert Piencikowski, ed., "Tombeau" Nr. 5 aus dem Zyklus "Pli selon pli," *Facsimile of the Draft Score and First Fair Copy of the Full Score*, A Publication of the Paul Sacher Foundation (Vienna: Universal Edition, 2010); and idem, "Assez lent, suspendu, comme imprévisible": Quelques aperçus sur les travaux d'approche d'"Éclat'," *Revue internationale de critique génétique* 4 (1993): 51–67; Erling E. Guldbrandsen, *Tradisjon og tradisjonsbrudd: en studie i Pierre Boulez: "Pli selon Pli" – Portrait de Mallarmé* (Oslo: Universitetsforlaget, 1997); *ibid.*, "In the Plural: Institutions, Pluralism and Critical Self-Awareness in Contemporary music," in *Papers from Three Seminars on Contemporary Music Organised by Department of Musicology, University of Copenhagen, as part of ISCM's World Music Days 1996*, ed. Søren Møller Sørensen (Copenhagen: Department of Musicology, University of Copenhagen, 1997), 14–22. And Pascal Decroupet, ed., *Pierre Boulez, Le Marteau sans maître, Facsimile of the Draft Score and the First Fair Copy of the Full Score*, A Publication of the Paul Sacher Foundation (Mainz: Schott, 2005).

largely being housed in Switzerland and France at facilities that require on-site study. Tracing the derivation of materials allows the analyst to uncover the processes by which Boulez generates new materials from existing ones, thus expanding the potential of a given series. Such an approach reveals Boulez's compositional processes and, as is critical to the current investigation, allows for the concretization of Boulez's assertion that large-scale form is dependent upon local structures. We can also explore Boulez's assertion that the development of structural inter-connections creates a framework for truly serial form.

There have been several critiques of this type of analysis in application to the music of Boulez. For example, the following comment by Steve Turner grasps such an approach as an attempt to explicate the composer's intentions, suggesting that the psychology of the composer is the goal rather than his compositional process:

The imaging of the music analyst as some kind of aesthetic Sherlock Holmes here is significant. Such intentions relegate the consideration of the affective qualities of the music itself to mere periphery; as if the analysis of a piece of music should always lead us back, behind the piece, to the Composer.²²

But, I would argue, such an analytic approach does not lead to the composer in terms of psychology or, particularly, the composer's *intent*. More simply, a thread through the composer's process for developing his technique and materials, and thus his style, is illuminated. Susan Bradshaw has been critical of such an approach and goes into greater detail in explicating her rationale:

Based as it is on a logic so profound as often to be willfully self-concealing, we are left with the suspicion that the composer has closed the door on the

²² Steve Sweeney Turner, "Book Reviews: Pierre Boulez by Dominique Jameaux, Susan Bradshaw; *Pierre Boulez: A World of Harmony* by Lev Koblyakov; *Pierre Boulez/John Cage: Correspondence et documents* by Jean-Jacques Nattiez; "Dancers on a Plane: Cage, Cunningham, Johns by Judy Adam," *Tempo* 178 (1991): 40.

origins of his own work and long since thrown away any key that might unlock the secrets of its step-by-step evolution. Hence the temptation to embark on an analytical unpicking of the musical stitches—in the often forlorn hope that the eye might at least help to uncover structural implications not easily perceived by the ear alone. But here pitfalls abound: however apparently “simple” the conceptual starting point, Boulez’s music derives its characteristic richness from a decorative camouflage that effectively disguises all clues to the technical procedures involved—so leaving the would-be analyst tip-toeing anxiously, sometimes fretfully, through the maze.²³

And yet the genealogical approach provides a map of the labyrinthine processes that generate cascades of structures from an initiating series. The process of uncovering complexity need not be stress-inducing. There is comfort in knowing that, through this methodology, a clearer understanding of Boulez’s works and his working methods emerges. Any false comfort taken in being able to explicate a few of his procedures is replaced with the knowledge that it is unlikely that any of Boulez’s works will ever be completely explained in terms of their construction. To employ a truism, it is the journey, not the destination that must come to the fore in Boulez’s scholarship and must provide an end unto itself.

1.4. The Challenges of Sketch Analysis

As Boulez moves beyond the constraints of thematic serialism, so too must the analyst. In the course of this investigation, I use my own studies of Boulez’s sketches while taking inspiration from those who have attempted to provide a broader understanding of technique and its role in Boulez’s music including Piencikowski, Losada, and Guldbrandsen, among others. These particular analysts address the transition from compositional system to score, and take into account elements of the creative

²³ Susan Bradshaw, “Pierre Boulez at 65,” *The Musical Times* 131, no. 1765 (1990): 127.

process that serialization alone cannot. Each has undertaken extensive study of Boulez's sketches to further understand the relationship between the mechanical generation of serial materials and the musical score. It is my belief, as well as the foundation of my methodology, that, given that Boulez obscures clues as to his compositional techniques in his writings, sketch studies are the primary, reliable means of substantiating his compositional process. Studies by Piencikowski, Losada, and Guldbrandsen share a methodology I have termed "sketch to score," which relies upon primary source materials to unveil relationships among the structural phenomena in this group of works.

Given the degree of structural interconnectivity among materials in many of Boulez's works, it is often possible to analyze a given passage in a variety of ways, but through the sketches, the origin of certain materials can be traced, providing a glimpse into Boulez's mazes and networks of related and developing materials. Revealed in the sketches are the intricate and idiosyncratic compositional techniques that illuminate Boulez's musical theory in general, and his theory of form in the serial domain in particular. Sketch studies have the power to concretize the dialecticism that pervades his writings on music and establishing the means by which he synthesizes seemingly disparate compositional states in a manner that a phenomenological approach cannot to the same degree. A sketch-based approach can show how different lineages of materials developed from different series, termed "developing hierarchies" by Boulez, ultimately inform the construction of large-scale form in a process that is surprisingly organic. In essence, it can show how materials are generated, how they evolve, and ultimately, how they come to appear in a particular work, passage of a work, or a variety of works.

One of the challenges of a sketch-based study of Boulez's techniques is the difficulty in reproducing Boulez's sketches for study by a wider audience given the generally poor quality of his sketches and the minuteness of his writing. The composer was known to sharpen his pencils with a razor to make his notation as small as possible. Even the best reproductions of Boulez's sketches seen in facsimile editions of *Le Marteau sans maître*²⁴ and "Tombeau"²⁵ are often illegible. Also, given the small size and general penmanship of Boulez's annotations, it is often possible to glean only fragments of what is written, a problem further compounded by the composer's unique brand of shorthand. Patricia Hall addresses this general challenge and comes to the conclusion, shared by this author, that being able to interpret certain aspects of annotations in the sketches remains worth the effort. While it may be an ideal endeavor to portray a complete portrait of the composer's compositional process, decoding even certain aspects of a sketch's annotations will still contribute to a deeper understanding of their motivation:

Deciphering verbal annotations is a very time-consuming endeavour that requires an optimistic frame of mind and an almost obsessive will to succeed. At the very least, such sketches show the development of the composer's ideas over time, and in special instances, give us a view of a composition's potential not yet realized. And although the sketchbooks from which these annotations arise will not always give us a complete, or even ordered, image of a work's development, they do give us valuable glimpses into the creative process and psychology of the composer.²⁶

²⁴ Decroupet, ed., *Le Marteau sans maître, Facsimile of the Draft Score*, 2005.

²⁵ Piencikowski, ed., "Tombeau," *Facsimile of the Draft Score*, 2010.

²⁶ Patricia Hall, "Reconstructing and Deciphering Berg's Sketchbooks for *Wozzeck*," in *A Handbook to Twentieth-Century Musical Sketches*, ed. Patricia Hall and Friedemann Sallis (Cambridge: Cambridge University Press, 2004), 113.

A challenge related to the absence or illegibility of sketch material that would help establish a definitive, complete portrait of a work's construction, and one that pervades the current investigation, is the general absence of intermediary sketches that show exactly how Boulez applies elements from masses of systematically related materials to the score. While periodically such intermediary stages do appear in the sketches, often, the burden of forging the connection from sketch to score falls on the analyst. Giselher Schubert and Friedemann Sallis acknowledge that certain sketches reveal more about a composer's technical process than the means by which they arrived at a particular configuration as it appears in the musical score. In their words,

Over the past half-century, the emergence of new compositional techniques (serial, moment form, aleatory, minimalist, etc.) has led to an increased production of sketches concerned with the preparation of material and general principles. These types of sketches often have little or no direct relationship with the resulting composition. Rather they offer information concerning the musical axioms which govern the development of general structural principles covering any number of musical dimensions (pitch, rhythm, sound-colour, dynamics, phrasing, texture, periodicity, and form). More often than not, sketches such as these appear as lists, tables and schemata to which the composer refers during the compositional process. The serial techniques developed by Pierre Boulez and Karlheinz Stockhausen immediately spring to mind.²⁷

Schubert and Sallis correctly point out that composers do not tend to notate what for them is self-evident, and they also point out and that much of what is missing in these intermediary sketches is often a matter of "taste, style, handiwork: in a word, his compositional routine."²⁸ While it may be difficult to "divine," as they put it, these aspects of the compositional process, from a structural vantage, it *is* often possible to

²⁷ Giselher Schubert and Friedemann Sallis, "Sketches and Sketching," in *A Handbook to Twentieth-Century Musical Sketches*, 8.

²⁸ *Ibid.*, 9.

surmise a pathway of derivation among related materials. In the course of this investigation, I frequently provide intermediary stages of derivation that illuminate structural interconnectivity between systematically related materials (and even those that are not systematically related but that are constructed in the pre-compositional domain), and those materials that appear in the musical score.

Yet another issue that arises from the periodic absence of intermediary sketch materials is Boulez's frequent recomposition of materials, and recomposition of entire works sometimes spanning decades, making it difficult to date the various incarnations of sketches of related materials. At face value, this might seem to pose a particular problem to the genealogical approach whose primary goal is to establish a lineage of related materials and how they arise from a particular source series. This goal is, however, distinct from the genealogical approach (though it remains a by-product of it) in that, by establishing developmental threads throughout Boulez's works, even among sometimes seemingly unrelated materials, the structural similarity of certain materials is highlighted. When materials are used is less important than how they are used and the nature of their structural interconnectivity. A particular lineage of related materials can be considered to be more of a constellation of related materials, rather than a straight evolutionary line. Materials from any part of this constellation may be used at any time, and in any incarnation of a given work.

When possible, it is preferable for the analyst to establish the general timeline along which materials evolve but, when this is not possible, structural interconnectivity is sufficient in concretizing foundational principles of Boulez's musical theory. Also, establishing the exact timeline of the evolution of different developmental threads of

materials will always be a challenge in Boulez scholarship, and should be embraced as a continuous and fruitful avenue of study rather than a detriment when certain aspects of that timeline remain amorphous. Like piecing together a puzzle, even if certain pieces are missing, a general picture may still emerge and the details contained in those missing pieces will only contribute when and if they are discovered. And as we will see in the current investigation, certain materials are recycled while continually evolving throughout the group of works spanning 1952–62. These works, through their shared materials, influence and inspire one another in a manner that makes determining the exact date at which a particular development occurred remarkably difficult. While later versions of a particular work are dated, and it is possible to group associated sketches with these later versions, the period of composition that provides the subject for the current investigation is remarkable in terms of the cross-pollination of materials across chronologically overlapping works.

A final challenge to sketch studies that is specific to Boulez scholarship involves the application of traditional analytic methodology to his idiosyncratic compositional systems and equally idiosyncratic descriptions of them. With the exception of Catherine Losada, Ciro Scotto, Stephen Heinemann, and Richard Cohn, in the facsimile editions to works like *Le Marteau sans maître* and “Tombeau,” both perhaps the most in-depth sketch-based studies of these works to date, music-theoretic concepts are discussed in an idiosyncratic manner that, in many instances, is too vague to grasp the actual mechanics of a particular process or too simplistic to reveal the sophistication of his techniques.²⁹ In

²⁹ It may simply be the difference between North American music theory and European musicology, but Boulez’s term “multiplication” and his technique of that name has been subject to far more scrutiny in terms of the process and the accuracy of the term

the course of my endeavor to trace the origins and structural interconnectivity of Boulez's materials and make his processes more available and accessible to the North American music theory community, I make every effort to employ the uniform, contemporary terminology of music theory in an effort to reconcile Boulez's methods with modern theoretic language.

1.5. The Challenges of Analysis in Boulez's New Style

The purpose of discussing the circumstances that give rise to *Le Marteau* is to illuminate the moment in Boulez's development as a composer when he decided to expand his techniques for governing local form. Yet study of the work is hindered by its complexity. The belief that a work such as *Le Marteau* is too complex to be understood by anyone other than the composer may have been fostered by the composer himself, particularly given his reticence at clearly explaining his process and techniques. In reference to *Le Marteau*, Stacey and Peyser share the vantage point that the aesthetic

itself in North American musicology. For instance, in the facsimile edition of *Le Marteau*, the discussion of multiplication does not involve the term "transpositional combination" as it has come to be known in North American music theory thanks to the work of Losada, Scotto, Heinemann, and Richard Cohn. See Richard Cohn, "Inversional Symmetry and Transpositional Combination in Bartók," *Music Theory Spectrum* 10 (1988): 19–42. Ciro Scotto, "Reexamining PC-Set Multiplication, Complex Multiplication, and Transpositional Combination to Determine Their Formal and Functional Equivalence," *Perspectives of New Music* 52, no. 1 (2014): 134–216. Stephen Heinemann, "Pitch-Class Set Multiplication in Theory and Practice," *Music Theory Spectrum* 20, no. 1 (1998): 72–96. Catherine Losada, "Isography and Structure in the Music of Boulez," *Journal of Mathematics and Music* 2, no. 3 (2008): 135–55; idem, "Complex Multiplication, Structure and Process: Harmony and Form in Boulez's *Structures II*," *Music Theory Spectrum* 36, no. 1 (2014): 86–120. The term was originally coined by Richard Cohn. Boulez, for his part, does little to transmit the full breadth of the meaning and of his many of his more technical concepts, assuming often single-line explanations of complex processes are obvious to the reader, or even willfully obscuring their apprehension by employing inversions of series instead of prime forms, omitting important segments of particular figures, and creating an aura of general opaqueness.

complexity of *Le Marteau* mirrors its structural complexity, which renders the work resistant to analysis. As Winnick has written, “an analysis of *Le Marteau* is, therefore, an ambitious project. One can hardly expect to explain every note.”³⁰ Peyser reiterates this sentiment when she says that “the machinery of twelve-note organization is so complex that it is impossible to trace the steps which lead from one pitch to the next.”³¹ In 1954, Boulez openly admitted that overtly technical composition takes no account of the crucial element of musical experience. In “Current Investigations,” he speaks eloquently of how “all is not well in the kingdom of the series” given the “exhausting monotony of these abstractions,” referring to the contemporary environment of technical over-elucidation:

Commentary is taking over; technique is becoming a screen, a much-needed shelter from more awkward questions...Everyone will fall over himself to explain [the series] to you, give you examples...³²

Boulez desires to reconcile the yawning chasm between the indifference of mechanical processes for generating materials and the consideration of musical implications afforded by the “composer’s subjectivity.” He admitted that “...rhythm, timbre, dynamics; everything becomes grist to this monstrous all-purpose mill, and we had better abandon it quickly if we are not to be condemned to deafness.”³³ When technique is equated with composition, inevitably, the resulting music suffers. And yet Boulez is unequivocally a structuralist who feels compelled to elucidate the nature of his

³⁰ Winnick, “Symmetry and Pitch-Duration Associations in Boulez’s *Le Marteau sans maître*,” 285.

³¹ Peyser, *Boulez*, 102.

³² Boulez, “Current Investigations,” *Stocktakings from an Apprenticeship*, 16. Originally published as “*Recherches maintenant*,” *La Nouvelle Revue française* 23 (1954), 898–903.

³³ *Ibid.*, 16.

techniques, beginning, in *Penser la musique aujourd'hui*, or *On Music Today*, first and foremost with the series. He states:

In the course of these essays I shall try to proceed on the most rigorous level possible—an attempt which will, I hope, allow us all, and myself first and foremost, the better to define present-day musical thought. I feel that this is the most urgent work to be undertaken at present, for discoveries and ideas have followed one another with little cohesion. Let us discipline our mental universe...let us organize our musical thought strictly: it will free us from the casual and the transitory...Debussy said, penetrate to the naked flesh of emotion; I say: penetrate to the naked flesh of evidence.³⁴

In *On Music Today*, Boulez espouses a worldview that emphasizes the observation of nature's structure. He states, "what we can know of the world is its structure, not its essence. We think of it in terms of relationships and functions, not of substances and accidents."³⁵ Boulez goes so far as to criticize the express study of the composer's intentionality, his subjective disposition, and his psychology:

Unless the aim is to study the psychology of the composer-in-action, I do not believe this type of approach can ever be very productive. There is also the disadvantage, dare I say it, of restricting the work to the limits of the composer's creative imagination—a paralysing restriction, for I feel that it is essential to preserve the potential of the *unknown* that a masterpiece contains.³⁶

Boulez acknowledges that by placing their focus on objectivity and logic, critics may observe a certain lack of musicality in his theory in favor of technical processes. He acknowledges this criticism and responds by positing the idea that musical meaning lies in its structure:

³⁴ Pierre Boulez, *On Music Today*, trans. S. Bradshaw and R. Rodney (Cambridge, Mass.: Harvard University Press, 1971), 34. Originally published as *Penser la musique aujourd'hui* (Paris: Gonthier, 1963).

³⁵ *Ibid.*, 32.

³⁶ *Ibid.*

I fear that...I will be accused of [‘pure abstraction’] and of forgetting, while speaking of structures, the actual musical content of the work concerned...there is no opposition between form and content, between abstract on the one hand and concrete on the other. Form and content are of the same nature, subject to the same analytic jurisdiction.... content...draws its reality from its structure, and what we call form is the structural disposition of local structures, in other words the content.³⁷

Boulez takes issue neither with objectivity nor technique per se, but rather with their elevation above the art of composition both on the part of the composer and the analyst. In his opinion, while the analyst may focus on structural elements, this information is useless without engaging and endeavoring to uncover the relationships between and among musical structures:

Responsible analyses had almost managed to discredit the object chosen for exhaustive study; more recently this has led to investigations...which amount to enumerating or describing the fruit on a tree without reference to the tree itself or to its process of fruit-bearing. We are swamped with vast tables of ridiculous symbols, reflections of a void, time-tables of trains which will never leave! The existence of phenomena is noted without any coherent explanation being sought for them; nothing can be deduced from this, other than certain obvious periodicities or irregularities.³⁸

Not only does Boulez consider a work like *Structures Ia* not to be music (but rather a theoretical exercise), he condemns all fanatically technical artworks as well as fanatically technical analyses. Such analyses are generally focused on the pre-compositional domain, e.g., on materials that arise from systematic processes without regard for the context of their use in the musical work. Structure, after all, encompasses the relationships among phenomena and not the phenomena themselves. The analyst must find the linkages and course of developments among a network of structures in order to determine compositional process. As M. J. Grant has observed:

³⁷ Ibid.

³⁸ Ibid., 17.

...most analyses cease at the exact moment where the serial preordering ends, and the piece begins: they deal primarily with the preordered material and only secondarily if at all with those parameters which are not controlled...aesthetic categories that stand behind the serial technique and its adaptation are ignored.³⁹

But while Boulez makes his criticisms clear, his positive statements about his own theory and practice are often highly idealized and polemical in nature. He frequently employs dialectics as a means to provide countermeasures to what he opposes. For instance, in order to avoid chaos and disorganization in the musical work, structural relationships are of paramount importance. However, technique must be sufficiently flexible, strict writing must be balanced with free writing, and rationality must yield to the joy of the irrational, etc. This tendency characterizes Boulez's writings and prejudices the presentation of his own music and techniques. The manner in which he presents his own techniques, at times, is at odds with his compositional practice as evidenced by the sketches. Jonathan Goldman has said that *On Music Today* bears some evidence of Boulez's desire to shape the reception of his own music and philosophy.⁴⁰ In this text, one finds that technique is presented in a straightforward and logical manner, with each link in the chain being clearly derived from a previous one. But the work is also peppered with idealized, unequivocal statements about what serial composition and music analysis

³⁹ M.J. Grant, *Serial Music, Serial Aesthetics: Compositional Theory in Post-War Europe* (Cambridge: Cambridge University Press, 2001), 131. It should be noted Grant, and Carroll for that matter, have engaged in meaningful phenomenological interpretations that extrapolate well beyond serial pre-ordering in *Structures Ia*, and *Mémoriale*, respectively. I believe in this quotation that Grant is observing a particular phenomenon in the discipline of music theory to avoid the subjective in favour of an adopted scientific approach to music.

⁴⁰ Jonathan Goldman, *The Musical Language of Pierre Boulez: Writings and Compositions* (Cambridge: Cambridge University Press, 2011), 32.

should be. The analyst is left formulating an analytic approach that relies upon the only source that is truly unbiased: the musical score and its accompanying sketches.

1.6. This Study in the Context of Boulez Scholarship

While there is some overlap among the research of so many prominent scholars exploring similar works, the sheer complexity of Boulez's compositional processes and the intricate labyrinth of musical materials that he painstakingly constructs over a period of years and multiple major works necessitates the various approaches and specific focuses of many minds. One consistent thread amid this body of research is the overwhelming desire to establish the seemingly familial nature of relationships among certain of Boulez's materials and group together works that employ them. Common musical structures that surface in many works of this period form a starting point for establishing, as Joseph Salem would term them, specific *genera* of works that share certain materials.⁴¹

The works studied in this investigation are by no means a complete account of interrelated pieces composed during this highly creative period of Boulez's output. Some existing studies have focused on singular works, such as Pascal Decroupet's facsimile edition of *Le Marteau sans maître* and Ulrich Mosch's volume on the same work, both of which offer painstaking accounts of everything from the formation of specific gestures to

⁴¹ Joseph Salem, *Boulez Revised: Compositional Process as Aesthetic Critique in the Composer's Formative Works*, Ph.D Diss., Yale University, 2014. Independently, Salem developed the term "genera" to align shared materials that cross the boundaries of individual works where I developed the term "constellation" to refer to the expansion and development of additional materials from pre-existing ones, centered or originating from a source-series.

the large-scale formal design.⁴² Also in this vein is the facsimile edition of “Tombeau,” which provides the basics of the formal structure and harmonic content while at the same time, as with the facsimile to *Le Marteau*, gives an account of work’s history and the circumstances surrounding its inception and construction.⁴³ Robert Piencikowski has provided an account of the evolution of shared materials between *L’Orestie*, *Strophes*, “Don” for piano (1960), an early version of the opening movement of *Pli selon Pli* that was later rescored for orchestra, and the chamber work *Eclat* (1965-70),⁴⁴ while Erling Guldbrandsen has focused on works that contribute to the musical material employed in “Improvisation sur Mallarmé I, II, and III” (1957, 1957, and 1959 respectively), the three middle movements of *Pli selon Pli*, including *L’Orestie* and *Strophes*.⁴⁵ Salem’s study provides detailed accounts of the interrelated musical materials and compositional ideologies of *L’Orestie* and *Strophes*, but also includes *Structures I* (1952) and *II* (1961), *Poésie pour pouvoir* (1958), “Don” for piano as well as the orchestral version of “Don” from *Pli selon Pli*, among others.

In the current field of Boulez scholarship, many complementary approaches have been taken in an effort to provide increased insight into the complexities of the composer’s musical thought. While Jonathan Goldman has focused on Boulez’s later

⁴² Decroupet, ed., *Le Marteau sans maître, Facsimile of the Draft Score*, 2005. Mosch, Ulrich. *Musikalisches Hören serieller Musik: Untersuchungen am Beispiel von Pierre Boulez’ “Le Marteau sans maître”*. Saarbrücken: PFAU, 2004.

⁴³ Piencikowski, ed., “Tombeau,” *Facsimile of the Draft Score*, 2010.

⁴⁴ Ibid., “Assez lent, suspendu, comme imprévisible”: Quelques aperçus sur les travaux d’approche d’*Éclat*,” *Revue internationale de critique génétique* 4 (1993): 51–67.

⁴⁵ Guldbrandsen, *Tradisjon og tradisjonsbrudd*, and *ibid.*, “In the Plural: Institutions, Pluralism and Critical Self-Awareness in Contemporary Music.”

College de France lectures and gleaned insight from them into both earlier and later musical works,⁴⁶ musicologists like Edward Campbell have chosen to focus on the intellectual influences that shaped Boulez's compositional theory in both his formative and mature periods, using sporadic analytic examples for poignancy.⁴⁷ Similarly, Joseph Salem has taken a combination approach that unites analytic commentary with exhaustive analyses of Boulez's writings and correspondences in efforts to correlate the composer's sentiments with highly specific musical examples. Salem, like Piencikowski and Guldbrandsen, works through countless recompositions and revisions of similar materials and works, and a virtual mountain of challenging sketch materials in order to provide a coherent map of related materials among a select group of the above-mentioned works.

A study designed to map the origins of and interrelationships between Boulez's every musical gesture during this remarkably creative period is simply not possible in the scope of this investigation, nor, I would argue, of any one scholar's investigation. I would hazard a guess that no Boulez scholar proposes to have put forward the "definitive" study of every interconnection between musical materials and compositional processes that unite this entire family of works. Rather, my investigation is one component of a group effort put forth by Boulez scholars to better understand a challenging musical legacy that, when taken together, collectively unmask the inner workings of a challenging oeuvre while providing great insight into one of the twentieth century's most enigmatic composers.

⁴⁶ Goldman, *The Musical Language of Pierre Boulez: Writings and Compositions*.

⁴⁷ Campbell, *Boulez, Music and Philosophy*.

1.7. The Trajectory of This Investigation

The trajectory of this investigation is designed to introduce the reader to increasingly larger-scale approaches to form in Boulez's serial music, beginning with immediate transformations of what Boulez terms the "generalized series" and culminating in the over-arching, large-scale formal plan for *Pli selon Pli*. The current chapter has outlined the historical circumstances that motivated Boulez to first explore the limits of strict serial composition as a means for generating form and his ultimate rejection of the totalitarian nature of such techniques in *Structures Ia* and *Polyphonie X*. As has been explored here, it was the failure of these works that compelled Boulez to expand serial techniques in efforts to develop and define a serial musical system based entirely upon musical criteria as espoused in *On Music Today*: a truly relative musical universe that rejects the imposition of traditional notions of form in favor of developing organizational schemes from serial content itself. Chapter Two explores the primary means by which Boulez introduces freedom into rigorous serial composition was through what he termed "local indiscipline." Indiscipline implies that, by some logic, adjustments can be made to the series itself that treats it, not as a theme, but as a collection of intervals that can be manipulated in a variety of ways. Chapter Two will also explore how Boulez's concept of the "generalized series," a collection of intervals rather than a succession of pitch classes, facilitated 1) the partitioning of the series in various ways so as to highlight certain isomorphic properties among its composite elements as well as creating harmonic elements; and 2) the application of certain mechanical procedures that modify the series in some logical, yet widely varied manner, creating what Boulez refers to as "defective series." These techniques for modifying the generalized series to derive

new materials from it begin the process of what Boulez refers to as the “proliferation of the series,” a term that refers to a plethora of techniques that generate new and increasingly vast amounts of materials all of which can be traced to particular, generalized series.

In Chapter Three, the investigation moves away from smaller-scale manipulations of generalized series to systematic techniques that yield much larger masses of materials that have the capacity to organize the musical work on a much larger scale. I explore two techniques, one involving a process known as pitch-class set multiplication (or, more accurately, transpositional combination) and the other involving the rotation of an array of defective series. I show how these techniques are applied to two different generalized series that act as the points of origin and foundation for two different constellations of related materials. Chapters Three and Four explore both the first constellation, used in *Oubli signal lapidé*, *Le Marteau sans Maître*, and the framing movements of *Pli selon Pli*: “Don” and “Tombeau, and the second constellation, which is used in *L’Orestie*, *Strophes*, “Don” and “Tombeau,” and “Improvisation sur Mallarmé I, II, and III,” the internal movements of *Pli selon Pli*.

Chapter Four, in addition to exploring Boulez’s most complex techniques for expanding particular constellations of related materials, primarily focuses on the composer’s theory of formal discontinuity: arguably his most innovative contribution to the concept of form in post-tonal music. Boulez uses these two different constellations of related structures to challenge the notion of formal linearity, instead choosing to focus on what he describes as parentheses and digressions away from the primary line of the piece, what he refers to as the “braiding” of different developmental trajectories. He frequently

borrows terminology from polyphonic music to describe trajectories of developing materials. Ultimately, in Chapter Five, I show how Boulez uses these two constellations of related structures in “Don” and “Tombeau,” the framing movements of *Pli selon Pli*, to generate both local and large-scale form from the organization of the serial materials that belong to each of these constellations. Boulez’s main goal in *On Music Today* is to show that form in serial music and serial content itself need not be at odds with one another as they were when Schoenberg borrowed from traditional tonal idioms for formal organization. In *Pli selon Pli*, it is the structure and organization of the serial materials generated from the two constellations that contributes to the organization of the work on all levels of form, and consequently reconciles serial form with serial content.

Chapter Six, the conclusion to the investigation, expands upon the concept of polyphony as a structural metaphor in “Improvisation sur Mallarmé III,” a movement from *Pli selon Pli* that is the most substantial of the entire work as well as, arguably, the most formally challenging. While in Chapter Five I address certain extra-musical influences on Boulez’s musical theory in general, and on the formal design of *Pli selon Pli* in particular, including Stéphane Mallarmé’s *Livre* and *Don du poème* and James Joyce’s *Finnegans Wake*, in Chapter Six I address the significant influence of the theory and practice of Bauhaus pioneer Paul Klee, who had earlier, and independently, devised a way of approaching visual art that shared many of the same principles of formal discontinuity and polyphony that preoccupied Boulez. Klee and Boulez share so many philosophical ideals that their preliminary sketches are uncannily similar in design, appearance, and organization.

To begin this long and circuitous route to the large-scale formal design of *Pli selon Pli* and its various movements, the next chapter addresses several foundational concepts in Boulez's musical theory: the "proliferation of the series," the "generalized series," and "indiscipline." While the generalized series reinvents the manner in which the composer approaches the twelve-tone row, understanding the concept of proliferation allows us to begin the process of exploring the plethora of techniques Boulez evolved to generate new and increasingly vast amounts of materials from specific generalized series. And finally, indiscipline provides the crucial component of freedom within serial constraint that became so important to Boulez in the period of 1952–62.

Chapter Two: The Proliferation of the Series

2.1. The Generalized Series

In 1952, Pierre Boulez revealed in a letter to Henri Pousseur that he was exploring a more flexible approach to a variety of compositional techniques.¹ He was seeking general strategies that would allow him greater control over the details of the musical surface while at the same time expand his serial materials beyond the traditional transformations of the series. This chapter explores the techniques by which Boulez achieved the freedom to derive new materials from the series while still maintaining control over his compositional processes. While this chapter focuses primarily on transformations that are immediate to the series, these are but the first stage in this investigation, the goal of which is to trace Boulez's techniques for organizing local form to the organic generation of large-scale form.

The most striking change in Boulez's theory is the reconception of the series from a thematic unit to a generalized series of intervals that need not be used in their original succession. Ultimately, Boulez removed from the series its power to unfold in one particular way. Consequently, it possesses no compulsion towards any type of closure, i.e., completion of the twelve tones in the order in which they initially appear. It is no longer a musical entity, subjected to thematic treatment reminiscent of Schoenberg's substitution of it for the tonal theme. The generalized series, if not treated as a theme, has

¹ The unpublished letter in question is preserved in the Pierre Boulez Collection at the Paul Sacher Foundation in Basel, Switzerland and referenced in Pascal Decroupet, ed., *Pierre Boulez, Le Marteau sans maître, Facsimile of the Draft Score and the First Fair Copy of the Full Score*, A Publication of the Paul Sacher Foundation (Mainz: Schott, 2005), 44.

the potential to be manipulated in a near infinite variety of ways to derive new materials, or proliferations. As Boulez describes it:

A pitch series can be imagined in a number of different ways. And it is crucial to recognize that it is not the succession of the elements it combines that constitutes the serial phenomenon. The series is not an order of elements, but a hierarchy—which can be independent of that order.²

While the term “hierarchy” is in itself misleading for reasons that will be explained later, the concept of the series as an unordered set of elements is critical to understanding Boulez’s generalized series. He describes the series as a “polyvalent mode of thought,” the potential of which lies far beyond the traditional serial transformations. In this respect, Boulez draws far more from Webern than Schoenberg. As Arnold Whittall has observed:

To the end of [Schoenberg’s] life he thought of the series as something which had to take on the role of the theme in tonal music. Webern, by contrast, showed that it is more helpful to imagine the series as a hierarchical function which begets permutations in the form of a distribution of intervals, independent of any horizontal or vertical function.³

Moving beyond the concept of the theme, Boulez treats the series primarily as a source of intervallic content that, depending upon the manner in which the series is partitioned and whether or not these partitions are used linearly or vertically, has the potential to provide both harmonic and melodic materials. For Boulez, the intervallic content of the series is generally of greater importance than its specific pitch content, which provides him with a

² Pierre Boulez, “Near and Far,” in *Stocktakings of an Apprenticeship*, 149. Originally published as “Auprès et au loin,” *Cahiers de la Compagnie Madeleine Renaud-Jean-Louis Barrault* 3 (1954): 7–24.

³ Arnold Whittall, *Serialism* (Cambridge: Cambridge University Press, 2008), 177.

point of departure for developing a wide array of what he refers to as isomorphic or partially isomorphic materials. In Boulez's music, the series is more of a spatial phenomenon than a pitch-based one. Boulez describes the generalized series in the following passage from *On Music Today*:

It is hardly necessary to say that a referential hierarchy is required to define a given work, if not in its entirety, at least in its principal events. A generalized series is indispensable to the creation of elementary morphologies, the first plans of development, but it ought not to remain the only reference in the course of composition; this basic series will enable us to formulate objects which, in their turn, can be the basis of serial generation. Thus, to each original object will correspond a specific development organized according to its own intrinsic qualities: this will lead directly to the use of defective or limited series as defined above, in short, to the use of the various sub-ensembles dependent on a given ensemble.⁴

Multiple generalized series and, consequently, multiple constellations of structures derived from them, may be operative within a single work. Boulez tends to combine materials from various source-series, particularly as a means of delineating formal sections. Boulez states that "it would surely be illusory to try to link all the general structures of a work to one and the same global generative structure, from which they would necessarily derive in order to assure the cohesion and unity, as well as the uniqueness of the work."⁵ While a single series can generate a vast array of materials that are related to one another by way of their common origin, Boulez's use of materials derived from multiple series makes it especially difficult for the analyst to trace the lineage of their development. This is why the sketches are so important for decoding the serial program in a given work. It is within the framework of expanding serial materials that a concept

⁴ Boulez, *On Music Today*, 104.

⁵ *Ibid.*, 99.

termed “local indiscipline” comes into play to help facilitate the interplay between the strictness of technique and more spontaneous structures that arise from the composer’s creative impulse.⁶

2.2. Local Indiscipline

Boulez’s concept of local indiscipline provides a means to describe the nature of his logic and motivation for deriving new and varied materials from predetermined ones. Local indiscipline may refer both to the role of choice in the selection and rejection of materials, and to the composer’s choice to manipulate existing materials in both traditional and non-traditional ways. With these expanded techniques, Boulez was able to articulate a much wider spectrum of aesthetic and compositional ideas simply by exercising choice. In an interview with Célestin Deliège, Boulez describes the limitations he had placed upon his own compositions before *Le Marteau*. It is here that he describes the concept and purpose of local indiscipline, a term that has frequently been referenced, but whose potential has remained untapped as a means of explicating Boulez’s idiosyncratic expansion of serial techniques. Boulez writes:

[*Le Marteau*]’s technique is much more elaborate and skillful. It takes account of affective phenomena associated with music. For this reason the technique had to be infinitely more supple and lend itself to all kinds of invention...there is in fact a very clear and very strict element of control, but starting from this strict control and the work’s overall discipline there is also room for what I call *local indiscipline*: at the overall level there is discipline and control, at the local level there is an element of indiscipline—a freedom to choose, to decide and to reject.⁷

⁶ Boulez, “*Pierre Boulez: Conversations with Célestin Deliège*,” 66.

⁷ *Ibid.*, 66.

In essence, local indiscipline refers to the freedom to sculpt musical surfaces from a discrete system of predetermined materials that in themselves do not possess the means to organize a work, and to control the affective, visceral aspect of the music itself. Such materials can include parsed segments of a twelve-tone row, pitch-class sets generated from the process of multiplication, which will be discussed in Chapter Three, materials derived from a variety of “isomorphic” techniques that will be discussed later in this chapter, and materials derived from the application of what Boulez terms “modules,” which are essentially idiosyncratic, yet logical and either systematic or quasi-systematic techniques for adjusting or transforming existing serial materials. These too will be explored in later chapters. With local indiscipline, the choice to reject some materials in favor of others allows Boulez to serve his need for both creative freedom and a coherent, theoretical underpinning to his compositional process. The potential for the composer to reject certain options open to him or her is perhaps the most critical aspect of Boulez’s concept of indiscipline. The initial decision to discard certain predetermined materials enables the composer to employ specific elements that better serve his aesthetic goals rather than being forced to follow the succession of events suggested by the series.

Boulez writes:

In my previous works the strict and inflexible framework offered practically no possibility of rejection. But composition is a positive act, though a positive act made up of an accumulation of determining rejections. During the previous period no one wanted to reject anything but to bring everything into play at each moment. In *Le Marteau sans maître*, which came immediately afterwards, I adopted a point of view that was not the opposite, but much more flexible: I was able to eliminate certain factors at a given moment in the composition, and it is precisely this negative aspect that gives a work liveliness: suddenly the pieces became individualized where otherwise there would be an undifferentiated overall structure. In *Le Marteau sans maître* there is a highly differentiated

structure arising from many positive aspects, but also from the element of rejection it imposes.⁸

Indiscipline largely applies to the role of choice over serial materials which, it must be noted, include threads of derived structures that Boulez considers to be serial based upon their having originated in a particular series, even if the derived materials themselves no longer bear semblance to any traditional technique of serial transformation. According to Boulez, choice must be available at every stage of composition to avoid the theoretical overkill of works such as *Structures Ia* and *Polyphonie X*. As Koblyakov has observed, local indiscipline “should be understood as free choice and manipulations with elements of serial organization. Nothing alien is introduced into the system, therefore there is no contradiction to the serial system.”⁹ While we will see that Boulez does indeed introduce elements that seem distinctly non-serial into his system, it is the role of free choice that is the consistent element in interpretations of local indiscipline. By allowing choice and the freedom to manipulate materials in a variety of ways, indiscipline reinstates the spontaneous interaction on the part of the composer with his materials.¹⁰ The element of choice at the moment-to-moment level of composition produces a local level of form governed by free will. The

⁸ Ibid., 66.

⁹ Koblyakov, *Pierre Boulez: A World of Harmony*, 117.

¹⁰ Boulez has written that: “That we might instead regard a piece of music as a series of rejections among many probabilities; a choice has to be made and that is precisely the difficulty so easily wished away by the express desire for ‘objectivity’. It is just this matter of choice, renewing itself at every stage of composition, which constitutes the work; the act of composing will never be the same thing as arranging thousands of points of contact statistically. Let us preserve this inalienable freedom: the continuously longed-for joy of the irrational.” Boulez, “Near and Far,” in *Stocktakings of an Apprenticeship*, 157.

critical exercise of choice is introduced in the construction of the series itself as its ramifications, as will be shown in later chapters, will be felt throughout materials derived from it to a greater or lesser extent. In *On Music Today*, Boulez writes,

I must stress one important point: the series is not an arbitrary generative element, since it is based on definite and important properties of an ensemble of sounds. As soon as one series is chosen in preference to another, by virtue of its more or less selective capacities for musical organization, the entity defined by the original series likewise precludes the arbitrary, since all inferences from it are necessarily linked to a selection based on the realities of sound. Neither will the composer himself make arbitrary use of the individual series in the resultant ensembles: he makes a choice, a fresh selection, from among those series presenting a greater or lesser number of outstanding properties or common relationships.¹¹

Boulez conceives of local organization as operating at the level of the musical gesture. Indiscipline, in addition to providing the composer with freedom over the gesture, also, and crucially, presupposes some type of systemization that creates an underlying sense of logic to the derivation of new materials. Within the context of *Structures Ia* and *Polyphonie X*, composing according to the indisciplinary principle first seen in *Le Marteau sans maître* must have seemed comparatively liberating. Within the context of indiscipline, after *Le Marteau*, Boulez was able to realize his dialectical vision of composition as an interaction between the immediacy of creative will and the determinacy of systematized materials. By reengaging choice in the compositional process, the work is liberated from any vestige of inevitability forced by the succession of the series' components. Boulez's reconception of the series (and the materials derived from it) has the goal of exploring various developmental threads, many of which are not foreseeable until activated by the composer. Boulez writes:

¹¹ Boulez, *On Music Today*, 82.

For composition is classically the result of constant choice, as I myself have often enough said. Within a certain framework of probabilities, it involves being led—from solution to solution—to the point of choosing. The composer's will intervenes to activate certain structural possibilities, which remain amorphous until, by virtue of their elaboration, they take on the character of an experienced necessity... In my experience it is impossible to foresee all the meanders and virtualities in the material with which one starts.¹²

Indiscipline is a useful concept in accounting for Boulez's idiosyncratic approach realizing serial materials at the level of local form. Yet indiscipline, on its own, does not account for Boulez's construction of large-scale forms that arise from serial materials. Whereas at the local level there is the freedom to select and reject certain options from an expanded system of materials, large-scale form is, however, virtually limitless in terms of possible approaches and configurations, and the manner in which local levels of form and increasingly large-scale ones are connected. With Boulez's critique of Schoenberg reliance on traditional forms, this must take place using the means generated exclusively within the serial domain, granted this domain becomes considerably enlarged through the application of indiscipline.

Ultimately, the problem of connecting the local and large-scale form lies with traditional serialism, which, in turn, requires that the succession of that theme's components be observed. But the succession of the constituent pitch-classes of the series, and the succession of transformations of the series, do not alone provide the impetus for large-scale form. Boulez endeavored to reconcile what he perceived to be a discord between thematic serialism and traditional form in Schoenberg's music. In so doing, he proposed that more complex networks of interconnections must be forged in order to facilitate coherence between local and large-scale form. For Boulez, such coherence is

¹² Ibid., 17.

the result of a multitude of logical connections between materials derived by a variety of means, all of which contribute to the “proliferation of the series.”

While later chapters will explore Boulez’s more complex methods for deriving new materials, it is important first to understand how Boulez manipulates the components of individual series to generate new complete or partial series. Boulez relies upon a combination of traditional serial techniques and non-serial means that are idiosyncratic to his compositional style. His concern is that there is certain *logic* of derivation, which, as we will see within the scope of his theory, seems to include virtually any connection between materials that is traceable and ranges from strict generative processes to the most tenuous of connections. The spectrum of these practices render serial techniques more flexible and susceptible to manipulation based upon the immediate desires of the composer. The expansion of his serial techniques helps reestablish Boulez’s creative voice after the limitations he faced with *Structures Ia*.

2.3. Isomorphism and Invariance

Boulez’s initial studies of the series and its potential are based upon its generalized intervallic content and are largely predicated on what he refers to both idiosyncratically and somewhat erroneously as “isomorphisms,” which describe the relationships between different partitions of the series. In Boulez’s understanding of the term, isomorphism refers to a degree of likeness between two partitions and is therefore subject to gradation, meaning that there are what he refers to as “totally isomorphic figures” and “partially isomorphic figures.” The former refers to partitions that are equivalent under transposition while the latter refers to partitions that share one or more

of the following features: a general preservation of contour despite the diminution or augmentation of intervals; the preservation of characteristic intervals either literally, through pitch-repetition, or abstractly, under retrograde or inversion; preservation of invariant pitch classes; or the sharing of some transformative feature from one partition to the next that can be explained according to a set of logical criteria. Boulez’s partially isomorphic figures, as well as his totally isomorphic figures, can take place under serial operations other than transposition, which sets his definition at odds with the standard, music-theoretic understanding of the term isomorphic. It is perhaps more useful to think of Boulez’s isomorphisms as “invariants,” meaning that one or more characteristic parameter, typically referring to intervallic content, is preserved between two partitions of a particular series. For this reason, I will henceforth substitute the term “invariance” in place of Boulez’s isomorphism and will specify the nature of these invariances in terms of how each unites particular partitions of the series and, as we will see later on, how new materials can arise from existing ones by maintaining particular invariances, primarily with regard to Boulez’s harmonic materials which will be discussed in Chapter Three.

In Fig. 2.1, Boulez presents a series generated from an initial trichord, *a*. Trichord *b* is generated through intervallic augmentation, in which the size of each interval in trichord *a* is doubled while the overall contour is preserved. Trichord *c* is an R6 transformation of trichord *a* while trichord *d* is a new, unrelated figure.



Fig. 2.1. Invariances in a Boulezian series¹³

¹³ Ibid., 75.

In Fig. 2.2, a new series is generated from the same trichord *a* as in Fig. 2.1. First, Boulez generates trichord *b* through the augmentation of intervals between trichord *a*'s constituent pitches. The intervallic contour of *a*, -1, +4, becomes -2, +8 in trichord *b*. Trichord *c* is an I8 form of trichord *a*, while trichord *d* preserves the general contour of trichord *a* in the sense of the down-up direction of the intervals. Beyond that, Boulez considers trichord *d* to be an unrelated figure.



Fig. 2.2. Invariances that emerge through the rotation of the series in Fig. 2.1

When the first ten pitch classes of this series are partitioned into two, consecutive, pentachords, both members of set-class [01245]. While Boulez did not have access to this terminology, notation, or analytic method in general, employing contemporary music-theoretic terminology makes certain invariances among his materials more obvious and relieves the analyst of wrestling with Boulez's highly idiosyncratic techniques for describing intervallic similarities following his painstaking evaluation of semitones, whole-tones, major and minor seconds, and so on. Modern analytic conventions, while economizing the relationships among Boulez's materials, do remove the particular idiosyncratic flare with which he describes the minutia of interconnections. They do, however, reveal that the composer was aware of these types of relationships and the

invariances that emerge will be shown to both color his music and influence his choices of materials to a great extent.¹⁴

Boulez then rotates the series shown in Fig. 2.2 one order position to the right, meaning that the final F#, in order position 12 of the series in Fig. 2.2, becomes order position 1 in the series shown Fig. 2.3. If partitioned into tetrachords, the first and third are isomorphic, both being members of set-class [0148] with the second a member of set-class [0268]. Boulez mentions specifically that the first and second hexachords of this series are isomorphic, both being members of set-class [013458]. This is not, however, unique in that this property is common to all twelve-note series. It is not clear whether or not he was aware of this from this writing.



Fig. 2.3. Invariances that emerge in the rotated series from Fig. 2.2

Using Boulez's methods from *On Music Today*, i.e., inversion, retrogression, free pitch re-ordering, rotation, and transposition, the series that provides the starting point for much of the material explored in this investigation is dissected in Fig. 2.4: the series for *Oubli signal lapidé*, *Le Marteau sans maître*, and several movements of *Pli selon Pli*, all of which will be discussed in later chapters. In a similar fashion to Boulez's exposition of

¹⁴ These include Boulez's painstaking evaluations and analyses of semitones, whole-tones, major and minor seconds, etc. While Boulez used conventional intervallic descriptions to evaluate the construction of his series, as well as invariances among groups of partitions, modern terminology is helpful in synthesizing his analyses.

a series' internal invariances in *On Music Today*, Fig. 2.4 breaks down the series' partitions and their invariant characteristics that may have attracted Boulez to the sonic profile of this particular series. The series has been parsed into both trichords and tetrachords, and invariant intervals between sets of partitions are identified. First, when parsed in tetrachords, each partition contains an [012] trichord, and two of the three are [0124] tetrachords with the one exception of partition *b'*. And when parsed into trichords, three of the four yield [013] trichords with the exception of the [014] trichord in partition *c*. The most noteworthy feature of the series is that each trichord contains ic 3 which functions as either a transposition or inversion of the same interval founding trichord *a*, and ic 1 (appears three times in three different trichords) and ic 2 (appears in the first trichord and the interval 01 can be viewed as a diminution in subsequent partitions).

The series is extremely homogeneous in terms of its construction. While partition *a* consists has the contour of +2, -3, partition *b* is a rotation of this configuration with the -3 occurring first, following by a +1 (a T10 transposition/inversion). Partition *d* is a direct inversion of partition *b* with the -3 in the former ascending in the latter, and the following +1 becoming -1 in the latter. Partition *c* involves both rotation and inversion, with the -3 from partition *a* becoming +3, and the rotation would place the G# at the start of the partition.

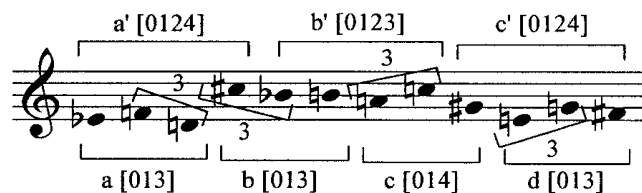


Fig. 2.4. Internal invariances of the *Le Marteau sans maître* series

Regardless, the construction of the series is tight-knit, with a certain intervallic profile being characteristic of the collection of intervals that suggests Boulez’s attraction to “isomorphic” relationships within the series itself and their ability to create a coherent sonic profile.

2.4. Analysis of “Texte”

Another example of equivalence relations within a series can be found in Boulez’s partitions of the series from the retracted drama *L'Orestie* and the *Troisième Sonate*. The series is shown Fig. 2.5, complete with Boulez’s original partitions and shows how the composer embeds invariances between partition *a* and the combined partitions of *b* and *d*, represented as *b/d*. Partitions *a* and *b/d* are both members of set-class [0127]. In addition to this internal structural coherence, Boulez draws attention to the internal symmetry, or invariances that arise in comparing partitions of the same series which may include both adjacent and non-adjacent pitch classes of partition *c*, which is a member of set-class [0235].

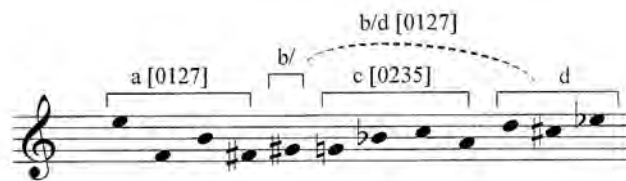


Fig. 2.5. Four partitions of the *L'Orestie* series along with their invariances

In addition to providing the basis for materials used in *L'Orestie*, the partitions that highlight the series’ internal invariances are then used to organize the local structure for “Texte,” the fourth formant of the *Troisième Sonate*, the opening of which is shown Fig. 2.6. Boulez employs transpositions of the partitions that, when combined, form the series

P8, P1, P5, and P3 respectively. When looking into his possible motivation for selecting these series, certain invariances emerge that connect one series to the next. Boulez capitalizes on the fact that partitions a and b/d are each members of set-class [0127]. In order to connect one series to the next, Boulez selects series in which either partitions a or b/d share invariant pitch-classes.

In the following diagram, shown in Fig. 2.7, the four series used in the excerpt of *Texte* from Fig. 2.6, P8, P1, P5, and P3 respectively, appear at the left of each row and show the partitions a , b , c , and d , with the combining of partitions b and d highlighted. In each row to the right of the series, are the partitions a and b/d , each ordered to reveal their normal order as [0127]. The invariant pitch classes between the normal order forms of partitions a and b/d are connected with lines between the rows. For instance, between the series P8 and P1, there are two invariant pitch classes between their respective partitions a (G# and D#), and b/d (F^b and C^b). Additionally, there are two invariant pitch-classes between partition a of P5 and b/d of P1 (F^b and C^b) and between partition b/d of P5 and a of P1 (D^b and D#). Finally, there are two invariant pitch-classes between partition a of P3 and b/d of P5 (D# and E^b). Between b/d of P3 and a of P5, there are also two invariant pitch classes (G^b and C^b). The manner in which Boulez partitions the series thus allows him to create perceivable connections with the adjacent series through a basic common-tone function. While the examples from “Texte” reveal relationships that Boulez himself would label only “partially isomorphic” in that they are not totally equivalent at any level of transposition and instead explore different modes of creating invariances among serial materials, this investigation will move towards the increasingly strict maintenance

The image displays a musical score for the piece "Texte" from the *Troisième Sonate*. It features a vocal line on the left and a piano accompaniment on the right. The score is divided into several sections, each associated with a specific series partition:

- P8**: Labeled "Presque lent (♩ = 50)", it includes a series partition labeled 'c'.
- P1**: Includes a series partition labeled 'b/d'.
- P5**: Includes a series partition labeled 'c'.
- P3**: Labeled "H → Retenu...", it includes a series partition labeled '(c)' and another labeled 'b/d'.
- P4**: Includes a series partition labeled 'b/d'.
- P2**: Includes a series partition labeled 'd'.

The piano accompaniment includes various dynamic markings such as *pp*, *p*, *f*, and *mp*, and includes performance instructions like "Ped." and "D.c.". The vocal line includes lyrics and dynamic markings like *pp* and *mp*.

Fig. 2.6. "Texte" from the *Troisième Sonate* with partitions of the series

The figure displays five systems of musical notation, each consisting of a main staff and a lower staff. The systems are labeled P8, P1, P5, P11, and P3. Brackets labeled 'a', 'b', 'c', '(d)', and 'b/d' are placed above the notes in the main staves, indicating common-tone relationships. Vertical lines connect notes between systems, and labels '[0127]' are placed above specific notes. A dashed line connects notes 'a' through 'd' across the first four systems.

Fig. 2.7. “Common-tone” (invariant) relationships among [0127] partitions in adjacent series in “Texte”

of relationships among materials that will eventually yield the products of “multiplication,” which is arguably Boulez’s most well-known music-theoretic technique.

Before leaving “Texte,” there is another mode of organization discovered by Peter O’Hagan in his dissertation that helps to explain why some pitches are in positions of prominence while others are not.¹⁵ Unlike my notation that designates a twelve-tone series by the nature of its first pitch, O’Hagan refers to the prime series as P0 despite it beginning on E-natural. O’Hagan focuses on Boulez’s four partitions of each permutation of P0 and re-arranges the partitions to highlight specific pitch-classes that function to ground complementary series, particularly the single pitch-class Boulez has labeled as partition *b*. Ex. 2.8 shows the opening system of “Texte” with O’Hagan’s analysis. The entire system is organized around P0 with Boulez’s partitions determining pitches of prominence. For instance, O’Hagan has circled E[♮], F[♮], B[♮], and F# in the opening square bracket, labeled (i). These are the pitch-classes of Boulez’s partition *a*. In the next square bracket, labeled (ii), O’Hagan’s has circled G#, or Boulez’s partition *b*. In the third square bracket labeled (iii), O’Hagan has circled G[♮], Bb, C[♮], and A[♮], the pitch-classes of Boulez’s partition *c*. Finally, in the fourth square bracket labeled (iv), O’Hagan has circled D[♮], C#, and Eb, the pitch-classes of Boulez’s partition *d*. This analysis shows another level of organization operating beyond what I have shown in Figures 2.6 and 2.7 – a hierarchy if you will, that places the pitch-classes that make up Boulez’s partitions of the initial series in positions of greater musical prominence.

O’Hagan goes on to analyze the entirety of “Texte,” finding complementary row-forms and their partitions of significance, as can be seen in Fig. 2.9. The net result is a multi-layered organizational scheme in which the partitions of the initial series-forms, P8,

¹⁵ Peter O’Hagan, “Pierre Boulez: “Sonate, que me veux-tu?” An investigation of the manuscript sources in relation to the Third Sonata.” University of Surrey, 1997. All figures from O’Hagan’s dissertation have been generously provided by the author.

The image displays a musical score for the opening of "Texte" from the *Troisième Sonate*. The score is annotated with O'Hagan's analysis, divided into four sections: (i), (ii), (iii), and (iv). Section (i) is marked "Presque lent (♩ = 50)". The score includes various performance markings such as *mp*, *p*, *pp*, *mf*, *f*, *ppp*, and *ppp*. There are also dynamic markings like *U.c.* and *U.c.* with asterisks. The notation includes treble and bass clefs, a key signature of one flat, and a 3/4 time signature. The score is written for a single melodic line with a piano accompaniment.

Fig. 2.9. O'Hagan's Analysis of the Opening of "Texte" from the *Troisième Sonate*

Ex. 4-7

The image shows a handwritten musical score for 'Texte' from the *Troisième Sonate* by Boulez. The score is organized into several systems of staves. Each system contains multiple staves of musical notation, including notes, rests, and dynamic markings. The notation is annotated with various labels and symbols:

- System 1:** Labeled with 'RI9' at the top and 'P0' below the first staff. It includes a circled letter '(a)' at the beginning.
- System 2:** Labeled with 'RI4' below the first staff and 'P6' below the second staff. It includes a circled letter '(b)' at the beginning.
- System 3:** Labeled with 'RI9' below the first staff and 'RI4' below the second staff. It includes a circled letter '(c)' at the beginning.
- System 4:** Labeled with 'RI2' below the first staff, 'RI9' below the second staff, and 'P5' below the third staff.
- System 5:** Labeled with 'P10' below the first staff, 'P6' below the second staff, and 'P9' below the third staff.
- System 6:** Labeled with 'RI1' below the first staff, 'RI9' below the second staff, and 'RI4' below the third staff.

Fig. 2.9. O'Hagan's Calculations of Isomorphisms Among Boulez's Chosen Series for "Texte" from the *Troisième Sonate*

P1, P5, and P3, as shown in my Fig. 2.6, operate to control the moment-to-moment, local organization of “Texte,” while O’Hagan’s analysis reveals a larger-scale organization that is also derived from the partitions of the initial series. The result is the presence of invariances at multiple levels of form in what is arguably the simplest formant of the *Troisième Sonate*.

2.5. Vibraphone Lines from “Improvisation sur Mallarmé II”

In “Improvisation sur Mallarmé II,” the third movement of *Pli selon Pli*, also known as “Une dentelle s’abolit,” Boulez employs a combination of procedures to create a spectrum of invariances between two primary vibraphone lines, shown in Fig. 2.10, that help illustrate some of the composer’s basic procedures for generating new materials from existing ones, using indiscipline as a motivating philosophy.

Line #1

Line #2

Fig. 2.10. Two vibraphone lines from “Improvisation sur Mallarmé II”

While perhaps not immediately apparent, Boulez generates vibraphone Line #2 from vibraphone Line #1 by maintaining a variety of invariances, including transposition, intervallic augmentation and diminution, and contour preservation, the procedures for

which are shown in Fig. 2.11. Partition *a* in the first system can be divided into two segments, the first, a tetrachord, is a member of set-class [0157], and undergoes a straightforward T7 transposition to become partition *a* in the second system. The second segment of *a*, a pentachord, is a member of set-class [01267], and undergoes an I6 transformation to become partition *a'* in the second system.

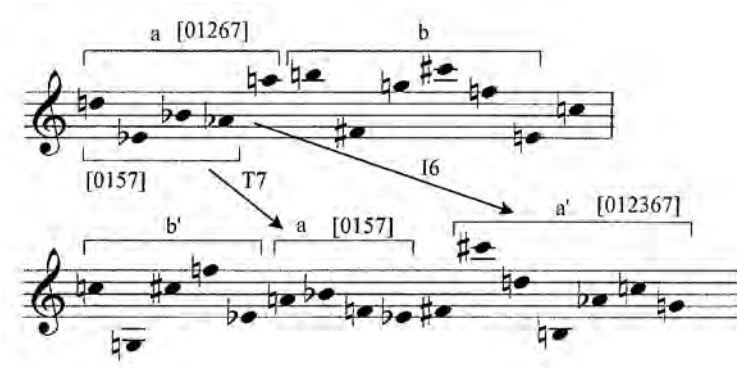


Fig. 2.11. Total and Partial Isomorphic Relationships between Lines #1 and #2

Partition *b* in the first system is much more loosely transformed in the second system, with partition *b'* preserving the general contour. The contour of *b* is (-17, +13, +6, -8, -13) while the contour of *b'* is (-17, +18, +4, -14). There is no evident systemization to the augmentation and diminution of intervals between the contours of *b* and *b'*, but both the general down-up motion and relative size of the intervals are preserved. Another feature is the preservation of the central C#/F^b dyad between partition *b* and *b'*. While on its own this element may not seem significant, but Boulez has a penchant for retaining characteristic intervals, pitch classes, and pitch-class combinations when generating new materials. For instance, in the second system, he also preserves the C# as the apex, and strategically places E^b and F# next to one another in the second system, with the E^b appearing twice, as a remnant what appears to be secondary, lower

melody in the first system consisting of E^b, F#, and E[♯] (with the second E^b in the second system essentially replacing the E[♯] in the first). While this may not seem like a remarkable detail, given Boulez's remarkable attention to detail, it is unlikely that this relationship is accidental.

In this example, Boulez combines some obvious invariances such as transposition, with less restrictive ones, such as the preservation of contour and pitch reordering, that ensures a pervasive sense of freedom from strict serial constraint. The combination of traditional transformations alongside freer methods for deriving new materials is common practice for Boulez. Regardless, when Boulez generates new materials, there is typically always some degree of underlying logic that motivates his procedures. In this example, in addition to transposition, the preservation of contour is the primary factor at work, and keeps the second vibraphone line from becoming a predictable transformation of the series and instead retains musical features that are perhaps more easily perceptible such as shape, and distinguishing intervals and pitches. The length of the traditional series as an aggregate, along with its succession of pitch-classes (Line #2 is fifteen pitches long, with E[♯] omitted, and the E^b, C[♯], and C# repeated), is superseded in favor of an expansion of serial techniques to include various types of invariances among and within the materials.

Célestin Deliège also discusses the first vibraphone line, and describes the invariances among its partitions.¹⁶ For example, Deliège divides the series into three tetrachords, *a*, *b*, and *c*, shown in Fig. 2.12. While he goes into a great deal of detail

¹⁶ Célestin Deliège, "The Convergence of Two Poetic Systems," in *Pierre Boulez: A Symposium*, 105.

describing the semitone- and whole-tone construction of these tetrachords, as well as their other defining intervals, their similarities are perhaps obvious, though less in keeping with Boulez's rhetorical approach to analysis, when each is reduced to prime form, which yields members of set-classes [0156], [0135], and [0145], respectively.



Fig. 2.12. Vibraphone line from the second “Improvisation sur Mallarmé II” with partitions as described by Célestin Deliège

Deliège's analysis does credit to maintain Boulez's analytic style of language and attention to interconnectivity and emphasizes the basic importance of intervallic content to the basic, and even perceptible, structural cohesion that permeates Boulez's construction of series. And when taken in combination with the analyses presented in 2.9, a picture emerges of 1) how certain invariances are imbued within a certain series; 2) the secondary structural relationships that emerge as a result; and 3) the means by which Boulez exploits these invariances in new materials. Transformation and variation, and the invariances that organize the local structure in a work like “Texte,” is of fundamental importance to Boulez and should be reflected in the analysis of his music. If traditional serial transformations such as transposition, retrograde, and inversion, are integrated alongside the invariances that exploit similarities among materials, deeper organizational connections emerge in a work such as “Improvisation sur Mallarmé II”. As we will continue to see with Boulez's compositional procedures, the composer favors a combination of predictable, mechanical procedures with those that are idiosyncratic to his compositional process and specific philosophical and aesthetic goals, such as the desire

for variety. As this investigation unfolds, the manner in which Boulez achieves this variety will be shown to become increasingly complex, further necessitating providing a foundation such as this to illuminate the roots and motivating factors for his more elaborate procedures.

The vibraphone lines of “Improvisation sur Mallarmé II” provide for interesting comparative analyses that reveal examples of secondary invariances being observed in the absence of sketch materials. While Deliège’s attributes all the morphological structures of the movement to the series expressed in the vibraphone Line #1, shown in Fig. 2.10, Susan Bradshaw, on the other hand, attributes the origin of all structures in the movement to the seven-note chord that opens the piece, shown in Fig. 2.13, which she identifies as “a derivation of the now suppressed twelve-note row.”¹⁷



Fig. 2.13. Opening chord of “Improvisation sur Mallarmé II”

While the row to which she refers is not made explicit, nor necessarily the processes by which it becomes the progenitor of the movement’s local structural organization, the inclusion of sketch studies into the analysis will ultimately reveal in Chapter Four that the original series that provides the inspiration for developed materials in this movement is indeed suppressed, though not in the manner that either Deliège or Bradshaw imply. The

¹⁷ Bradshaw, “The Instrumental and Vocal Music,” in *Pierre Boulez: A Symposium*, 182.

structural interconnectivity of materials developed from a source-series endowed with multiple invariances creates the type of secondary invariances that produce such lively speculation as to the locus of the music's cohesive power. Such invariances may actually be perceptible to the listener and reveal a deep engagement with the music itself.

Contributing a genealogical aspect to the analysis clarifies Boulez's compositional process and confirms the manner in which works were developed often over extended periods and in conjunction with other works that share materials but develop it in different ways. But before we can begin to explore the nature of these interconnections, another aspect of Boulez's techniques for deriving new materials from an initiating series must be addressed, which refers to another aspect of "partially isomorphic" relationships.

2.6. Extending Indiscipline

Some of Boulez's techniques for deriving new materials do not fall under typical partial or total isomorphic relationships. Instead, these types of connections emerge when the analyst has become very familiar with Boulez's basic materials and can interpret an underlying sense of logic to the composer's methods. In these instances, as is the case with the study of the majority of Boulez's music, the sketches are indispensable. The following example, Fig. 2.14, shows the first vocal line that appears at the opening of "Don," the first movement of *Pli selon Pli*. This line appears in the second measure of the work, although Boulez does not employ measure numbers throughout.



Fig. 2.14. Opening vocal line from “Don”

Shown below, in Fig. 2.15, are Boulez’s attempts at composing the vocal line found in a sketch to the work. While some common pitches appear from line to line, notably the B \flat that begins three of the four lines, it is not possible to establish clear relationships between the lines based upon the spectrum of invariances we have seen thus far.

Materials derived from the *Le Marteau* series, shown in Fig. 2.16, are used pervasively in “Don,” so comparing the opening vocal line to this series is the first step in uncovering the nature of its construction. In terms of pitch materials, it is clear that Boulez is employing the first hexachord of the series, duplicating each pitch (with the exception of B \flat which is repeated three times) to create a twelve-note line centered around the first pitch of the *Le Marteau* series, E \flat . But given the prominence of the series both in this work and in other works of this period, even a re-ordered hexachord with recycled pitches can yield insight into the logic of Boulez’s organizational logic.



Fig. 2.15. Transcription of a sketch of the opening vocal line of “Don”; Microfilm 581: 0333

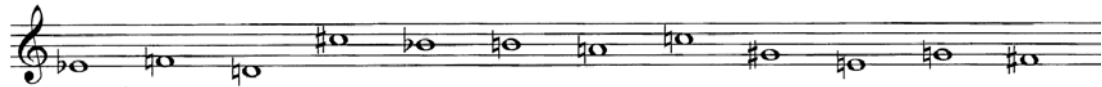


Fig. 2.16. Series from *Le Marteau sans maître*

While the other lines in the sketch shown in Fig. 2.15 contain pitch-class content outside of this initial hexachord, such as G^{\flat} and A^{\flat} in the third system, the line Boulez ultimately selects to appear in “Don” maintains the initial hexachord of the *Le Marteau* series. There are also certain pitch groupings that arise from partitioning the series in various ways that are preserved in the vocal line from “Don.” For instance, if the first six pitches of the vocal line in Fig. 2.14 are thought of as a compound melody, two trichords are delineated: trichord 1) D^{\flat} , F^{\flat} , E^{\flat} and in the “lower” voice; and trichord 2) C^{\sharp} , B^{\flat} , and B^{\flat} in the “upper” voice. The initial pitch-class of the series, E^{\flat} , is used to anchor the vocal

line, appearing as a half-note against the quarter-note values of the surrounding pitches. It also appears in order-position six, roughly the center of the line, and is followed by F^{\sharp} , as it is in the original series. The second half of the vocal line also presents the two trichords in the style of a compound melody, with trichord 1 appearing in the lower voice and trichord 2 in the upper voice.

All of these details of construction reveal an underlying interdisciplinary logic idiosyncratic to Boulez's compositional process. Given the nature of the generalized series, which removes the emphasis on succession and instead places it on intervallic content, it is relatively clear that Boulez is using the first half of the series to create a loosely symmetrical structure that preserves certain trichords and their intervallic characteristics. Boulez's concept of the generalized series places the intervallic content of various partitions of the series above the succession of specific pitch-classes. It is not to be said that Boulez does not heed the exact pitch-content of a particular series or series-partition, as he frequently does, but that his general compositional process owes more to the intervallic properties of such constructs. Intervallic properties of the series or its partitions generally offer more to his general compositional process. The notion of succession, particularly of traditional dodecaphonic thematicism that is based upon the succession of the pitch classes of the series, holds little interest to the composer when the intervallic content allows him to exercise control over both the vertical and the linear.

It is the potential of the series to generate vertical materials that provides the subject of Chapter Three, what Boulez refers to as a "harmonic result." The primary technique involved in generating harmonic results from the generalized series is pitch-class set multiplication, also known as transpositional combination: a practice extensively

developed by Boulez and combined with the types of idiosyncratic, interdisciplinary manipulations explored in this chapter. As Boulez explores more heavily transformative techniques such as multiplication as a means of increasing the materials at his disposal, the generalized series, while remaining the point of origin in the development of these new materials, becomes increasingly far removed from the musical surface in comparison to the examples explored in the current chapter.

Chapter Three: Constellations of Derived Materials

3.1. Differentiating Constellations

The current chapter explores highly efficient, mechanical, or otherwise systematic techniques for generating masses of materials that explore the intervallic potential of the generalized series. In addition to local interdisciplinary techniques that largely govern local organization, Boulez also employed mechanical procedures that generate masses of materials in efforts to gain the maximal return on a given series that would provide him with a greater variety of choice over materials that could be deployed in a variety of instances, both local and large-scale. These new, systematic techniques take place on a much larger scale in that they can yield cascades of materials through a single procedure and exponentially increase the series' capacity for proliferation. Two major sources of materials that arise from mechanical or systematic processes reveal themselves in a group of works spanning 1952–1962.

The first source of materials derives from Boulez's idiosyncratic process of pitch-class set "multiplication," which resulted in a harmonic table, referred to as a multiplication matrix, created for the unpublished *Oubli signal lapidé* (1952), then later used in *Le Marteau sans maître* (1953-54), and "Don" (1960-62) and "Tombeau" (1959), the framing movements of *Pli selon Pli*. The second source is a rotational array developed during the composition of the retracted drama *L'Orestie* and the unpublished work for solo flute, *Strophes*. Materials from these works were later developed for "Don" and the three "Improvisation[s] sur Mallarmé I, II, and III," the internal movements of *Pli selon Pli*. Systematic processes prove to be an efficient way for Boulez to generate constellations of derived materials from a particular generalized series. Different

constellations of structures derive from different generalized series whose composite intervallic profile ends up imbuing the derived materials with aspects of this profile, lending importance to Boulez's construction of the initial series, as it is this intervallic profile that will be exploited as systematic processes are applied to the series.

Because the principal structure of the harmonic table and the rotational array arise from different source series, each initiates different constellations of materials that possess different structural characteristics. These two series¹ each form the basis of their own, ever-expanding network of structures, all of which can be traced back to one of these two series, no matter how far removed certain structures may appear and how little vestige remains of the initiating series. While there can be as many constellations of derived structures as there are series, these two particular series provided Boulez with a plethora of developmental trajectories that preoccupied his attention during this period and whose constituent materials pervade a remarkable group of works: the *Le Marteau* and *L'Orestie* series (along with their carefully constructed internal invariances), have been explored in Figures 2.4–2.5.

3.2. The Process of Multiplication

The rationale behind Boulez's development of what he describes as the multiplication process, but that, as will be shown, is more aptly described as

¹ The first series is used primarily in *Oubli signal lapidé*, *Le Marteau sans maître*, and “Don” and “Tombeau” from *Pli selon Pli* by way of the multiplication matrix devised for *Oubli signal lapidé*. The second series is used primarily in *L'Orestie*, *Strophes*, “Improvisation[s] sur Mallarmé I, II, and III” by way of the rotational array designed for *L'Orestie*. It is also used in more conventional transformations in the *Troisième Sonate*. Its use in both “Parentheses” and “Texte” from the *Troisième Sonate* are discussed in Chapter Two.

transpositional combination by contemporary music theorists, lies in his concept of the generalized series. In “Near and Far,” Boulez argues that the series must evolve beyond a linear sequence of pitches and generate materials that, to use Boulez’s phrase, “include a harmonic result.”² Boulez describes the process of multiplication differently in different writings. In “Near and Far” he describes it as a product of applying “simultaneous time” to the series, meaning that rather than a linear sequence of events, elements (partitions) of the series occur simultaneously, i.e., vertically, to create what he refers to as sonorities, i.e., partitions of the series. In this description, one partition “transposed in terms of another generates a new product, a *bloc sonore*, which is a product of the other two.”³ The reality of the process is difficult to duplicate from Boulez’s description alone so a schematic has been provided in Fig. 3.1 to help clarify the process. The interval of the multiplicand a , $\langle 10 \rangle$, is *added* above each pitch of the multiplier, b (C^{\sharp} and A^{\flat}). The two

² Susan Bradshaw, “The Vocal and Instrumental Music” in *Pierre Boulez: A Symposium*, 161. Bradshaw observes the following: “Pitchwise, then, the basic material of *Le Marteau sans maître* derives from the germ of a traditional twelve-tone row. But this is a row chosen not for its melodic characteristics, but rather for its ability to generate harmonic offshoots, from which melodic characteristics may then emerge. So the quality of the intervals—instinctively emphasized as long ago as the *Flute Sonatine*—is finally confirmed as the central generating force behind the new harmony. Each interval, or group of intervals, that the row may be made to yield as a definition of the harmonic area for a particular movement or section of a work can, in turn, be made to dominate by being superimposed on, or absorbed by, each of the others. In this way, a whole network of extended harmonic relationships begins to be brought into play—a network which retains an audible relationship with the interval-structure of an original row and its derivations.” While Bradshaw does not explore the concept of multiplication, this statement captures Boulez’s intent that the total intervallic content of the generalized series is its primary contribution to the expanding constellation, and specifically to the “harmonic result” he desired.

³ Pierre Boulez, “Near and Far,” in *Stocktakings of an Apprenticeship*, 153. Originally published as “Auprès et au loin,” *Cahiers de la Compagnie Madeleine Renaud-Jean-Louis Barrault* 3 (1954), 7–24.

transposed versions of the multiplicand a are then combined to create the product $a*b$. In essence, multiplication refers to the transposition of the multiplicand onto each pitch of the multiplier, followed by the combining of pitches from each transpositions into a single harmony. The multiplicand and multiplier may reverse roles to yield the product $b*a$, also seen in Fig. 3.1, but will not produce the same pitch content. Consequently, which partition of the series is acting as the multiplicand or multiplier will affect the resultant product, as the process is not commutative.

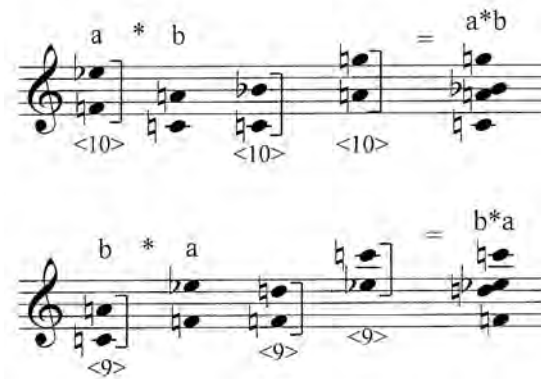


Fig. 3.1. Demonstration of the multiplication process⁴

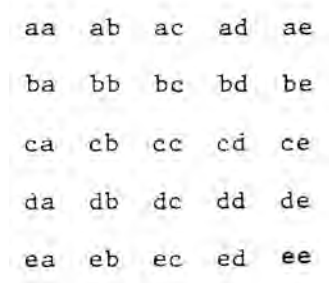
Boulez takes the basic multiplicative process and demonstrates how a complete series can be divided into verticalized partitions, any pair of which may participate in multiplication. He describes the process as follows:

Divide a series into five totally asymmetrical objects: a b c d e; object a is now comprised of m notes, object b, n notes, etc. In order to obtain new objects, the whole is multiplied by each of its parts in turn. Thus, series having multiple isomorphic relationships are created; in addition, there will be as many series as the object has notes: m first series, n second series, etc.

⁴ This figure is similar to Catherine Losada's Figure 1 from "Isography and Structure in the music of Boulez," *Journal of Mathematics and Music* Vol. 2, No. 3 (November 2008): 136; as well as her Example 1 from "Complex Multiplication, Structure, and Process: Harmony and Form in Boulez's *Structures II*" *Music Theory Spectrum*, Volume 36, No. 1 (June 2014): 86-120.

As a result, the number of totally isomorphic objects will increase in direct proportion to the number of pitches constituting the original object...⁵

In *On Music Today*, Boulez presents the schematic, shown in Fig. 3.2, that illustrates the manner in which he multiplies partitions of the series to generate a matrix of products. A *bloc sonore* is the product of an operation that combines the intervallic content of one partition of a twelve-tone series with the intervallic content of another partition. While Boulez refers to all harmonic results derived from the twelve-tone series as *blocs sonores*, regardless of whether or not they arise from straightforward, verticalized partitioning of the series, or from the secondary process of multiplication,⁶ it is necessary to distinguish between a verticalized partition from of a series and the secondary process of multiplying two partitions in a manner that generates a new harmonic entity. It is important to separate the



aa	ab	ac	ad	ae
ba	bb	bc	bd	be
ca	cb	cc	cd	ce
da	db	dc	dd	de
ea	eb	ec	ed	ee

Fig. 3.2. Boulez's schematic for combining *blocs sonores* to generate a matrix of multiplication products⁷

⁵ Pierre Boulez, *On Music Today*, 73. Boulez does not always use asymmetrical objects, as partitions of the same cardinality may be isomorphic with one another. Rather, Boulez generally avoids repeated cardinality in his partitions but, as is always the case with his compositional practice, this is a generality and not a rule.

⁶ *Ibid.*, 128.

⁷ *Ibid.*, 79.

verticalized partitions of the series from the products, or *blocs sonores* of multiplication.

Unlike tonal harmonies, neither Boulez's partitions of the series nor the products that result from multiplication possess an externally imposed functionality. Rather, "the relational functions will no longer be exterior to the chords but will be part of the actual constitution of those chords."⁸ In a similar fashion to the series itself, harmonies derived from it do not imply any type of goal-oriented motion: they have no impulse. Any direction in their development must arise from their internal construction and interconnections with other materials based upon this construction. Boulez describes the relationship between the internal construction of partitions and the interconnections that result from multiplying them into products, or *blocs sonores*, in "Possibly."⁹ Taking a similar tone to "Near and Far," the process is presented largely as systemized transposition. Richard Cohn was the first to coin the term "transpositional combination," a term that has gained acceptance as a more appropriate representation of Boulez's multiplication process, as demonstrated by its use in writings by Catherine Losada and Stephen Heinemann.¹⁰ One verticalized partition of the series is transposed according to

⁸ Boulez, "Near and Far," in *Stocktakings of an Apprenticeship*, 152.

⁹ Pierre Boulez, "Possibly," in *Stocktakings of an Apprenticeship*. Originally published as "Éventuellement..." *La Revue musicale* 212 (1952): 117–48.

¹⁰ Richard Cohn, "Inversional Symmetry and Transpositional Combination in Bartók," *Music Theory Spectrum* 10 (1988): 19–42 and *Transpositional Combination in Twentieth Century Music (Bartók)* PhD Diss. University of Rochester, Eastman School of Music, 1987. The term was originally coined by Richard Cohn. Stephen Heinemann also discusses the procedure and both he and Catherine Losada explore the implications of Boulez's transpositional schemes for products of multiplication. See Heinemann, "Pitch-Class Set Multiplication in Theory and Practice"; and Losada, "Isography and Structure in the Music of Boulez." The process of multiplication combined with a secondary transposition is commonly referred to as "compound multiplication," a term coined by Heinemann.

In Fig. 3.5, which is taken from Boulez’s essay “Possibly,” the composer multiplies partitions *a* and *d* from Figure 3.4b resulting in a ten-note product, or *bloc sonore*. The interval <10>, between the pitches of *a*, E \flat and C \sharp , and of <3>, between the pitches of C \sharp and E \flat , are each added above the pitches of *d* (D \flat , B \flat , F \sharp , and A \flat). Duplicate pitch-classes are omitted here. Because *d* has four pitches, the process takes place four times.



Fig. 3.5. Multiplication and systematized transposition¹²

Figure 3.5 is accompanied by another example provided by Boulez in “Possibly,” shown in Fig. 3.6,¹³ though Boulez’s original does not include the schematic notation identifying the partitioned series in the top line, nor does he distinguish these verticalized sonorities from the resultant products of multiplication and the transposition levels between the them. This example is perplexing. First, the top line in Fig. 3.6 presents five partitions of the I5 version of the *Le Marteau* series, labeled *a–e*, rather than the labels attributed to products of multiplication shown in the schematic Fig. 3.1: *aa*, *bb*, *cc*, etc. The second system skips directly to products *ca*, *cb*, *cc*, *cd*, and *ce*, but with an additional T3 transposition from the pitch classes that what would arise from multiplying these partitions. The products that would result from these processes without additional transposition are shown in Fig. 3.7. The third system of Fig. 3.6, showing products *da*, *db*, *dc*, *dd*, and *de*, is a T9 transposition of what would arise from straightforward

¹² Ibid., 129.

¹³ Ibid., 129.

multiplication of the partitions in the first line. The fourth system repeats the products *ca*, *cb*, *cc*, *cd*, and *ce*, but instead subjects them to a T7 transposition, the distance between the lowest notes of partition *a* and partition *c*. Boulez’s examples are generally misleading in that the product of *ad* from Fig. 3.5 appears again in Fig. 3.6 as *da* in the third system. But these two products, or *blocs sonores*, though equivalent in terms of their pitch-class content, are derived from multiplying different transpositions of the initial series’ partitions. Fig. 3.7 shows the operations *ca*, *cb*, *cc*, *cd*, and *ce* without additional transposition. While the pitch-class sets are readily identifiable, accounting for the actual pitch-class content requires an approach in the vein of Catherine Losada.

The image displays four systems of musical notation, each on a grand staff (treble and bass clefs).
 - The first system shows five partitions labeled 'a', 'b', 'c', 'd', and 'e'.
 - The second system, labeled 'T3', shows products 'ca', 'cb', 'cc', 'cd', and 'ce'.
 - The third system, labeled 'T9', shows products 'da', 'db', 'dc', 'dd', and 'de'.
 - The fourth system, labeled 'T7', shows products 'ca', 'cb', 'cc', 'cd', and 'ce'.

Fig. 3.6. Transcription of Boulez’s multiplication matrix from “Possibly” with transpositions added by the author



Fig. 3.7. Products that result from the operations *ca*, *cb*, *cc*, *cd*, and *ce* without additional transposition

The most detailed and thorough study made of Boulez’s transpositions in the context of his multiplication products has been undertaken by Losada. In an unpublished TMI she shared with me back in 2008, she was already re-arranging Boulez’s multiplication matrices according to consistent transpositional schemes.¹⁴ In “Isography and Structure” she decodes the transpositional schemes employed by Boulez in *Structures II* and locates their origin in the lowest notes of the series’ partitions.¹⁵ She then re-arranges Boulez’s multiplication matrices to show their “proper” organization had Boulez not intentionally disguised this aspect of his compositional process. In another example where she discusses a famous multiplication matrix that accompanies “Sequence” from the *Troisième Sonate*, she attributes the origin of the transposition levels to the highest notes of each partition of the initial series.¹⁶ Her body of work helps account for many of Boulez’s transpositional schemes throughout his repertoire, so long as the work employs multiplication. The topic of transposition will be addressed further on in greater detail.

¹⁴ Catherine Losada, “Complex Multiplication, Structure and Process: Harmony and Form in Boulez’s *Structures II*.” *Music Theory Spectrum* 36, no. 1 (2014): 86-120; “Isography and Structure in the Music of Boulez.” *Journal of Mathematics and Music* 2, no. 3 (2008): 135-155; “Simplifying Complex Multiplication.” Unpublished draft provided by author (paper presented at the annual meeting of the Music Theory Society of New York, Saratoga Springs, NY., April 2006).

¹⁵ Catherine Losada, “Isography and Structure in the music of Boulez”, 140-141.

¹⁶ *Ibid.*, see Figures 21 and 22, 148.

3.3. Applying Products of Multiplication

For the purposes of this investigation, a simple working knowledge of multiplication is sufficient in order to understand the constellation that includes this harmony-producing technique. The most straightforward approach to multiplication has been taken by Lev Koblyvakov so I take his work as my example in explicating this compositional process.. Boulez is able to generate additional harmonic materials from a single generalized series by re-partitioning it into new pitch-class sets that are then subject to the process of multiplication. Fig. 3.8 shows five different partitionings of the *Le Marteau* series, referred to by Koblyakov as “Domains.”¹⁷ Fig. 3.9 verticalizes the partitions in each Domain (distinguished by a series of Greek letters), each labeled *a* through *e* so that the process of multiplication can take place according to the schematic shown in Fig. 3.2.

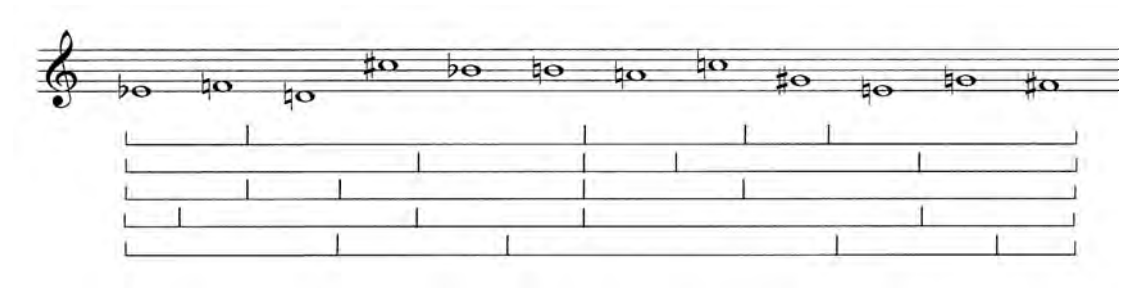


Fig. 3.8. Five Domains as described by Koblyakov as they result from five different partitions of the *Le Marteau* series

Boulez creates a master lexicon of matrices, generated from a series of Domains, the totality of which is often erroneously referred to as a multiplication matrix, shown in

¹⁷ Koblyakov, *Pierre Boulez: A World of Harmony*, 5.

Fig. 3.10. Consequently, the term “multiplication table” will be used to refer to the totality of the matrices in Fig. 3.10, with individual matrices identified by their Domain name. The schematic shown in Fig. 3.2 is applied to each Domain, labeled Αλ, Βη, Γα, Δε, and Επ.

The figure displays five musical staves, each representing a different domain. Each staff begins with a treble clef and a key signature of one flat (B-flat). The notes are labeled 'a', 'b', 'c', 'd', and 'e' from left to right. Below each note, there are vertical lines and dots representing partitions of the series. The partitions for each domain are as follows:

- Αλ:** a (1 dot), b (1 dot), c (1 dot), d (1 dot), e (1 dot)
- Βη:** a (1 dot), b (1 dot), c (1 dot), d (1 dot), e (1 dot)
- Γα:** a (1 dot), b (1 dot), c (1 dot), d (1 dot), e (1 dot)
- Δε:** a (1 dot), b (1 dot), c (1 dot), d (1 dot), e (1 dot)
- Επ:** a (1 dot), b (1 dot), c (1 dot), d (1 dot), e (1 dot)

Fig. 3.9. Domains with verticalized partitions of the series; annotations provided by the author

Similarly to the matrix shown in Fig. 3.6 where the top line contains the series’ partitions, the top lines of each matrix in Fig. 3.10 are substituted with a new set of partitions of the same series that define the Domain, with each partition labeled *a–e*. The products, or *blocs sonores*, in later rows are identified by their combination of partitions. The products that appear in the remaining rows are designated by another series of Greek letters, Μυ,

		Domain Αλ	Domain Βη
Partitions	Mυ		
Blocs sonores	Nυ		
	Ξι		
	Ομ		
	Πι		
	Domain Γα	Domain Δε	Domain Επ
	Mυ	Mυ	Mυ
	Nυ	Nυ	Nυ
	Ξι	Ξι	Ξι
	Ομ	Ομ	Ομ
	Πι	Πι	Πι

Fig. 3.10. Transcription of Boulez's sketch of multiplication matrices for *Le Marteau sans maître*; original is housed at the Paul Sacher Foundation; Microfilm 136: 0561

Νυ, Ξ, Ομ, and Πι. Combining a Greek Domain-name with Greek row-name specifies a particular set of five *blocs sonores* within a given row of the matrix. Even in the use of Greek letters, Boulez follows an initial succession as he typically does whether or not the series of representative symbols involves the Greek or Latin alphabets, Roman or Arabic numerals, or another series of symbols.

The first use of this particular multiplication table was in the unpublished *Oubli signal lapidé*, in which Boulez primarily uses the table's partitions (indicated by the letters *a–e*) for the local organization of pitches and gestures. The first page of this unpublished piece, provided by the Paul Sacher Foundation, is shown in Fig. 3.11 with analytic markings highlighting the individual Μυ partitions from the Γα and Επ Domains. Further analysis of this work would be a useful endeavor to see if Boulez progressed to using the full potential of the multiplication table as well as his possible employment of any logical path to connect products from particular Domains. The use of a particular multiplication matrix within the table provides Boulez with the opportunity to organize local structures and characterize them according to the properties of the harmonies contained within it. Boulez tends to observe the groupings of *blocs sonores*, keeping them distinct in order to highlight the features of a particular matrix. He uses these *blocs sonores* to organize materials from the various movements of *Le Marteau*, most straightforwardly in the first movement, “avant l’artisanat furieux.” Fig. 3.12 shows a multiplication matrix that Boulez has rearranged to generate new trajectories through the products. By following the arrows, beginning with product *ea* in the upper left-hand corner, one can trace the route through the matrix that Boulez uses in

oubli signal lapidé

sept séquences

pour douze voix mixtes

dante gail...

pierre boulez.

II

MODÉRÉ Très souple

The musical score is arranged in two systems. The first system includes Soprano I, Alto I, Ténor I, and Basse I, all of which are currently silent. The second system includes Soprano II, Soprano III, Alto II, Alto III, Ténor II, Ténor III, Basse II, and Basse III. The vocal parts feature lyrics such as 'L'es lan des pour 4' and 'Trou - peaux en'. The piano accompaniment includes complex rhythmic markings like '5 (2+3) 16' and '5 16 (2+3)', and dynamic markings such as 'mp', 'mf', and 'poco più f'. There are also annotations like 'MUET a' and 'MUΓα a'.

Fig. 3.11. Analysis of the unpublished *Oubli signal lapidé*; reprinted with permission from the Paul Sacher Foundation

his employment of Domain B η in mm. 42–52 of “avant l’artisanat furieux.” Note that Boulez alternates between paths that maintain or avoid what he refers to as “partially isomorphic objects,” or those that have an “original object in common; all the objects in b, for example will have the common structure b, while the other structure will be variable: ab, bb, cb, db, eb.”¹⁸ He refers to products as “non-isomorphic” if they are “pure objects” in that they are multiplied by themselves, e.g., *dd*, *cc*, *bb*, etc.

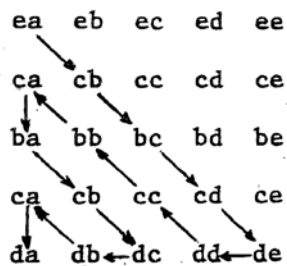


Fig. 3.12. Boulez’s path through a matrix derived from Domain B η for “avant l’artisanat furieux,” mm. 42-52, as described by Koblyakov¹⁹

In the score and analysis, shown in Fig. 3.13, Boulez’s path through the matrix can be found by following the boxed products according to the following scheme: m. 42: *ea* (vibraphone, guitar and viola); m. 43: *cb* (viola), *bc* (flute in G); mm. 43-44: *cd* (vibraphone); m. 45: *de* and *dd* (guitar and viola); m. 46: *cc* (vibraphone), *bb* (flute and vibraphone), *ca* (guitar and viola), although the meaning of the T5 transposition here is not apparent; m. 47, *ba* (vibraphone and guitar); m. 48: *cb* (viola); m. 48/49: *dc* (vibraphone); m. 49: *db* (guitar and viola); m. 50/51: *ca* (vibraphone and guitar); m. 52: *da* (vibraphone and guitar).

¹⁸ Boulez, *On Music Today*, 80.

¹⁹ Koblyakov, *Pierre Boulez: A World of Harmony*, 10.

In a similar fashion to the example in Fig. 3.13, Boulez chooses a path through the $E\pi$ Domain in “Don,” shown in Fig. 3.14, in which each product shares a specific partition in common, in this case *a*. The succession of products are as follows: *ea* and *da* (vibraphones), *ca* (harps), *ba* (mandolin and guitar), and *a* (celeste and tube bells).

The image displays two systems of musical notation for the piece "avant l'artisanat furieux".

System 1 (mm. 42-48):

- Fl. en sol.:** Starts at m. 42 with *poco rit.* and $B\eta$ annotation. Dynamics include *p*, *cresc.*, and *f*. Annotations include *ea*, *cd*, *bc*, and *bb*.
- Vibr.:** Changes time signatures from 2/4 to 6/8, then 2/4, 1/4, 3/8, 2/4, 3/8, and 3/4. Dynamics include *p* and *f*. Annotations include *ea*, *cd*, *de*, *dd*, and *cc*.
- Guit.:** Changes time signatures from 4/4 to 2/4, 1/4, 3/8, 2/4, 3/8, and 3/4. Dynamics include *p* and *f*. Annotations include *cb* and *ca*.
- Alto:** Dynamics include *p* and *cresc.*. Annotations include *cb* and *ca*.

System 2 (mm. 49-52):

- Fl. en sol.:** Starts at m. 49 with *presser* marking. Dynamics include *pp* and *mf*. Annotations include *ba*, *dc*, *ca*, and *da*.
- Vibr.:** Changes time signatures from 3/8 to 2/4, then 1/4, and 3/4. Dynamics include *pp sub.* and *ff*. Annotations include *ba*, *dc*, *ca*, and *da*.
- Guit.:** Changes time signatures from 4/4 to 2/4, then 1/4, and 3/4. Dynamics include *pp sub.* and *mf*. Annotations include *eb*, *db*, *ca*, and *da*.
- Alto:** Dynamics include *pp* and *mf*. Annotations include *eb*, *db*, *ca*, and *da*.

Fig. 3.13. Domain $B\eta$ in mm. 42–52 of “avant l’artisanat furieux”

While Boulez uses all matrices from the multiplication table in “Don” and “Tombeau,” the framing movements of *Pli selon Pli*, the ramifications of their use for large-scale form will be discussed in greater detail in Chapters Five.

The image shows a complex musical score for the piece "Don" by Pierre Boulez. It is divided into several staves, each representing a different instrument or voice part. At the top left, there is a box containing the Greek letters $E\pi$ and the word "irrégulier" followed by "ea da". Below this, the staves are labeled: "Vibr. 1 (sans moteur)", "Vibr. 2 (sans moteur)", "Harpe 1", "Harpe 2", "Mand.", "Guit.", "Cel.", and "Cloches-tubes". The score contains various musical notations, including notes, rests, and dynamic markings like "pppp" and "pp". There are also specific instructions: "Suture la MAIN GAUCHE ou la MAIN DROITE du Chef battu AU CENTRE" and "3s". Several sections are boxed and labeled with letters: "ca" for Harpe 1, "ba" for Mand., and "a" for Cel. There are also circled numbers "2" and "3".

Fig. 3.14. *Blocs sonores* from Domain $E\pi$ in “Don”

3.4. The Issue of Transposition in the Multiplication Process

As was stated earlier, pioneering work on the topic of transposition in Boulez’s multiplication process has been undertaken by Catherine Losada. If Boulez followed the mechanical procedure of multiplication in a straightforward fashion, each domain would yield what Robert Morris might refer to as a “compositional space.” Morris defines the compositional space as “a set of musical objects related and/or connected in at least one specific way. But most importantly, compositional spaces are non-temporally interpreted,

that is, they are out of time.”²⁰ Boulez, however, rejects what he perceives to be the totalitarian nature of mechanical processes by introducing an interdisciplinary element to the process of multiplication which involves the transposition of products as shown in Fig. 3.6. Though Lev Koblyakov is the first to explore the issue of multiplication in the first cycle of *Le Marteau*, he omits any discussion of the transpositional schemes that appear in the multiplication matrices, and Boulez’s published illustrations of the process in various writings are cryptic. They do, however, hold clues to the logic behind his transpositional schemes in particular matrices.

Boulez employs various means for systematically transposing products of the multiplication process, such as Losada’s low-note and high-note schemes. Instead of the low-note scheme that operates in the multiplication matrices of previous examples, here Boulez derives the interval of transposition from the constituent intervals of the multiplier and the multiplicand. For instance, in fig. 3.15, the multiplier contains the intervals <5> and <3> (measuring from the bass to each of the upper pitches and reducing the compound interval), which motivates Boulez to use the transposition levels T5 and T3. In Fig. 3.15, transcribed from *On Music Today*, Boulez is multiplying *a* by *e* and vice versa. The product of *a* and *e* (shown at $a*e$, 1) is transposed to yield two more isomorphic harmonies: $a*e$, 2 and $a*e$, 3. The transposition levels result from the intervallic content of set *a*, which is a member of set class [025]. Another member of set class [025]

²⁰ Robert Morris, “Compositional Spaces and Other Territories,” *Perspectives of New Music* 33, no. 1/2 (1995): 336. Robert Morris explores the idea of multiplication, or “modular addition,” as a particular type of compositional space. He provides a series of six-by-six matrices that show the imbrication of products obtained through multiplication. Morris observes the potential of the multiplication matrix to generate uniform pc materials for composition. While referencing Boulez’s multiplicative system as containing the potential for creating a compositional space, Morris does not make definitive connections to Boulez’s music, theory, or practice.

emerges from combining the lowest notes of a^*e , 1; a^*e , 2; and a^*e , 3 (F#, C#, and D#). The transposition levels of the products e^*a 4, and e^*a 5 result from the interval between the constituent pitches of partition e , a minor third, or T3.

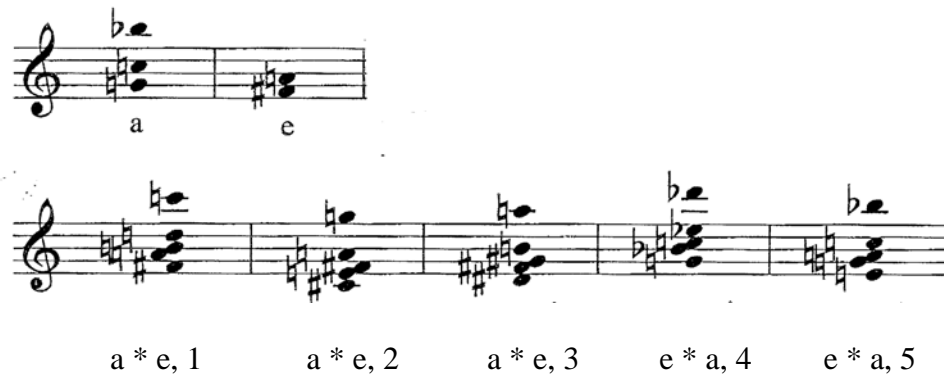


Fig. 3.15. Transposition of Boulez’s scheme for multiplication products in *On Music Today*²¹

Another example of a transpositional scheme involving the intervallic content of a particular multiplier is demonstrated in Fig. 3.16a, a transcription of one of Boulez’s figures from *On Music Today*.²² In this figure, Boulez presents a series of transpositions based upon the products from Domain $E\pi\Xi$ from Fig. 3.10. The top system depicts the partitions a , b , c , d , and e from Domain $E\pi\text{M}\upsilon$ while the second system presents the products ca , cb , cc , cd , and ce , respectively, that appear in the Fig. 3.10 table. The issue here is that the products that appear in the table are transpositions of the products that should arise from following the multiplication process. In the transcribed and annotated

²¹ Boulez, *On Music Today*, 80. This figure is also discussed by Losada in “Isography and Structure,” p. 139, Ex. 7.

²² *Ibid.*, 40. Joseph Salem articulates the frustration many feel when first confronting Boulez’s explanatory figures particularly well when he says: “This is perhaps one of the most difficult examples in *Boulez on Music Today*. Without any clear explanation—this example is nearly indecipherable to readers who are not already familiar with the multiplication process.” Salem, *Boulez Revised: Compositional Process as Aesthetic Critique in the Composer’s Formative Works*, 39.

version of the figure, the second system contains the products, as they should appear, following Boulez's process (with some pitch re-ordering to replicate the composer's voicing). The third, fourth, and fifth systems present T6, T3, and T5 transpositions of this second, "proper" system of products. Boulez derives the transposition levels by comparing the pitches of a (D^{\flat} , F^{\flat} , and E^{\flat}) with the lowest note of c , (A^{\flat}), shown in Fig. 3.16b. The intervals $\langle 6 \rangle$, $\langle 3 \rangle$, and $\langle 5 \rangle$ inspire the transposition levels. The products that appear in the multiplication table in Fig. 3.10 are subjected to a T6 transformation. Coincidentally, partition a from Domain $E\pi M\upsilon$ generates set-class [013], which manifests itself among the lowest notes of the transposed versions of Domain $E\pi\Xi$ products, i.e., the lowest notes of ca at T6, T3, and T5 combine to form an [013].

Further evidence of Losada's lowest-note transpositional scheme is found at work in the multiplication matrices shown in Fig. 3.10. To exemplify, Boulez transposes Domain $A\lambda\Xi$ products ca , cb , cc , cd , and ce , shown as they appear in the multiplication table in the upper system of Fig. 3.17a, while the lower system shows the products that *should* result from the multiplication process applied to Domain $A\lambda M\upsilon$ partitions.²³ The products that appear in Boulez's multiplication table have been subjected to a T7 transposition: the interval between the lowest notes of partitions c and a being $\langle 7 \rangle$. Note that some products have been respelled (without changing the pitch-class content) to reflect Boulez's notation, particularly product ca . This example is based upon Losada's

²³ Figures 3.17a and 3.17b were initially presented to me in an unpublished draft of a paper presented at the annual meeting of the Music Theory Society of New York, Saratoga Springs, NY., April 2006. They appear as Ex. 9 in this TMI and fall under the re-arrangement of the multiplication table according to the transpositional scheme based upon the lowest notes of each partition of the initial series. These figures have since been published as "Complex Multiplication, Structure, and Poetry: Harmony and Form in Boulez's *Structures II*" *Music Theory Spectrum* 36, no. 1 (2014): 86-120.

re-arrangement of Boulez's multiplication matrix according to the lowest-note scheme of transposition.²⁴



Fig. 3.16a. Transcription and annotation of Boulez's Ex. 3 from *On Music Today* as applied to transposition levels of matrix $E\pi E$

In another instance, Boulez transposes Domain $A\lambda O\mu$ products *da*, *db*, *dc*, *dd*, and *de*, shown as they appear in the multiplication table in the upper system of Fig. 3.17b while the lower system shows the products that *should* result from the multiplication

²⁴ Figures 3.17a and 3.17b were initially presented to me in an unpublished TMI provided by Losada in 2006. They fall under the re-arrangement of the multiplication table according to the transpositional scheme based upon the lowest notes of each partition of the initial series. These figures have since been published as "Complex Multiplication, STrucutre, and Poetry: Harmony and Form in Boulez's *Structures II*" *Music Theory Spectrum* 36, no. 1 (2014): 86-120.



Fig. 3.16b. Transposition levels derived from the interval between the pitches of *a* and the lowest pitch of *c*, A^b

process applied to Domain $\Lambda\lambda\mu\nu$ partitions. The transposition level, T3, correlates to the interval between the lowest notes of partitions *d* and *a*, or $\langle 3 \rangle$. In Figures 3.16a and 3.16b, as well as Figures 3.15a and 3.15b, Boulez demonstrates an affinity for generating new organizational schemes to layer onto existing ones: in this case, devising various transpositional schemes to apply to the multiplicative process by which he generates his mass of *blocs sonores*, shown in Fig. 3.10. Ultimately, new trajectories for the development of new musical materials frequently emerge from the inherent structural properties of existing materials.



Fig. 3.17a. Losada's T7 transposition of multiplication products in matrix $\Lambda\lambda\Xi$



Fig. 3.17b. Losada's T3 transposition of multiplication products in matrix ΑλΟμ

While the process of multiplication could be applied to any partitioned series, the harmonic table shown in Fig. 3.10 is used pervasively throughout works of this period and belongs to a constellation of structures that involves materials generated from the series used for *Oubli signal lapidé* and *Le Marteau sans maître*. Boulez does apply the process to other series; for instance, he partitions the series from *L'Orestie* into six verticalities that generate a series of multiplication products that appear in the retracted drama, as shown by Peter O'Hagan.²⁵ Boulez does not, however, generate a complete multiplication table based upon his initial schematic for combining partitions (see Fig. 3.2). Nor does he create a multiplication table based upon the inversion of the series, as he does with the *Oubli signal lapidé/Le Marteau* series. Outside of largely introductory examples provided by O'Hagan as to the use of multiplication products in *L'Orestie* (due largely to the lack of surviving sketch materials, the restricted access to the score given

²⁵ Peter O'Hagan, "Pierre Boulez and the Project of '*L'Orestie*,'" *Tempo* 61, no. 241 (2007): 46–48. O'Hagan presents Boulez's partitioning of the series into six *blocs sonores*, transcribes Boulez's incomplete multiplication table, and shows how certain multiplication products are employed at significant moments in the drama. O'Hagan identifies these products in the music that accompanies Cassandra's entrance (a relatively short excerpt). It would be worthwhile to explore the surviving sketch materials as well as the score to *L'Orestie* to establish the extent to which Boulez employed multiplication.

both Boulez's retraction of the work, and its storage at the Paul Sacher Foundation in Basel), the full extent to which these products are used is unclear. Future study would provide valuable insight into Boulez's formulation of the multiplication technique in general in addition to offering a window into the compositional processes involved in *L'Orestie*. In addition to using both partitions of the series and multiplication products generated from it, Boulez explores a different technique in *L'Orestie* that yields a new mass of materials that has a profound influence on works of this period.

3.5. The *L'Orestie* Series and its Rotational Array

For *L'Orestie*, Boulez develops an array of series based upon the principle of rotation. Boulez continued to use this array in a multitude of works spanning *L'Orestie*, *Strophes*, and many of the movements of *Pli selon Pli*: "Don," and "Improvisation[s] sur Mallarmé I, II, and III." The series for *L'Orestie* is shown in Fig. 3.18. Also shown are the manipulations that I believe may have been used to generate the derived series "A" which appears as the top line in the array shown in Fig. 3.19a.²⁶ These processes, similar

²⁶ This rotational array first appears in Robert Piencikowski, "'Assez lent, suspendu, comme imprévisible': Quelques aperçus sur les travaux d'approche d'Éclat'." *Revue internationale de critique génétique* 4 (1993): 51-67. It also appears in Guldbrandsen, Erling E. *Tradisjon og tradisjonsbrudd: en studie i Pierre Boulez: "Pli selon Pli – Portrait de Mallarmé"*. Oslo: Universitetsforlaget, 1997; Ibid., "In the Plural: Institutions, Pluralism and Critical Self-Awareness in Contemporary music," in *Papers from Three Seminars on Contemporary Music Organised by Department of Musicology, University of Copenhagen, as part of ISCM's World Music Days 1996*. Edited by Søren Møller Sørensen. Copenhagen: Department of Musicology, University of Copenhagen, 1997: 14–22; and Ibid., Ed. Edward Campbell and Peter O'Hagan, "Casting New light on Boulezian Serialism: Unpredictability and Free Choice in the Composition of *Pli selon pli – portrait de Mallarmé*," in *Pierre Boulez Studies* (Cambridge University Press, 2016): 203.

to the transformation of the vibraphone lines from “Improvisation sur Mallarmé II” discussed in Figures 2.7–2.8 in the previous chapter, include transposition, pitch-class reordering, and the preservation of contour.

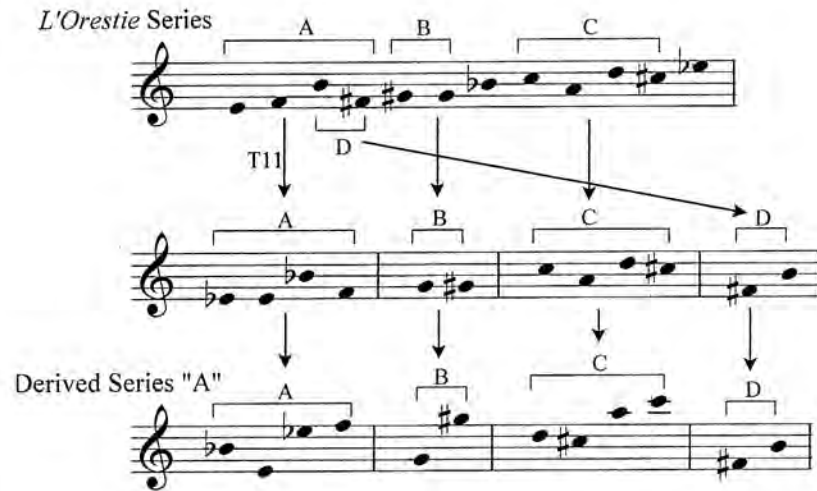


Fig. 3.18. Possible means of deriving row “A” from the *L'Orestie* series

The rotational principle employed in Fig. 3.19a is based upon shifting the boxed interval of the perfect fourth in system A to the left by one position and transposing it by T1, with each successive series continuing the order shifting and transposition processes from systems B–K. By shifting each successive series by one order position but maintaining the partitions of dyads and trichords labeled *a–e*, Boulez generates different pitch-class and intervallic content for each of these cells. If the principles of position shifting and transposition were followed rigorously, each system would yield a complete series. But beyond series A, this is not the case.

The series that follow A are modified in a number of ways. Series B most closely resembles A, with the directed intervals between order positions shown in Fig. 3.18b. The two series are nearly identical with respect to the sequence of directed intervals with the

exception of Boulez's interchange of two intervals specific to two different pairs of order positions between series A and B. In series A, order positions 12 and 1, which form the interval <1>, and positions 1 and 2, which form the interval <6>, are switched in series B so that order positions 12 and 1 form the interval <6> and positions 1 and 2 form the interval <1>. In essence, the two intervals are reversed. This allows Boulez to repeat pitch-class F[#]. In addition to manipulating intervals associated with specific order positions, Boulez frequently adjusts interval size when constructing what he refers to as "defective series" that constitute the remainder of the rotational array. There is, however, an interdisciplinary logic to these manipulations. Each system after A contains at least one repeated pitch-class. Series B, C, and D each contain one repeated pitch-class: F[#], G^b, and G[#] respectively. Series E–I each contain two repeated pitch-classes: series E (C^b and B^b), series G (D[#]/E^b and C^b), series H (C[#] and E^b), and series I (F^b and D^b). Series J and K each contain one repeated pitch-class, E^b and E^b respectively. Series F, the central series in the array, contains three repeated pitch-classes (C[#], D^b, and B^b).

The image displays a musical score for a rotational array, consisting of 11 systems labeled A through K. Each system is a single melodic line in treble clef, with a key signature of one flat (B-flat). The systems are arranged vertically. System A includes sub-labels 'a' through 'e' above specific notes. Systems B through K show a sequence of notes that are rotated relative to each other, with some notes highlighted by boxes. The notes are primarily eighth and quarter notes, with some rests. The overall structure is a single melodic line that is rotated in pitch across the systems.

Fig. 3.19a. Rotational array conceived for the retracted drama *L'Orestie*

A general pattern emerges in that the greatest number of repeated pitch-classes appears in the defective series F at the center of the array and the number of repeated pitch-classes decreases in the series that span outward from this central series. While not a rigorous organizational principle, with series A being the sole aggregate whose completion is not mirrored by series K, similar types of indisciplinary principles were explored at length in Chapter Two, and this strategy highlights Boulez's generally quasi-systematic approach to organizing materials derived from an original, complete series.

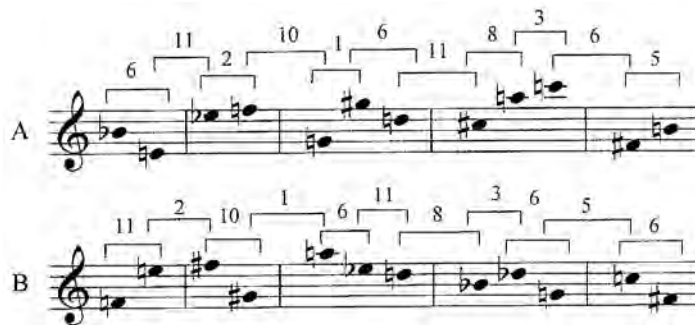


Fig. 3.19b. Creation of defective series B from series A

Returning to the term “defective series,” Boulez describes the concept in *On*

Music Today as follows:

Until now, we have examined what might be called ‘complete’ series. From these higher organisations, it is possible to deduce partial structures, which will be called *limited series* and *defective series*; both are obtained by a *reduction* of the original... *Defective series* are deduced by applying to the original series a mechanical procedure such as changing the module or filtering’ the frequencies; this filtering systematically modifies a frequency, and may even replace it by an absence of sound. A change of module is, so to speak, a structural feature independent of the structure of the series, thus modifying it automatically.²⁷

²⁷ Boulez, *On Music Today*, 80–81.

The primary motivation for defective series is the freedom of choice it offers to the composer. Boulez states that “the constant use of an extended scale of values is statistically bound to cause a lack of differentiation which is particularly intolerable in this context” and that “transformations are extremely important if continuous use of the whole of the chosen sound-spectrum is to be avoided.”²⁸ The defective series loosens the constraints of the serial system by introducing indisciplinary potential into whatever organizational scheme is at work: a tendency of Boulez’s that loosens the grip that mechanistic techniques have over materials and instead expands his field of action, broadening his potential for selection and choice.²⁹

As was previously mentioned, the structuring principles behind defective series in the array are governed by a logical process, as is generally the case with Boulez’s indisciplinary procedures. While Boulez describes the defective series as being subjected to “the filtering of frequencies [that] must similarly have a structural justification,”³⁰ there is always some degree of logic that governs the transformation of certain components of an initial series into a new, defective series. Certain notes may be changed, or the whole series may be subjected to a specific set of transformative procedures. The most important feature of the defective series is that the starting point is an initial series, and that transformations occur on demand as the musical work progresses and requires new materials to sustain it. Boulez most frequently uses defective series when he desires a specific sound profile for a passage, so he employs a module that

²⁸ Ibid., 81.

²⁹ Ibid., 82.

³⁰ Ibid.

transforms certain intervals, for instance, into a desired interval that will color the musical surface in the desired fashion, a technique pervasive in the “Bourreaux de solitude” from *Le Marteau sans maître*.³¹

Boulez maintains the order and intervallic structure of cells in the array, shown in Fig. 3.19a, in works like *Strophes*, and uses them to color the sound of the piece. For instance, all of the trichords in this array express one of the following set classes: 1) [012], [013], [014], and [016], each of whose interval successions possesses at least one occurrence of the interval <1> ; or 2) [024] and [036], each of whose interval successions are symmetrical. With an array of systematically transposed twelve-note series, total isomorphism would be expected among the series. In Boulez’s rotational array, what emerges instead is a set of defective series evincing a tendency towards indisciplinary logic unique to Boulez’s compositional practice.

3.6. The Rotational Array in *Strophes*, *L’Orestie*, and “Don”

As was previously discussed, each series or defective series of the rotational array for *L’Orestie* is parsed in cells of trichords or dyads. These cells are used in a variety of ways in multiple works, most notably the unpublished, solo flute work *Strophes*. The first page from an early draft of the score for *Strophes* for solo flute is shown in Fig. 3.20, which shows music being parsed into subsections identified by a number/lower-case letter combination, i.e., *Str. 1a*, *Str. 1b*, *Str. 1c*, etc., all indicated in boxes above the solo flute staff. Each subsection is tied to the particular arrangement of cells from the series or defective series in the rotational array. For instance, the pitch material for *Str. 1a* is

³¹ See Decroupet, ed., *Le Marteau sans maître, Facsimile of the Draft Score*, 92–93.

derived from the straightforward presentation of the cells from series A, B, and C from the rotational array. In *Str. 1a*, Boulez exclusively uses cells *a*, *b*, and *c* from these series, though not necessarily preserving that order.

Fig. 3.21 provides a reduction of the flute's pitch content from Fig. 3.20, sections *Str. 1a–1b*, with analysis identifying specific cells drawn from specific series in the rotational array. The uppercase letters refer to specific series from the array while the lowercase letters refer to specific cells within these series. As can be seen in line A in the rotational array, each line is parsed into five cells, labeled *a–e*. Boulez uses cells either alone or in combination with both adjacent and non-adjacent cells. While the logic behind his use of cells begins in a straightforward fashion with *Strophes 1a*, the selection processes become increasingly convoluted and difficult to identify as the piece progresses.

As has been previously mentioned, *Strophes* belongs to a group of works that were in development during the period spanning 1952–1962. While *L'Orestie* was composed first, as can be seen in Fig. 3.22, there are markings that suggest Boulez later lifted sections of *L'Orestie* to use in *Strophes*, as evidenced by a sketch to *L'Orestie* with clear markings indicating content that will be directed towards *Strophes*.³² While *Strophes 1a*, shown in the boxed area of Fig. 3.22, underneath a trio consisting of the flute, clarinet in A, and harp, is legible, the remainder of the sketch (as is the problem with most of Boulez's sketches) is virtually illegible not only when reproduced, as the

³² See additional examples of the comparison between *Choéphores 4* from *L'Orestie* and *Strophes 1b* in Salem, *Boulez Revised: Compositional Process as Aesthetic Critique in the Composer's Formative Works*, 107–118. Salem also provides examples that show the direct relationship between pitch content in *L'Orestie* and *Strophes 1g*, *3d*, and *1h*.

originals are often very difficult to read as well. Even the best quality reproductions such as the type

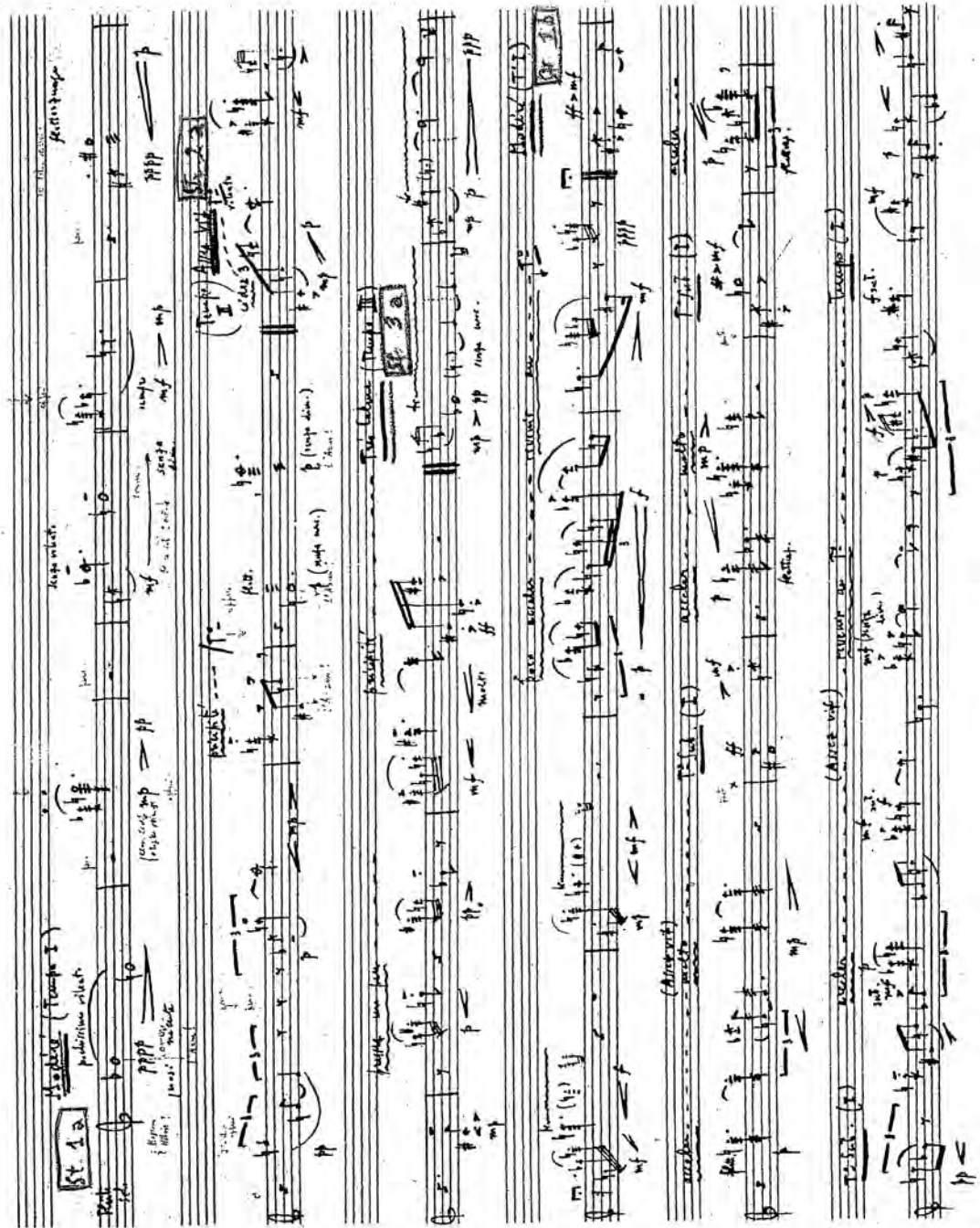


Fig. 3.20. First page of one preliminary, unpublished draft of *Strophes*; reprinted with permission from the Paul Sacher Foundation

Fig. 3.21. Pitch reduction and analysis of *Strophes 1a* to *1b* according to Boulez's rotational array

Fig. 3.22. Juxtaposition of *Strophes 1a* partitions and *Choéphores 4* from *L'Orestie*

found in the facsimile editions of *Le Marteau* and “Tombeau” are often illegible through no fault of the copiers: Boulez’s original sketches are difficult to read given the size of the notation.³³ More complicated sketches layer different organizational systems on top of one another, making it even more difficult to determine the nature of their content. In the sketch shown in Fig. 3.21, the *Strophes Ia* material is used in the flute, clarinet in A (which is not transposed here, but instead appears at concert pitch), and harp. A transcription of this section is shown in Fig. 3.23 along with analysis indicating the cells from *Str. Ia*: *Aa*, *Ab*, *Ac*, and *Bc* to clarify the content taken from the array.

To illustrate further the depth of integration between the source materials used in *L’Orestie* and *Strophes*, the table shown in Fig. 3.24 is compiled from Boulez’s sketches for *L’Orestie* and shows his plan for using sections of the incidental music to *Choéphores 4*, one of the dialogues between the characters of *Orestie* and *Elektra*, into *Strophes*. In addition to the dialogue between *Orestie* and *Elektra*, this section also includes a choir (generally commenting on the dialogue and, at times, representing *Orestie*’s father), in the style of Greek plays of antiquity. While it is not possible to reproduce the full dialogue as it takes place over a large section of music, nor the entire score for this section for similar reasons, this table provides a glimpse into how Boulez envisions how the exchange between *Orestie*, *Elektra*, and the choir translates to particular sections of *Strophes*. *Orestie* and *Elektra*’s material utilizes, in succession, the subsections of

³³ Ibid., and Piencikowski, ed., “*Tombeau*,” *Facsimile of the Draft Score*.

Fl.

Cl. A.

Fg.

Vln.

Vla.

Vcl.

Cb.

mf

p

Str. 1a

mf

p

O non plus malheureux que. comment sans-nous-je de si loin. pas plus mis par quelle-je. paroles attendue aux prison-

Fig. 3.23. Excerpt from a draft of *Choéphores 4* from the retracted *L'Orestie* showing *Strophes 1a* marking; reprinted with permission from the Paul Sacher Foundation

Strophes, e.g., *1a*, *1b*, *1c*, *1d*, *1f*, and *1g*, (the subsections are indicated by labeled boxes above the staves in Fig. 3.20), while the choir’s material is drawn from subsections that have a 2 or 3 prefix, such as 2a, 2b, etc., and 3a, 3b, etc. The significance of this is that Boulez allows precomposed material to provide a larger-scale organizational structure to this section which distinguishes both characters from one another, and the characters from the chorus.

Choéphores 4

Entrance of Orestie: “O mon père, malheureux père” *Strophes 1a*

Choir: “Allons, mon fils...” *Strophes 2a*

Choir: “Si la victime est bien pleurer” *Strophes 3a*

Entrance of Elektra: “Ecoute “Donc aussi...” *Strophes 1b*

Orestie: “Ah: que n’est-tu tombé...” *Strophes 1c*

Choir: “Oui là-bas sous la terre...” *Strophes 2b*

Choir: “Car il...” *Strophes 3b*

Elektra: “Oui, si, au lieu....” *Strophes 1d*

Orestie: “Ce mot-là, comme un trait...” *Strophes 1c*

Choir: “Ah, Quand “Donc pousserai je...” *Strophes 2c*

Elektra: “Quand donc Zeus vigoureux...” *Strophes 1f*

Choir: “Pourquoi...” *Strophes 3c*

Orestie: “Mais hélas! Regards,...” *Strophes 1g*

Choir: “Ah! Quand j’entends...” *Strophes 2d*

Fig. 3.24. Transcription of character/choir dialogue for *Choéphores 4* from *L’Orestie* with annotations showing the correlation to *Strophes* materials; compiled from sketches housed at the Paul Sacher Foundation; Microfilm 0581: 0197-0214

The integration among works of this period goes beyond similarities among materials used in *L'Orestie* and *Strophes*. For instance, Fig. 3.25 shows an undated, partially orchestrated version of *Strophes* that indicates Boulez was, at one time, considering a much larger-scale version of the work. Because this sketch is also difficult to read, a transcription of the top system for solo flute, with analysis, is provided in Fig. 3.26 which presents, in order, the opening cells from *Strophes 1a*: *Aa, Ab, Ac, Bc, Bb*, and *Ba*. The desire for an orchestral version of *Strophes* is ultimately realized when Boulez uses *Strophes* material in “Don,” the opening movement of *Pli selon Pli*. As will be explored in detail in Chapter Five, Boulez draws on materials from *Strophes* throughout *Pli selon Pli*, as well as the multiplication table (Fig. 3.10). For the benefit of the current line of investigation, it is helpful to introduce a particularly prominent setting of *Strophes 1b* in “Don,” shown in Fig. 3.27, while reserving the analysis of other materials for the discussion of “Don”’s large-scale form in Chapter Five.

In the passage from “Don” shown in Fig. 3.26, the *Strophes 1b* material is indicated by upper-case letters designating the specific series from the rotational array, shown in Fig. 3.18a, and lower-case letters designating the cells within those series. Boulez judiciously adheres to the sequence of cells from *Strophes 1b* with the exception of the omissions of cells *a* and *b* from series C, and *a* and *c* from series B. Other than this omission, the remainder of *Strophes 1a* is clearly presented, as can be seen in the analysis of the passage. Boulez’s use of interdisciplinary logic as a guide for transposing materials, be it products from the multiplication matrix (Fig. 3.10) or cells from the rotational array (Fig. 3.19a), re-emerges at the first appearance of cell *Ac* in the flutes at rehearsal 25. The

The image displays a complex handwritten musical score for the work "Strophes" by Pierre Boulez. The score is written on multiple staves, illustrating a partial orchestration. At the top, there are staves for the vocal line, with dynamic markings such as *pp*, *mf*, and *ppp*. Below the vocal line, the string section is represented by several staves, with labels for "Violin", "Viola", and "Violoncelle". The woodwind section includes staves for "Flute", "Oboe", "Clarinet", and "Bassoon". The brass section is shown with staves for "Trumpet", "Horn", and "Tuba". The score is characterized by dense, intricate notation, including many accidentals, slurs, and dynamic markings, reflecting Boulez's complex and experimental style. The handwriting is clear and precise, typical of a composer's working draft.

Fig. 3.25. Partial orchestration of *Strophes* evidencing Boulez’s desire to realize the work on a grander scale and foreshadowing of Boulez’s use of *Strophes* in “Don”; reprinted with permission from the Paul Sacher Foundation



Fig. 3.26. Transcription of flute line in the sketch of the orchestration of *Strophes* shown in Fig. 3.25

first flute contains the actual pitch content of *Ac* while the second flute echoes with a T5 transposition, and the third flute a T1 transposition from the pitch-level of the second flute. The transposition levels are significant because Boulez's spelling of cell *Ac* (D^{\flat} , G^{\flat} , and A^{\flat}) creates an [016] trichord composed of the intervals +5, -11. Not only do the initial pitches of the three iterations of *Ac* (also D^{\flat} , G^{\flat} , and A^{\flat}) form an [016] trichord, the intervals between the first and second flutes, and second and third flutes, are also +5, -11. The effect is the simultaneous vertical and linear expression of the cell. Fig. 3.28 shows a reduction of the pitches of the first, second, and third flutes and highlights their transposition levels of cell *Ac*, and their origin in the intervallic content of cell *Ac* itself.

(25)

T^o Modéré (T^o I) accel. - T^o subito
Souple et flexible

FL 1
FL 2
FL 3
Fl. sol.
Hrb.
Clar. mib
Clar. la
Clar. basse sol
Bsn.
Cora
Tpt. ut
Glockenspiel
Vibr. 2
Mand.
Guit.
m. 1
m. 2
m. 3
m. 4
Alt. 1
Alt. 2
Alt. 3
Alt. 4
Vlc. 1
Vlc. 2
Vlc. 3
Vlc. 4
Vlc. 5
C.-basse [tutti]

Ac
Aa
Ce
Ae
Be

1/8 4/4 2/4

Fig. 3.27. *Strophes 1b* material in “Don” beginning at Rehearsal 25

accélér. *(Assez vite)* *revenir au T^o* *Cc Signes à donner* *T^o* *Tempo (1)*

Fl. 1 2 3
Fl. sol
Hrb.
Clar. m. *mf* (tempo solo) *au dim.*
Clar. fa.
Chor. Basses
Ben.
1^o Cor. 3 4
Vibr. 1 3 4
Vibr. 2
Harpe 1
Harpe 2
Harpe 3

Fa *mf* *(ronca dim.)*
Ad *mf* (tempo solo) *au dim.*
Aab *mf* (tempo solo)
Cc *mf* *Solo*
Ed *mf* *(Solo)*
Fe *mf* *(Solo)*
Fb

1 **4**
3 **4**
7 (3+2+2) **8**
7 (2+3+2) **8**
3 **4**
3 **4**
3 **8**
2 **4**

absolument sans pression de l'index de la main droite
Départ
Liberty
absolument sans pression de l'index de la main droite
Liberty

PALMA
SOLLA
PIA SU
LA

Fig. 3.27. Continued

acceler. - - - - - (*Assez vite*). *revenir... au Tempo* (1) *rit. molto* - - -

Signes à donner

Fig. 3.27. Continued

Fig. 3.28. Transpositions of cell *Ac* in the flute section at rehearsal 25 of “Don”

3.7. Expanding the Constellation

While the current chapter has focused on the development of two, radically different techniques for generating new constellations of structures from different series, those from *Le Marteau* and *L’Orestie*, respectively, it has also laid the foundation for

more complex, more subtle systematic means by which Boulez may extend his constellations of derived structures. As Boulez's methods become subtler, and his logic more difficult to follow, any relationship the material may have to an initiating series becomes increasingly difficult to establish. The obscurity of these relationships makes it increasingly difficult for the analyst to identify the lineage and origin of certain materials which may possess seemingly little vestige of materials generated in earlier stages, let alone bear any resemblance to the series of their origin. The sheer complexity of Boulez's working method, and the restricted access to sketch material that reveals the origins and development of his materials, renders his works, at times and in certain places, impermeable to analysis.

By having already established the means by which Boulez applies localized transformations to proliferate a given series, as was discussed in detail in Chapter Two, the current chapter has focused upon Boulez's means for generating masses of related structures through mechanical means as well as the quasi-mechanical means by which he modifies them. Chapter Four follows a particularly convoluted path of interdisciplinary manipulations on the composer's part that create an unlikely and (without aid of the sketches, indecipherable) labyrinthine path of development that leads from the series from *L'Orestie*, through a multitude of quasi-systematic techniques (like the rotational array) and interdisciplinary interventions, to the material that ultimately appears in the voice in "Improvisation[s] sur Mallarmé I, II, and III." By uncovering the continual evolution and reinvention of specific materials, it becomes possible to engage them in a single trajectory of developing materials whose point of initiation begins with a source-series. Establishing such a lineage brings into focus the complexity and uniqueness of specific

constellations of materials developed across the period of 1952–1962. These constellations allow the analyst to interpret the relationship between serial materials and the construction of large-scale forms that frequently draw the inspiration for their own design from the distinguishing qualities and characteristics of these materials.

The works on which I have chosen to focus ultimately serve the end-goal of establishing the large-scale formal organization of the framing movements of *Pli selon Pli*, “Don” and “Tombeau” via the local organizational techniques that stem from the constellations introduced in this chapter. The works I examine are included because they are necessary to establish the foundation of the formal organization of “Don” and “Tombeau.” As Boulez has said, large-scale form and serial material, or “form and content,” are not only mutually dependent upon one another, but their inextricability renders them “of the same nature.”³⁴

In addition to pursuing more complex interactions between materials in the select groups of works that contribute materials to *Pli selon Pli*, Chapter Four explores one of the consequences of Boulez’s use of developmental trajectories in his works: the composer’s development of his theory of formal discontinuity. The intermittent, interwoven, or juxtaposed trajectories of unfolding materials, similar to voices in polyphonic music, are defined by the nature of their content and the series from which they arise. In the course of expanding upon individual constellations of structures, the originating series is itself often lost to comprehension or identification, although it can at times make appearances through fragments, partitions, remnants, and other such vestiges. The examples discussed in Chapter Four are no longer focused on proliferating the series

³⁴ Boulez, *On Music Today*, 32.

through largely traditional thematic variation techniques, as they were in Chapter Two, but instead demonstrate Boulez's obliteration of it through manifold developmental techniques that increasingly exploit dissimilarities with the initial series.

In Chapter Four, the series is clearly established as a precompositional device (except in those moments when Boulez makes explicit allusions to it for reasons that can only be speculated upon). It will also be shown that Boulez juxtaposes this virtual series with periodic presentations of it and clearly identifiable transformations and fragmentations of it, which can be interpreted in a variety of ways: as a tease; as a window into his compositional process; or, and this is an argument to which I personally subscribe, as a reminder from the composer that his music is, despite any outward appearance (and despite its challenge to the analyst), fundamentally serial. By whatever means materials are derived from an initial series, and regardless of the multiple stages of development that render the material increasingly dissimilar from the initial series, Boulez's musical materials remain serial in nature: part of an expanding constellation of structures, each of which has the potential to be traced, albeit circuitously, back to an original series.

Chapter Four: Expanding Constellations and Serial Form

4.1. Expanding the Constellation

If, then, the twelve-note row could no longer be considered, in a thematic sense, as the basic material in itself, it would have to become the germ from which to derive a chosen number of characteristic “objects,” of objectively chosen groupings that would themselves become the basis of a truly serial network of relationships. So that, although the shape of the original twelve-note row may have lost its importance as a thematic entity, its structure remains vital in terms of the symmetries or asymmetries that it may contain, and the number of subdivisions (the characteristic serial objects) that it might usefully yield—usefully that is, in relation to the needs of a particular composer, a particular piece.¹

After exploring Boulez’s techniques for proliferating the series to generate materials that could organize local form in Chapter Two, and establishing two primary constellations of related structures in Chapter Three, the multiplication table used in *Oubli signal lapidé* and *Le Marteau sans maître* and the rotational array devised for *L’Orestie*, each being derived from a different series, we now turn our attention to Boulez’s more elaborate means of expanding a particular constellation by combining both mechanical processes and interdisciplinary freedom. The constellation, originating with a specific, generalized series, includes any and all musical structures developed from either the series itself, or from any of the structures that arise from applying mechanical and interdisciplinary techniques to any of the series’ components. Because the majority of

¹ Bradshaw, *Pierre Boulez: A Symposium*, 135. Susan Bradshaw captures the essence of the series within the constellation as a raw material that provides the basis for developmental processes. Ultimately, the total intervallic content of the generalized series contains the series’ innate potential for development. The generalized series dispenses with the traditional series’ implications of succession and instead presents itself as a collection of intervals that may be partitioned or combined in a variety of ways. The composer may gravitate toward a particular intervallic profile inherent to the series which then exerts its influence over the aesthetic profile of a particular passage.

Boulez's musical structures can be identified as belonging to one constellation or another, it is possible to trace them back, however circuitously, to the initial, generalized series. But given Boulez's extensive collection of both strict and free techniques for generating new materials from existing ones, establishing the step-by-step developmental lineage for particular materials is often impossible based solely upon their appearance and without the aid of the sketches.

While we have primarily examined techniques for organizing form at the local level, such as a particular section or passage of a musical work, the goal of this chapter is to progress towards increasingly large-scale formal organizational schemes that function across the work as a whole. It is challenging to establish concrete relationships between Boulez's theoretical vision of form in serial music, both local and large-scale, and his practical articulation of this vision. Via the genealogical approach, however, it becomes possible to establish how Boulez articulates large-scale form through particular serial materials, instead of dealing with the issue in purely philosophical and aesthetic terms, or basing evidence on analytic observations that, though considerate of the actual musical phenomena present in the works, are not informed by the composer's practice and all of its complexities and idiosyncrasies.

Consequently, this part of the investigation is perhaps the most reliant upon sketch studies and the genealogical approach to analysis in general. The complex origins that underlie seemingly inconspicuous passages, and the layering of techniques and procedures that systematically bury the initial series in the deep precompositional domain, reveal themselves as part of a unique trajectory of developing musical ideas that, when taken together as a constellation, often share only the initial series as a common

point of origin. In the process of espousing the genealogical approach, I introduce the work of Erling Guldbrandsen,² who has established the origin of certain materials, particularly the vocal materials in “Improvisation[s] sur Mallarmé I, II, and III” from *Pli selon Pli*, and whose writings have largely been unavailable in English.³

In the primary musical example discussed in this chapter, Boulez uses a trio from the retracted drama *L’Orestie* and a series of “note-fields” based upon pairs of instruments taken from this trio, and likely developed after *L’Orestie* was retracted, to generate the vocal material in “Improvisation[s] sur Mallarmé I, II, and III.” He further expands this constellation of musical structures through the self-quotation of this vocal material in “Don,” the opening movement from *Pli selon Pli*. Borrowing adds a complex element to the expansion of a constellation of related structures across multiple works.

The principles by which Boulez develops the constellation explored in this chapter parallel the development of his theory of serial form. The examples discussed in this chapter address issues pertaining to formal organization at the local level in works that span the period of 1952–62. The methods by which Boulez expands upon a constellation provide the precursor to the discussion of large-scale form in “Don” and “Tombeau” from *Pli selon Pli* in Chapter Five. In the process of unfolding the convoluted pathway from an initial series to the pitch materials deployed by Boulez in certain works and subsections of those works, it becomes endemic to the study of his compositional

² Erling E. Guldbrandsen, *Tradisjon og tradisjonsbrudd: en studie i Pierre Boulez: “Pli selon Pli” – Portrait de Mallarme* (Oslo: Universitetsforlaget, 1997).

³ Guldbrandsen joins a small group of analysts, including myself, Robert Piencikowski, Catherine Losada, Stephen Heinemann, and originally, Lev Koblyakov, in seeking the origin and developmental trajectory of particular materials in Boulez’s major works of the period 1952–62.

process to explore certain characteristic features that have come to define his vision for a truly serial theory of musical form. The ultimate goal of this investigation, laid out in Chapter One, is to demonstrate Boulez's thesis that serial content and form need not be at odds with one another as he perceived it to be in the music of Schoenberg. As this investigation has explored techniques applied directly to the series in Chapter Two and techniques that use the series as a basis for generating new materials through quasi-systematic means in Chapter Three, Chapter Four explores the idiosyncratic, interdisciplinary expansion of a particular constellation that is distinct from the systemic generation of masses of materials seen in the examples from Chapter Three. Though the constellation of materials explored in this chapter governs local organization in a variety of works, which will be discussed later, the principles employed by Boulez to expand an initial constellation manifest themselves in his theory of form in serial music, both at the local and large-scale levels.

4.2. Discontinuous Form and the Constellation

The most significant aspect of Boulez's theory of form developed during the period of 1952–62 is the composer's focus on the relationship between continuous, or linear, and discontinuous formal paradigms. Linear form results from the development of musical ideas along a single trajectory within the work while discontinuity results from the alternation, juxtaposition, intertwining, or "braiding" (to use Boulez's term), of materials that result either from different series or from different strategies for developing materials based upon the same series. The first step in the development of Boulez's theory of formal discontinuity is the rejection of any vestige of tonal form in the medium of serial

composition. Boulez articulates the ramifications of this project in the following statement:

... the absence of 'form' results, to my mind, from a radically new conception of global structure associated with a kind of material in a constant state of evolution, in which notions of symmetry that are incompatible with this evolution no longer play any part. One must experience the whole work to have a grasp of its form, which is no longer architected, but *braided*; in other words, there is no distributive hierarchy in the organization of 'sections' (static sections: themes; dynamic sections: developments) but successive distributions in the course of which the various constituent elements take on a greater or lesser functional importance. One can well understand that this sense of form is bound to run up against the listening habits formed by contact with three centuries of 'architectural' music.⁴

While architectural forms carry with them both the richness and the burdens of common-practice tonal idioms, they are governed by certain normative conventions, what Boulez refers to as "symmetries." Symmetries in this sense refer to similarities among start- and end-points, normative phrase structures, and over-arching, large-scale formal designs where the concluding material has a deep structural connection to the beginning. Generally speaking, to say that a work possesses architectural form implies that it possesses some degree of predictability, goal-oriented motion, and the expectation of closure. Despite the emphasis on creating a sense of coherence among his materials, Boulez faced the same challenge as Schoenberg in that traditional forms contain certain essential, inherent elements that simply cannot be satisfied by serial material, namely the power of certain structures to evince a sense of closure.

⁴ Pierre Boulez, "Near and Far," *Stocktakings of an Apprenticeship*, 155.

The true challenge in creating large-scale forms appropriate to serial content is to overcome the total absence of goal-oriented motion and sense of closure. Boulez had tried to base form solely on the unfolding of the series in *Structures Ia* and *Polyphonie X* and the result was, to him, unsatisfactory, with Boulez going so far as to relegate the works to non-musical status. Even by maintaining the succession of the series in these works, the series itself lacks any compulsion towards closure as well as any sense of an internal hierarchy that could suggest structuring principles for large-scale form in the same way that tonal hierarchies do. Yet, paradoxically, the non-linear conception of the generalized series became the means by which Boulez rendered serial content coherent with large-scale form.

Boulez uses the terms “homogenous” for linear form and “heterogeneous” for discontinuous form. He states, “I developed this idea by transforming the conception of homogeneity and non-homogeneity. For me, musical works had always been extremely homogeneous in time, but what I was looking for more and more was a discontinuity and non-homogeneity in musical material...”⁵ In the unfolding of a homogenous form, in which some events refer backwards while others foreshadow upcoming events, all events still transpire along a single trajectory even if multiple musical ideas are at play.

Discontinuous form holds the greatest potential for articulating Boulez’s vision.

Boulez describes his understanding of discontinuous form as follows:

Things were different in the past. According to traditional principles one element, A, was followed immediately by another, B, to which a third, C, was linked directly. The distinguishing feature of the new form consists in the fact that it is in a way created from one moment to the next—in other words it is

⁵ Boulez, *Pierre Boulez: Conversations with Célestin Deliège*, 67.

possible, under certain conditions of course, to move directly from A to C without first passing through B.⁶

Discontinuous form can be seen in certain works of a sectional nature, such as *Le Marteau sans maître*, in which the movements of the three cycles are interlocked, or non-adjacent, with each movement presenting a fragment of a larger-scale, developmental trajectory that takes place across the cycle. In some instances the movements are presented with clear start and end points while in others, the boundaries between movements are unclear. In this discontinuous work, the sections contain materials that distinguish one cycle from another based upon the origin and nature of the content of a particular cycle's movements. In Boulez's words:

Naturally, a succession of sections with different profiles is not all there is; one creates returns, alternations, contrasts of such and such a type. While this type of form does not conform a priori to established schemas, it remains easy to follow thanks to the slices of time which it establishes, each one clearly differentiated from the others, and rapidly recognizable. Such a form in sections only becomes legitimate and interesting if the developments overlap [*entrecroisement de développement*], that is, only if there is interference between the organic and the segmented.⁷

As Jonathan Goldman observes, "Form in these cases arises through the interweaving of parallel developments. On the one hand, Boulez builds form out of sections, each with a certain degree of autonomy, and on the other, he requires that there be a tension arising from the evolution of these appearances from one moment to the next. This tension

⁶ Boulez is speaking in relation to "Improvisation sur Mallarmé II," a work that would become the third movement of *Pli selon Pli*. Pierre Boulez, "Constructing an Improvisation" in *Orientations: Collected Writings*, 156.

⁷ Jonathan Goldman, *The Musical Language of Pierre Boulez: Writings and Compositions* (Cambridge: Cambridge University Press, 2011), 75. The quote is taken from Pierre Boulez, "Entre ordre et chaos" (1988) *Points de repère III: Leçons de musique*, ed. Jean-Jacques Nattiez, prefaces by Jean-Jacques Nattiez, Michel Foucault, and Jonathan Goldman (Paris: Christian Bourgois, 2005), 462. Translation by Goldman.

between the sectional and the continuous is inspired by Mallarmé's *Livre*, which refuses to conform to either the (sectional) 'album' or (continuous) 'book' form."⁸ The reference to Mallarmé's *Livre* is particularly insightful in the general discussion of discontinuous form where certain developmental threads are discontinued in favour of the unfolding of another trajectory. The result is a vibrant form in which various trajectories of musical ideas are continuously revealing themselves at different rates. Large-scale form may emerge from the coordinated unfolding of materials developed from different series, and consequently different constellations of musical structures, or from materials that belong to the same constellation, however far removed they may appear from one another. Boulez's development of large-scale form along with these networks of serial content imbues the musical work with the tension inherent between initial series and the plethora of simulacra that result from the development of constellations.

By braiding independent, interlocking, interacting, or mutually dependent threads of developed materials, Boulez creates a multidirectional formal structure within a single work.⁹ In this regard, Boulez compares discontinuous form to the written word: segues, side-notes, multiple story lines....all are possible:

I wish only to propose for now a musical work in which [the] division into homogenous movements would be abandoned in favor of a non-homogenous distribution of developments. Let us claim for music the right to parentheses and italics...a concept of discontinuous time made up of structures which interlock instead of remaining airtight compartments; and finally, a sort of development where the closed circuit is not the only possible answer.¹⁰

⁸ Ibid., 75.

⁹ See Campbell's concept of "accumulative developments." Campbell, *Boulez, Music, and Philosophy*, 157.

¹⁰ Boulez, "Current Investigations," *Stocktakings of an Apprenticeship*, 19.

As has been previously discussed, the generalized series is conceived of in a non-linear fashion, not as a succession of pitch-classes, but a collection of unique intervals that possess the potential for proliferation in a variety of ways that do not rely upon succession and a particular order of constituent pitch classes. Discontinuity is thus a feature of both the generalized series and of large-scale form in works like *Le Marteau sans maître*. In this instance, Boulez brings serial content into dialogue with large-scale form in both theory and practice.

Goldman parallels discontinuous versus linear forms with Boulez's discussion of "compartmentalized" versus "continuous" forms:

In keeping with his usual taxonomic method, in which he introduces a concept through a pair of oppositions, he speaks of continuous forms versus forms made up of the alternation of fragments, 'compartmentalized' forms (*cloisonné*) versus continuous forms, contrast forms versus developmental forms, mosaic forms, forms of constant augmentation, by sections, segmented forms, spiral forms, infinite forms, permutation or puzzle forms, etc. These varied formulations boil down to two main themes common to Boulez's discourse in *Leçons de musique*: (i) form as dialectic or opposition, born of an alternation of material; (ii) form as the unification of all levels of structure.¹¹

Compartmentalized, or discontinuous forms are essentially oppositional, embracing a variety of contradictory states such as the presentation of alternating or overlapping developmental trajectories, or the dialectical tension between the identity of a particular theme and the transformation of its identity through variation. In works spanning *L'Orestie* and *Pli selon Pli*, the series that initiate derived materials used in these works inevitably arise in some form through vestigial remains that persist either as identifiable features of an original structure or as some form of simulacra.

¹¹ Goldman, *The Musical Language of Pierre Boulez*, 73.

the difference between the the tension of the series' identity and the non-identity of the simulacra. In contrast, in a linear form, such as that exhibited in *Strophes*, there is only one primary source of material that unfolds in a rather straightforward fashion throughout the work without deviations to materials mined from other sources. The *Strophes* material largely mirrors the organization of the precomposed rotational array, and is largely organic in that all the musical features can, in some way, be related back to the initial series (and the defective series derived from it). This piece, in comparison to the interlocking of non-adjacent movements belonging to specific cycles in *Le Marteau*, is linear in nature. This is one of the few examples of linearity in Boulez's oeuvre during this period and is perhaps the reason why the work remains unpublished. Instead, in the majority of works from this period, Boulez takes the near-mythic status of organic linearity inherited from traditional tonal forms and all but abandons it in favor of discontinuity, heterogeneity.

During the period 1952–62, Boulez undoubtedly favored discontinuity over linearity in his major works, at the levels of both local and large-scale formal organization. For instance, while, in a work like *Le Marteau sans maître*, the developmental trajectories that characterize each cycle are clearly partitioned by the formal boundaries of the work's movements, its sectional nature is mirrored in Boulez's braiding of developing threads of different materials that unfold at different rates: sometimes alternating, sometimes in parallel, throughout a particular cycle (regardless of the non-adjacency of that cycle's movements). In a similar fashion to Stravinsky's *Symphonies of Wind Instruments*, Goldman observes:

...we could say that two overlapping processes [*parcours*] are superimposed, so that the alternation displays the various developments at

different stages of their evolution. Thus, when a development manifests itself, through the existence of one of its stages, the other developments remain latent [*sous-jacents*], waiting to manifest themselves in turn in a stage of its own evolution. There is certainly a relationship in the establishment of these layers of development, but at no moment is there mixture, superposition. One notes rather a perfect placement of a network of trajectories whose intersections are assured by their own articulation.¹²

Structures taken from a particular constellation can unfold along their own developmental trajectory, presented as a fragment of that constellation. But those that emerge from different processes in the same constellation can still be grouped together by nature of their shared series of origin. While one fragment from a particular constellation is unfolding, another fragment may unfold around it, or in alternation with it. Structures belonging to a particular constellation, though they may not appear in close proximity in a musical work, or even appear related, still belong to the same network of related structures.

Thus different developmental trajectories, distinguishable from one another by serial content originating from different constellations of musical structures, maintain a sense of autonomy like distinct voices in a polyphonic setting, regardless of the manner in which they are interwoven, juxtaposed, alternated, or otherwise braided together. With the ability to identify materials that belong to the same constellation, a picture emerges of the interconnectedness of fragments belonging to particular developmental trajectories. The unfolding of these trajectories defines the work's large-scale formal design. This is the essence of the connection between the local and the large-scale for Boulez: the organic relationship between the specific serial content, derived from an initial series, and

¹² Ibid., 74. Quotation taken from "La Notion de theme et son evolution" (1983) *Points de repère III: Leçons de musique*, 235. Translation by Goldman.

the manner in which it fits into a large-scale dialogue between interwoven threads that develop this content across the course of the musical work.

4.3. From Series to Voice in “Improvisation[s] sur Mallarmé I, II, and III”

While Boulez layers mechanical techniques that generate new pitch materials from existing ones, he never abandons the interdisciplinary freedom that characterizes the local organizational techniques described in Chapter Two. Indiscipline, in the form of frequently unpredictable, yet logical variations on given materials, is an integral component in the expansion of a particular constellation. Boulez’s expansion of his serial materials entails numerous stages of development that, like tendrils of inspiration that explore how particular ideas might evolve and combine to form an elaborate constellation of musical structures developed by a plethora of techniques. The more complex the constellation, the more difficult it is to establish the initial series or, even more so, the stages employed by the composer to arrive at a particular configuration of musical materials as it appears in a given work. With regard to these tangentially related structures within a particular constellation, Boulez says “the possibilities are infinitely vast and end in the series having only a very distant relationship with the primitive series of twelve sounds.”¹³

In *On Music Today*, Boulez presents the concept of the constellation in its simplest terms, with the original series as its locus and all derived structures traceable back to this source:

In comparison with the practice of Webern or Berg, we are no longer dealing with serial ensembles but with partial, local structures, having their own

¹³ Boulez, *On Music Today*, 40.

independence, while retaining their filiation with the global structure. A global structure [an originating series] will create a cascade of local structures directly dependent on itself...The more the field of encounter is enlarged, the more numerous the possibilities and the more numerous the possibilities and the more various the solutions: by means of this expedient the polyvalency of the structures can be re-established.¹⁴

In establishing a particular constellation, technique is limited only by the composer's imagination and desire. There are virtually unlimited means by which new materials may be derived, a condition that comes with its own drawbacks.¹⁵ Identifying the origin of certain materials is difficult given the complexity of Boulez's transformational procedures and the number of developmental stages certain materials undergo. Reproducibility, in terms of the ability of the analyst to predict the outcome of a particular system, is often difficult or impossible without the direct aid of the sketches.

¹⁴ Boulez goes on to say that "a generalized series is indispensable to the creation of elementary morphologies, the first plans of development, but it ought not to remain the only reference in the course of composition; this basic series will enable us to formulate objects which, in their turn, can be the basis of serial generation. Thus, to each original object will correspond a specific development organized according to its own intrinsic qualities...This 'deployment' of local structures has supplanted thematic development, and hence is of supreme importance. It is a question of practicing a selective operation, concerning only the one structure directly involved. Thus, a specific development, organically linked to the larger basic structure, continually being created. In this way, a justified freedom is achieved, the essential decisions being left to the momentary initiative of the composer. His imagination is free to work on the concrete object which arises in the course of composition, and to do this in terms of the object itself." Ibid., 104–105.

¹⁵ Bradshaw, *Symposium*, 172. "...as Boulez himself has stressed, this is the point at which the act of composition must involve the process of selection, of choosing from among the infinite number of possibilities and permutations of possibilities which such an expanding network of intricate relationships could be made to offer." Bradshaw is speaking within the context of Boulez's desire for cohesion within the work through structural interconnections between melody and harmony, with the horizontal and diagonal merging into a sort of third, diagonal dimension—of which Boulez speaks at length in *On Music Today*. She observes that with the desire for interconnections there is "the danger of a sort of musical inbreeding that could end in the de-characterization of those very qualities it seeks to enhance." Bradshaw counters that Boulez overcomes the dangers of seeking an idealized cohesion through the process of choice.

The challenge for the analyst then becomes to trace the lineage, i.e., genealogy, of derived structures through clues left in Boulez's sketches and writings, cryptic though they may be.

As was stated at the outset, the immediate purpose of sketch studies in this chapter is to unveil the continued expansion of a particular constellation that originates with the *L'Orestie* series, used in *L'Orestie*, *Strophes*, and all the movements of *Pli selon Pli*.¹⁶ Because Boulez employs materials from this constellation in multiple works and movements of works, it is virtually impossible, without aid of the sketches, to determine what materials are related or share an initial series. This is where the analytic sleuth-work of Guldbrandsen is indispensable. Drawing on his work, along with my own studies of Boulez's sketches, I have reconstructed a step-by-step lineage in the expansion of this constellation of derived structures in an effort to underscore how far the compositional process can be taken and how far removed serial materials may become from the initial series.

The origin of the vocal material from "Improvisation[s] sur Mallarmé I, II, and III" remained a mystery until Guldbrandsen discovered some key sketches that unveiled a remarkably complex process of development and derivation of materials that originate in the series from *L'Orestie*. While different attempts have been made to account for this material,¹⁷ only Guldbrandsen figured out the origin of the material as confirmed by Boulez personally as well as via his sketches. The process of getting from the initial

¹⁶ Another example would involve the series from *Oubli signal lapidé*, the multiplication matrices in the harmonic table for *Le Marteau sans maître*, and the similar, indisciplinary procedures that contribute to both the proliferation of the original series and the expansion of the constellation that it spawns.

¹⁷ Bradshaw, *Symposium*, 181–82.

series to the vocal material is overtly complicated, and the number of stages and processes involved are numerous with each new set of materials contributing to an expanding constellation of musical structures that become increasingly removed from one another in terms of their structural interrelatedness and general appearance.

Consider first the opening vocal line from “Improvisation sur Mallarmé I,” which opens with the text “Le vierge, le vivace, et le bel aujourd’hui.”



Fig. 4.1. “Le vierge, le vivace, et le bel aujourd’hui” from “Improvisation sur Mallarmé I”

While the melody may not appear particularly remarkable, the means of arriving at its pitch content are indeed remarkable. As was discussed in Chapter Two, Susan Bradshaw assigns the origin of this line to the seven-note chord that opens the work, previously illustrated in Fig. 2.11, which she proposed was itself a vertical expression of an unnamed, unspecified, but suppressed series. Thanks to Guldbrandsen’s work on Boulez’s sketches, the origin of this vocal line is shown to be a great deal more complicated.¹⁸ The key to discovering the origin of the vocal line’s pitch content lies in Guldbrandsen’s discovery of an instrumental trio that Boulez composed for *L’Orestie*, which uses partitions from the rotational array of defective series illustrated in Fig. 3.19a. Presumably after retracting the work, Boulez returned to the sketch of this particular trio

¹⁸ Guldbrandsen, *Tradisjon og tradisjonsbrudd: en studie i Pierre Boulez: “Pli selon Pli” – Portrait de Mallarmé.*

and highlighted it, and also labeled each instrument, the flute, English horn, and harp, with the letters A, B, and C, respectively. In Guldbrandsen's transcription of the trio, shown in Fig. 4.2, the flute, English horn, and harp are all clearly labeled A, B, and C. Given Boulez's notation of specific pitches in the sketch of the trio, Guldbrandsen adds an extra system beneath the harp, that shows the pitches B^{\flat} , C^{\flat} , and F^{\sharp} (labeled B to the right of the system). These pitches belong with the pitch content for the English horn. Guldbrandsen discovered a set of what he terms "note-fields," shown in Fig. 4.3, which clearly combine the pitch content of pairs of instruments from the trio, indicated by the labels BC, AB, and AC.

The key to interpreting Fig. 4.3 is to read the music backwards (as indicated by the arrows to the right of each system, each of which points to the left, indicating the direction the pitch content is to be read). This means that when Boulez combines the pitch content of two instruments into a single note field, BC for instance, he begins at the end of the trio and works his way backward. For instance, when reading the combined pitch material of the English horn and harp, e.g., combination BC, the first pitches that present themselves are D^{\flat} (treble clef, English horn), C^{\flat} (treble clef within the bass clef of the harp)—both of which are held until the end of the trio, followed by A^{\flat} (final pitch of the English horn), G^{\flat} , then E^{\flat} , etc. Boulez employs indisciplinary freedom when realizing the pitch content indicated by the note-fields in "Improvisation[s] sur Mallarmé I, II, and III." For instance, the first six pitches that appear in the AB note-field from Fig.

The image shows a musical score for three instruments: Flute, Eb (E-flat), and Harp. The score is divided into three systems, labeled A, B, and C. Each system contains three staves. The Flute staff is the top staff, the Eb staff is the middle staff, and the Harp staff is the bottom staff. The score includes various musical notations such as notes, rests, and dynamic markings. Structural analysis labels are placed above the staves, indicating specific musical phrases or sections. These labels include: Je, Jc, Jd, Ha/b, Ga-d, Ia, Ia-d, Hb-d, Hc, Hd, Ga/c, Gc, Ad, Ab, Ac, and (B). The labels are arranged in a way that suggests a rotational array of musical elements across the instruments and systems.

Fig. 4.2. Guldbrandsen's reduction of the trio from the retracted drama *L'Orestie* with added structural analysis based upon the rotational array from Fig. 3.18; reprinted with permission of the author

BC "Impet. I"
 AB "Impet. II"
 AC "Impet. III"

Fig. 4.3. Note-fields derived from combining various pairs of instruments from the trio; Note: arrows indicate the combinations should be read in reverse, from right to left; reprinted with permission of the author

4.3 (read right-to-left), are F[#], A^b, G^b, C^b, E^b, and A^b. In the associated “Improvisation II,” Boulez does not follow this order exactly, though he does use this particular hexachord in the first measure of the vocal line, shown in Fig. 4.4. The degree of indisdisciplinary freedom involved in composing the vocal line is characteristic of Boulez’s compositional style. Guldbrandsen recovered sketches for this vocal line and, in a similar fashion to the multiple attempts at the opening vocal line in “Don” discussed in Chapter Two, Figures 2.11–2.13, Boulez labored intensively over the precise expression of the pitch content that he had so carefully constructed through the complex, and at times, convoluted stages of development expressed through the trio and note-fields.¹⁹



Fig. 4.4. “Une dentelle s’abolit” from “Improvisation sur Mallarmé II”

An important feature of the vocal line is Boulez’s embedding of a secondary organizational pattern designed to achieve a balance between structural notes, or as Guldbrandsen calls them, “main notes,” and ornamental pitches, or “grace notes,” illustrated in Fig. 4.5. Based upon Boulez’s sketches of the vocal material for “Improvisation II,” Guldbrandsen makes the argument that the structural and ornamental

¹⁹ Joseph Salem refers to the note-fields AB, BC, and AC as “sonnets” and, like Guldbrandsen, presents the trio from *L’Orestie* from which these note-fields arise. He also refers the reader to Guldbrandsen for an explanation of the mechanics of the process. See Salem, *Boulez Revised: Compositional Process as Aesthetic Critique in the Composer’s Formative Works*, 109–115.



Fig. 4.5. Vocal main notes and grace notes from “Improvisation sur Mallarmé II”

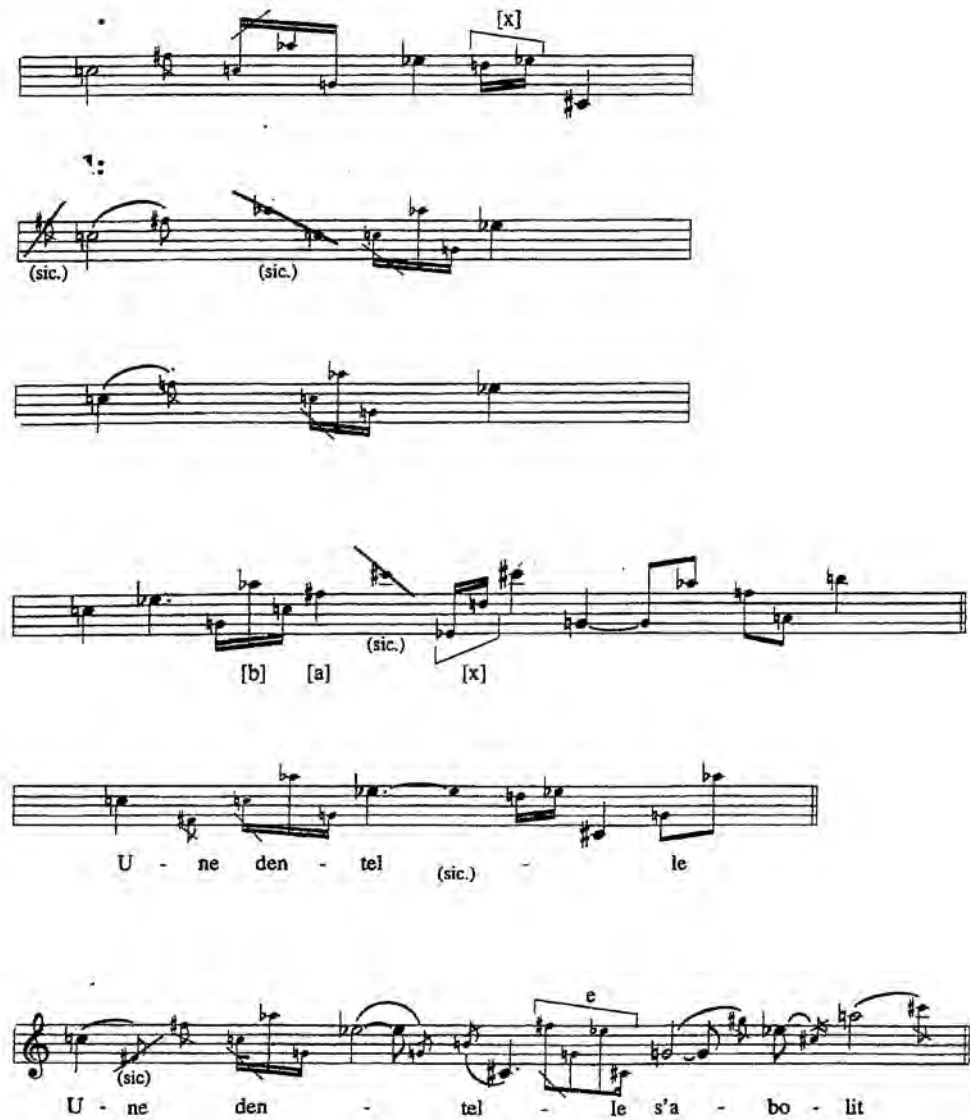


Fig. 4.6. Guldbrandsen’s reproduction of a sketch for the opening vocal line from “Improvisation sur Mallarmé II”; reprinted with permission of the author

pitches represent two distinct structures, A (structural pitches) and B (ornamental pitches), and that the multiple recompositions of the line is the result of attempting to establish the appropriate balance and interchange between A and B.²⁰

Ultimately, the steps involved in transitioning from the *L'Orestie* series to the vocal material from “Improvisation[s] sur Mallarmé I, II, and III” follow six stages of development that include both quasi-systematic and purely interdisciplinary elements. These stages reveal the interrelatedness of several works that Boulez composed during the period of 1952–62:

1) Boulez constructs the initial series for the drama *L'Orestie*, shown in Fig. 2.5, a work that employs this series plainly, using segments of it to shape melodic and harmonic materials, as well as subjecting its six partitions to pitch-class set multiplication.

2) Boulez develops the rotational array of a defective series, shown in Fig. 3.19a, that is based upon an initial defective series “A” created by combining traditional serial transformations with looser “equivalences.” Boulez uses partitions, or “cells,” from this array to both generate and organize the pitch content of the solo flute work *Strophes*. Certain sections of *Strophes* are also employed in *L'Orestie*, suggesting that the composer was working on the pieces simultaneously.

3) Boulez uses elements from the rotational array to provide the local formal organization for a flute, English horn, and harp trio in *L'Orestie*.

4) Presumably after retracting *L'Orestie*, Boulez returns to this trio and labels each instrument, the flute, English horn, and harp, A, B, and C, respectively, with the intention of exploiting the potential pitch combinations by creating different instrumental pairings.

5) Boulez constructs a series of “note-fields,” shown in Fig. 4.3, which result from combining the pitch content of pairs of instruments from the trio according to the following combinations: BC, AB, and AC.

²⁰ Guldbrandsen, “New Light on Boulez and Postwar Modernism” in *In the Plural: Institutions, Pluralism and Critical Self-awareness in Contemporary Music*, 23.

6) Boulez uses the pitch content of the combined instrumental pairs represented in the note-fields in an idiosyncratic fashion: namely, he reads the note-fields from right to left (as indicated by the direction of the arrows at the right of each system). Reversing the normal direction for reading music further “covers his tracks” as to the origin of the materials. Boulez then associates a particular instrumental pair with the vocal pitch material for “Improvisation[s] sur Mallarmé I, II, and III.” The combination BC, shown in Fig. 4.4, provides the pitch content for the vocal line of “Improvisation sur Mallarmé II.”

This particular constellation of musical structures, all of which share the initial *L'Orestie* series, contribute to a particular group of serial materials preferred by Boulez during this period.

At this point, the question remains as to whether or not it can be said that the note-field that provides the pitch content for the vocal line in Fig. 4.1 is structurally related to the initial series for *L'Orestie* at all. I would argue that though the pitch content and the series belong to the same constellation of structures, they are not directly, but only indirectly, related to one another. Though Boulez would describe this situation as an expanding constellation of structures that may or may not relate to one another directly, they still share an original series that unites them in some fashion. One stage is not, however, obviously predicated on another but is instead the result of Boulez's preoccupation with combining systemically generated materials with the interdisciplinary freedom to manipulate them according to his will. These stages reveal an ever-expanding network of musical structures that may only share the common feature of the same initial series as a point of origin. Tracing the lineage of a particular sequence of developmental stages from series to musical score highlights the importance of the genealogical approach, such as Guldbrandsen's, when establishing the origin of pitch materials in Boulez's works. While it is possible to find complete series in Boulez's works, it is far more likely to find their remnants in the form of segments, the products of “multiplying”

their partitions, or in defective series that have had some module applied to them to fundamentally alter their structure in some fashion. The idea of the series being present only vestigially is the basis of Edward Campbell's concept of the virtual theme.²¹

4.4. Losing the Series: the Virtual Theme

The virtual theme is defined by its partial or total absence from the musical surface while remaining through, or being represented by, some form of simulacrum derived from a variety of developmental and transformational techniques. Combining and layering techniques increases the "virtuality" of the theme in that it becomes increasingly difficult to identify in any concrete fashion. What remains of the series are vestiges, with

²¹ I take this term from Campbell in his discussion of Deleuze (and Deleuze's reading of Bergson's *Time and Free Will*), in relation to the concepts of continuity and discontinuity, originality and simulacra. Campbell comments on how Bergson theorized in *Matter and Memory* that memory starts out "from a 'virtual state' which we lead onwards, step by step, through a series of different *planes of consciousness*, up to the goal where it is materialized in an actual perception; that is to say, up to the point where it becomes a present, active stage; in fine, up to that extreme plane of our consciousness against which our body stands out. In this virtual state pure memory exists." Campbell, *Boulez, Music, and Philosophy*, 148. Here, a virtual state is one in which the origin of a present simulacrum is apprehensible, even given its literal absence, or manifestation through a variation that is literally present. The importance of the virtual theme is then one that is apprehensible through the stages of consciousness that render the difference between the simulacra of the theme and some ideation of the theme itself. Bergson's memory is one that is expanded enough to include details of simulacra, rather than one that inserts the variation alongside some idea of the original. The concept of a constellation of expanding differences and variations works well within the construct of a musical constellation of expanding and developed variations upon an illusory "original" theme. Though Deleuze would argue against the concept of originality both in and of itself and in direct relation to the Platonic Idea, Bergson's theory of memory seems to allow for a constellation that includes both details brought to the literal fore and a concept of an ideal form. That a virtual theme originates in a virtual state alludes to the theme's intransigence as a product of a means of thought, rather than as an absolute, literal entity. In more literal terms, to apprehend the virtual theme, one must embrace the constellation of expanding musical structures to include the present simulacra as well as each stage of development that has led to its details.

the series present in an ontological sense in that it is the origin of a particular constellation that has been expanded to include all possible simulacra, as well as the stages of development that contribute to the musical materials as they are literally present in the musical work. Campbell articulates the concept of the virtual theme as “what we imagine [that] does not necessarily take concrete form and can remain in a virtual state.”²² Campbell observes Boulez’s avoidance of literal repetition of the theme, instead treating it in the style of Webern as a “single Idea that exists at a precompositional level.”²³ The virtual theme possesses a tenuous existence to the musical work. For Boulez, the series is the germ at the center of a constellation of musical structures that contains within it manifold potential that unfolds along different constituent developing trajectories. The series functions as a centripetal force against the centrifugal force of the ever-expanding constellation of derived and developing musical structures. It functions as a source of precompositional material from which new materials are derived, each of which preserves some features, however seemingly insignificant, of a vestige of the original. The concept of the virtual theme highlights the generalized series as a means to compose music, while, unlike the traditional thematic series, not necessarily being music itself.

Campbell likens the virtual theme to a germinal idea, an impetus for musical materials that ultimately present themselves in the work. It projects a metaphysical sense

²² Ibid., 190.

²³ Ibid., 157–60. Goldman also addresses the concept of the virtual theme in *Anthèmes* 1, in which the theme, composed of eight elements, never appears in the work with all the elements present, instead “always appearing in fragmentary form.” In this example, the elements of the theme that do appear still maintain their original order, so the theme could be reconstructed through the appearance of its fragments. See Goldman, *The Musical Language of Pierre Boulez*, 164.

of its presence in the music despite its literal absence, or a marginally tangible fragmented remainder into the musical work. In Campbell's words: "The theme is said to no longer exist within itself, but rather as a developmental function in the articulation of form. Consequently, it can be explicit, amorphous or anywhere in between."²⁴ And yet, because Boulez combines complex techniques for deriving new pitch materials from existing ones, all of which can ultimately be traced back to an original series, there are often striking similarities between seemingly unrelated materials. By disentangling the lineage of a convoluted constellation, it becomes clear that Boulez equally combines the systematic with the interdisciplinary: logical systematic processes combine with subjective decisions that together form a general compositional approach that precludes both arbitrary and theoretical exaggeration.

4.5. Formal Discontinuity and Self-Quotation

In typical Boulezian fashion, the composer compounds the issues of formal discontinuity and the expansion of the constellations by introducing the additional challenge of identifying self-quoted or borrowed materials when unraveling his convoluted compositional practices. While, during the course of this investigation, we have addressed the continued development of a particular group of serial materials across a series of works spanning 1952–62, with particular passages of earlier works being revisited and developed further in later works, e.g., the *L'Orestie* trio and its development into the vocal material for "Improvisation[s] sur Mallarmé I, II, and III," the continued development of certain materials does not, however, constitute self-quotation. Rather,

²⁴ Bradshaw, *Pierre Boulez: A Symposium*, 161.

newly developed materials, regardless of their derivation from a particular passage from a previously composed work, continue to expand a particular constellation of musical structures and enlarge the field of action available to the composer. In the context of self-quoting particular serial content, however, Boulez alters and develops the quoted material in some fashion so as to simultaneously expand the constellation to which it belongs, and juxtapose musical passages that are formally discontinuous in terms of their content.

A major section of “Don,” labeled *d/c*, is one of the central subsections of the opening movement of *Pli selon Pli*. This subsection is defined by the further expansion of the constellation outlined in this chapter through the heavily altered self-quotation of “Improvisation[s] sur Mallarmé I, II, and III.” Chapter Five discusses this subsection in detail with respect to the local and large-scale form of “Don.” Here, the self-quotations of “Improvisation[s] sur Mallarmé I, II, and III” are heavily altered, and involve only the vocal material and not any surrounding instrumental material. In these quotations, though Boulez heavily alters the pitch content, he maintains certain characteristic features such as the shape of characteristic vocal gestures, notable rhythmic features, and certain fragments of text. In this regard, his treatment of self-quotation resembles his general approach to the virtual series. What remains of quoted material is a vestige, or simulacrum of the “original” passage. Given the presence of quoted material from “Improvisation[s] sur Mallarmé I, II, and III” in the opening movement of *Pli selon Pli*, “Don,” the improvisations are simultaneously foreshadowed and echoed without the “originals” having yet been heard. The title *Pli selon Pli*, or “fold upon fold,” seems particularly apt here in that it brings to the fore issues regarding the fold as possessing neither an inside nor outside, but rather suggesting a folding back upon itself. In light of

Mallarmé's influence on Boulez, as well as that of Deleuze, Boulez may have conceived of time being bent back upon itself. Because the improvisations remain to be heard, their self-quotations do not persist as remnants or reminiscences, but as temporally disjunctive moments that profoundly disrupt the concept of temporal linearity in the work.

These self-quotations present themselves as digressions on a number of levels, both temporally and formally. While much of the musical material in "Don" employs a relatively lush orchestral texture with text appearing only at the movement's outset, the quotations involve only the textual aspects of the improvisations and highlight certain characteristic features through the sparseness of their setting by dramatically reducing the texture, nearly stripping it bare in the process. Figure 4.7a shows an excerpt from "Improvisation sur Mallarmé I" and Fig. 4.7b shows its self-quotation in "Don," identifiable by the vocal material and text underneath the sustained strings that accompany all the self-quotations from "Improvisation[s] sur Mallarmé I, II, and III." Boulez does not quote entire phrases but, rather, introduces elements of them and then quickly recedes, picking up only the word "vivre" from the end of a subsequent phrase. He preserves general characteristics of the contour of the vocal line and, periodically, a precise interval. But generally, the pitches, and intervals between them, are all altered with the exception of the word "se" being sung over an A in both the "original" and the quoted version. Whereas in "Improvisation sur Mallarmé I," the vibraphone provides a counterpoint to the vocal line, the vocal accompaniment in the self-quotation is particularly sparse, highlighting the intensity and inwardness of the passage.

Très Modéré
 (environ $\frac{4}{8}$ de Pas trop Lent = $\frac{4}{8}$ du Très Modéré pour 4)

B

The score is divided into four measures by vertical dashed lines. The instruments and parts are:

- Cloches:** Treble clef, *ppp*.
- Vibr.:** Treble clef, *vibrato stop*, *mf*, *p*, *ppp*, *très serré*, *pp*, *mp*.
- Blocs Métal:** Treble clef, *pp*, *mp*, *pp*, *mp*.
- 3 Gonges:** Treble clef, *pp*, *laissez vibrer*.
- 3 Cymb. suspendues:** Treble clef, *pp*.
- Sopr.:** Treble clef, *mf*, *sub. p*, *mf*, *pp*. Lyrics: "Un cy - gne d'au-tre fois se sou - vient que".
- Hrp.:** Grand staff, *mi^b do^b*, *p*, *poco sfz*.

Time signatures below the score: $\frac{3}{8}$, $\frac{4+6}{16}$, $\frac{4}{8}$, $\frac{2+3+2}{16}$.

Additional markings: "les fluctuations d'intensité à peine marquées" above the Vib. part.

Fig. 4.7a. Excerpt from “Improvisation sur Mallarmé I”

37 pour tous: arrêter le trille sur le temps; et sans vibrer
 Petit crescendo et descendant sur le signe du chef (suivant des gestes assez rapides et brusques)

Très Mobile, instable
 Resister au tacto
 Vibrato normal
 1s

Comme auparavant:
 poco *sf*, *pp*, *marcato*,
 1s

VI.
 1 2 3 4
 2 3 4
 1 2 3 4
 2 3 4
 1 2 3 4

Alt.
 1 2 3 4
 2 3 4
 1 2 3 4
 2 3 4
 1 2 3 4

Cymb.
 C

Marcas
 D

Bongo
 alique
 D

Grosse
 caisse
 F

Avec baguettes de caisse clair; sur le bord. Roulement très uni et très régulier. à peine perceptible.

Tempo de la
 1^{re} Improvisation,
 mais avec des
 fluctuations
 continues

Moderés
 mais allant

... C'est - tre - log se - sou - vent...
 ... Vi - ye...
 ... c'est - lui...
 ... qui - sans - au - voir - dit...
 ... bi - ye...

peu articulé → -1- → articulé
 mp - p
 articulé
 mp
 peu articulé
 mf sans nuances
 ... pour n'a - voir - dit...
 (pas - - -)

ad libit. {
 peu articulé
 ou
 articulé
 pp
 ... bi - ye...
 [4]

Changer deux versets de nature différente (-1.-a.-2-), peu importe la ligne (la, [bou (c)], mais dans l'ordre - 1 - 2 - utiliser 2 ou 3 combinaisons.
 Pour terminer, chanter le verset final [d, de toute façon - Toujours enchaîner sans interruption, proprement dite, mais suspensivement - (Ex : Chanter : 1. a / 2 - c // 1. b / 2 - b // d)
 = Contrairer les nuances de la voix; si elle augmente, diminuer. Si elle diminue, augmenter.

38 sur le Bongo, le Maracas, puis le Cymbale
 sur signe du chef (m.g.)
 arrêtant le roulement.

sur signe du chef (m.g.)

Tempo - Bongo
 moyen

1 2 3 4
 1 2 3 4

Fig. 4.7b. Quotation of "Improvisation sur Mallarmé I" in "Don"

The self-quotation from “Improvisation sur Mallarmé II” in “Don” uses one of two distinct aesthetic profiles characteristic of the improvisation. The first type, illustrated in Fig. 4.8a, is characterized by the relationship between structural and ornamental notes, set to a counterpoint of instrumental flurries of gestures. In the second type, illustrated in Fig. 4.8b, and the one quoted by Boulez, each syllable is set to a single, indefinitely held structural pitch. This section is clearly identifiable in “Don,” shown in Fig. 4.8c, because Boulez focuses on the extended holding of sung pitches against the backdrop of the sustained strings that accompany each self-quotation. In the quoted section, the sense and meaning of the poetry is all but lost as the sound of individual phonemes are held indefinitely, removing the continuity among words and phrases necessary to ascertain meaning. The remnants of “Improvisation II” in “Don” emphasize prolonged phonemes that convey an experience of the phenomenon of pure human sound stripped bare and free from the imposition of meaning. Boulez changes the listener’s experience of time through alternating how time is delineated, and experimenting with the listener’s apprehension of temporal relativity. Boulez’s self-quotation of this section in “Don” maintains all the rhythmic qualities of its appearance in “Improvisation sur Mallarmé II,” though all the vocal pitches and the intervals between them are altered. This quotation, as with the self-quotation of “Improvisation sur Mallarmé I,” and as will be shown, “Improvisation sur Mallarmé III,” is accompanied by sustained pitches in the strings that do not appear in any of the improvisations. For each self-quotation, the strings maintain an uninterrupted, continuous foundation for the vocal material. The lack of a temporal partition through duration, tempo, or meter in the strings is especially significant in the case of “Improvisation sur Mallarmé II” given that the

movement is, itself, divided into two sections, one of which is characterized by a sense of timelessness achieved through a lack of musical partitions (rhythm, meter, etc.).

The musical score is arranged in a vertical staff system. From top to bottom, the parts are: Harpe (Harp), Cloches (Bells), Vibr. (Vibraphone), Piano, Cel. (Celesta), and Voix (Voice). The Harpe part includes notes for Sol# and Mi#. The Vibr. part is marked "(sans vibrato)". The Piano part features "arpeggi rapide" and "m.g." markings. The Voix part has lyrics: "tel - - - le s'a - - - bo - - lit".

At the bottom of the score, there are two measures of time signatures: 2/4 and 3/4. A circled number "13" is placed between these two measures. Below the time signatures, there are two phrases in parentheses: "(cédez - - -)" and "(presser très peu - - - - revenir)".

Fig. 4.8a. Excerpt of first profile from “Improvisation sur Mallarmé II”

Senza Tempo

The score is for a piece titled "Improvisation sur Mallarmé II" and is marked "Senza Tempo". It features several instruments and a voice part:

- Harpe:** Includes a specific instruction "Do#".
- Cloches:** Includes the instruction "étouffez".
- Vibr.:** Includes the instruction "étouffez".
- Piano:** Includes the instruction "après que le son frappé se soit éteint, sur les harmoniques".
- Cel.:** Includes the instruction "laissez vibrer".
- Cymb. susp.:** Includes the instruction "laissez vibrer".
- Voix:** Includes the lyrics "Se - - - lon nul ven - - - tre..." with dynamic markings *mp*, *p*, *ff*, and *pp*.

At the bottom of the score, there are five rhythmic symbols (semibreves) with numbers 5, 1, (120), 3, and 2 positioned above them. A circled number "120" is also present in the middle of the score.

Fig. 4.8b. Excerpt of second profile from "Improvisation sur Mallarmé II"

1s 35

Vl.

Vlc.

C.-Basse

(B) Cymb.

(C) Maracas

à peine soufflé, comme un bruit de fond.
avec les temples des violons, avec l'intonation à l'écarter de piano
sur pour se faire entendre plus, représentant le souffler
pour un signe de chef (page 21).

1s 35

(A) chaque fois, comme un bruit de vent

(B) Xyl.

MHPA Solo Harpe

Gds Bois

(E) Cloches tubes

(A) Vib. I

Mand.

Guit.

Piano

Cel.

(A) Vib. 1

Piano

Cel.

Soprane Solo

Senza tempo

5

1

2 Senza tempo

Ces trois fragments (A) (B) (C) peuvent se jouer dans n'importe quel ordre qui n'enchaînera pas directement le fragment (A) (C) dans l'ordre A-C (E.A., C.A.B., B.C.A., C.B.A.)

Fig. 4.8c. Quotation of “Improvisation sur Mallarmé II” in “Don”

In the material quoted from “Improvisation sur Mallarmé III,” shown in Fig. 4.9a (and its self-quotation in “Don” in Fig. 4.9b), a lone voice interrupts the orchestral lushness, relinquishing both the phrasing and, seemingly, the character of “Improvisation III.”

Boulez’s penchant for recomposing quotations from his own compositions is a hallmark of his work. As is the case with much of his self-quotations, what remains of “Improvisation[s] sur Mallarmé I, II, and III” in “Don” are shadows of the “originals”: a reminiscence whose reduced, impoverished aesthetic renders the memory of it hollow. The final self-quotation is particularly bare, as “Improvisation III” is unique among the improvisations both in terms of the size of the movement and its full orchestral setting, which aligns it more in character with the framing movements of *Pli selon Pli* as opposed to “Improvisation[s] sur Mallarmé I and II.” Other than the origin and nature of the vocal material used in this movement, little else is known of its formal organization with the exception of some preliminary sketch studies undertaken at the Paul Sacher Foundation that revealed the profound influence of Paul Klee on the formal organization of the movement’s six sections and which will be discussed in greater detail in Chapter Six. While further research is needed into the structure of this movement, Boulez restricts his use of quotation exclusively to the vocal material, completing the expansion of the constellation that involves quoting the vocal material from “Improvisation[s] sur Mallarmé I, II, and III” in “Don.”



Fig. 4.9a. Excerpt from “Improvisation sur Mallarmé III”

33

Parlé sur le souffle (comme une sorte de percussion.)

1^{er} Ex. 2^e Ex.

Lent

ca 4"

ca 7"

arrêt très court

Soprano Solo

Parlé INSERT obligé

Parlé INSERT facultatif

(chaque barre indique une seconde : metronome ♩ 60)

Pour les Inserts parlé, se référer au tableau suivant:

a	b	c
brève (♩)	moyenne (♩)	longue (♩)
...k...	...de...	...le-ne...
...st...	...mâts...	...mâ-me...
...les...	...y...	...la-ves...

= Si l'on ne fait que les deux Inserts obligés, prendre trois syllabes de même nature (aaa, ou bbb, ou ccc); les répartir en 2/1 ou 1/2 (aa pour le 1^{er}, 2 pour le 2^e ou vice versa etc...)

= Si l'on fait les deux Inserts obligés et l'insert facultatif, prendre deux groupes de trois syllabes de nature différente; les groupes irrégulièrement en une fois 1, une fois 2, une fois 3 (exemple: b pour le 1^{er}; a c a, pour le deuxième; b c, pour le troisième).

Deux exemples sont donnés pour chacun des cas. On pourra choisir ad libitum.

Interpréter cela comme des interruptions improvisées.

Pour les séquences chantées, remonter un peu l'intensité des cordes, en suivant la voix.

Pour les interruptions parlées, baisser tout à fait l'intensité des cordes.

Fig. 4.9b. Quotation of “Improvisation sur Mallarmé III” in “Don”

4.6. From Constellations to Large-Scale Form

Expanding any constellation, such as the one explored in this chapter, takes place through quasi-systematic means continuously tempered by indisciplinary intervention, through various developmental stages often across multiple works, and with regards to this particular constellation of musical structures, through the specific challenges and implications of the composer’s self-quotation. The ramifications of the basic principles of

expanding a constellation heavily impact upon Boulez's development of his theory of serial form. The spirit in which the composer develops new materials, and articulates them within the scope of a single musical work, or a group of musical works, provides him with the means to organize much larger segments of music by continuing the process of development, and the continued exploration of materials' potential. These trajectories of developing materials form the basis of Boulez's serial form, functioning like autonomous voices amid a polyphonic setting of complementary, contradictory, independent, or interwoven developing ideas, an analogy that will be explored in greater detail in Chapter Six. The fragments of voices come to identify particular developmental trajectories within a musical work, and the more that is known of Boulez's various constellations, the more the analyst is able to apprehend the emerging large-scale form of the work.

Contrasted with the expansion of a single constellation explored in this chapter is the largely fragmentary organization of materials belonging to different constellations of structures and the extent to which Boulez experiments with the formal discontinuity of their presentation in the framing movements of *Pli selon Pli*, "Don," and "Tombeau." It is the interplay between the unity of serial content belonging to a particular constellation and the large-scale formal discontinuity that relies upon the interplay of materials from different constellations that provides the foundation for my analyses of "Don" and "Tombeau" in Chapter Five. The challenging integration of serial content and formal structure that Boulez proposed in *On Music Today* is remarkably well realized in the formal structure of the framing movements of *Pli selon Pli*. In these movements, Boulez realizes his vision of discontinuous form through the interplay of two distinct

constellations of musical structures that arise from the *Oubli signal lapidé/Le Marteau sans maître* series and the *L'Orestie* series, the former developing into the multiplication table (explored primarily in Chapter Three) and the latter into the rotational array used in *L'Orestie* and *Strophes* and, as has been shown in Chapter Four, indirectly employed in “Improvisation[s] sur Mallarmé I, II, and III,” which then become the foundation for self-quotations in a prominent subsection of “Don.” Now that the techniques for expanding and developing materials, as well as the nature of the constellation, have been established, it is appropriate to reveal how Boulez defined large-scale form with these materials in what is arguably his magnum opus, *Pli selon Pli*.

Chapter Five: Local and Large-Scale Form in “Don” and “Tombeau”

5.1. Constellations in “Don” and “Tombeau”

In the framing movements of *Pli selon Pli*, “Don” and “Tombeau,” Boulez employs the two primary constellations of structures explored in Chapter Three that are derived from two generalized series: the first from *Oubli signal lapidé/Le Marteau sans maître* that yields the multiplication table, shown in Fig. 3.10, and used in *Oubli signal lapidé*, *Le Marteau sans maître*, and *Pli selon Pli*, and the second from *L’Orestie*, which yields the rotational array (shown in Fig. 3.18a) that was used in *Strophes* (shown in Fig. 3.20) and *L’Orestie* (shown in Fig. 3.22). In Chapter Four, the *L’Orestie* constellation was further developed through a variety of techniques that ultimately yielded the vocal pitch content for “Improvisation[s] sur Mallarmé I, II, and III,” the central movements of *Pli selon Pli*. Both the multiplication table and the rotational array, via *Strophes*, are used in the first movement of *Pli selon Pli*, “Don,” while the multiplication table alone provides the means for both local and large-scale formal organization in “Tombeau.” In the current chapter, I will provide an analysis of the local and large-scale formal structure and serial content of both “Don” and “Tombeau” that is based primarily upon Boulez’s design of these movements as symmetrical to one another. These analyses are made possible due to the depth and detail of the organizational schemes illustrated in Boulez’s sketches for these movements without which their structure and significance would remain illusory.

It is important to note that “Tombeau” was composed first, with “Don” composed last, despite being its first movement. This is why it is imperative to explore the relationship between the structure of “Tombeau” and “Don,” as the latter was written

both as a response to “Tombeau” and a culmination and foreshadowing of “Improvisation[s] sur Mallarmé I, II, and III.” “Tombeau” holds the key to the formal design of “Don” while at the same time providing insight into specific compositional choices that further integrate the two movements, requiring them to be considered in tandem. First and foremost, Boulez designed the movements to be symmetrical to one another in terms of the order of their internal sections, and the serial content of those sections. In an early sketch for *Pli selon Pli*, Boulez employs a visual representation of the structural complementarity between the framing movements. A transcription of this sketch is reproduced in Fig. 5.1,¹ in which mirror symmetry along the diagonal axis of interlocking blocks represents the symmetrical design of “Don” and “Tombeau.” This symmetrical design replaces the architectural, formal design of large-scale works in the tonal idiom that Boulez was seeking to move beyond. The diagram in Fig. 5.1 conflates these two figures and shows the two movements as a series of complementary compartments, highlighting the sectional nature of “Don” and “Tombeau,” the titles of which can be seen clearly in the upper left- and lower right-hand corners of the diagram respectively. See Appendix to Chapter 5, Appendix 5.1. Fig. 5.2 shows, in greater detail, the intricate parallelisms between the two movements in terms of the serial content. In Fig. 5.2, Boulez connects particular regions of the multiplication table used in *Oubli*

¹There are many original sketches and analyzed score excerpts in Appendix to Chapter Five, which is designed to be employed alongside the current chapter. The sketch in question here, or two sketches to be more precise, are shown in the facsimile to Tombeau as Illustration 17, which, in one image shows two symmetrical columns of cells that indicate a symmetrical structure to the movement was being formulated in the very early stages of composition and, in a second image, we see the more precise basis for Fig. 5.1. See Robert Piencikowski, Ed. “Tombeau” *Nr. 5 aus dem Zyklus “Pli selon pli,” Facsimile of the Draft Score and First Fair Copy of the Full Score*, A Publication of the Paul Sacher Foundation. Vienna: Universal Edition, 2010, 56.

signal lapidé and *Le Marteau sans maître* with a specific stair-like figure at the top of the diagram accompanied by the designations $M\upsilon$, $N\upsilon$, Ξ , Om , Π , and $M\upsilon$, a reference to the rows of the multiplication table shown in Fig. 3.10.

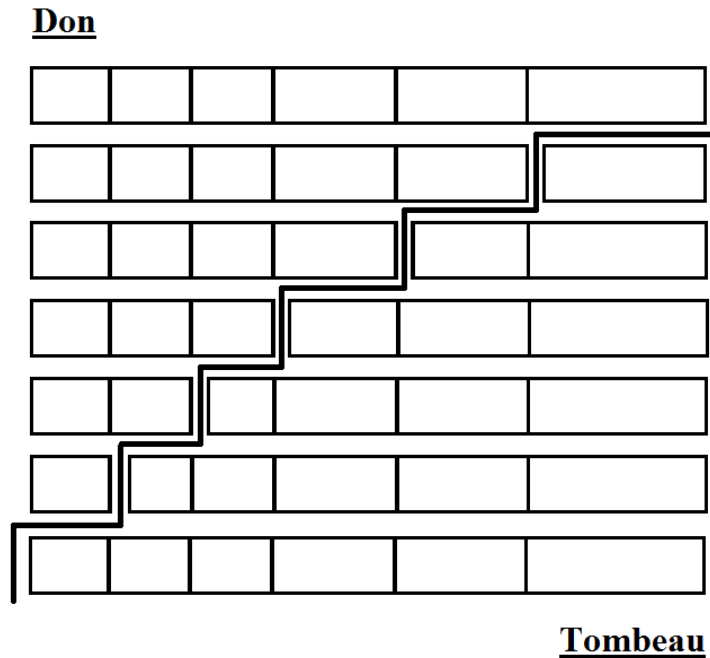
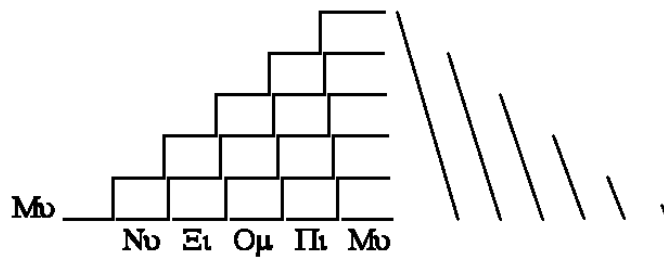


Fig. 5.1. Transcription of preliminary sketch for “Don” and “Tombeau”; see Appendix to Chapter Five, 5.1; original housed at the Paul Sacher Foundation; Microfilm 582: 0113

Starting and concluding with the $M\upsilon$ row of the multiplication table suggests cycling through the content of the rows from the table, and concluding with the point of initiation: a powerful formal device that will have far-reaching ramifications later on. In the center of the sketch, Boulez has written and underlined: “Fin du Tombeau = Commencement du Don,” which is itself an indicator that the material present in the final section of “Tombeau” will appear in the first section of “Don.”



debut fin
ΜυΑλ **ΜυΑλ** = cycle fermé
~~debut fin~~
~~**ΜυΑλ** **ΜυΑλ** = cycle ouvert~~

Fin du Tombeau = Commencement du Don (Joyce Finnegans Wake)

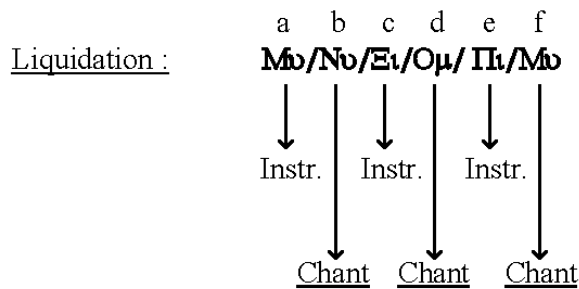


Fig. 5.2. Transcription of early sketch for “Don” and “Tombeau”; see Appendix to Chapter Five, 5.2; original housed at the Paul Sacher Foundation; Microfilm 581:0345

In the center of Fig. 5.2, above the underlined phrases “Fin du Tombeau = Commencement du Don,” are the phrases “cycle fermé” and beneath it, “cycle ouvert,” which Boulez seems to have scratched out (by drawing a line through) suggesting that he preferred to view the symmetrical form of “Don” and “Tombeau” as a closed cycle rather than an open one. But the composer’s preoccupation with cyclic forms also suggests that

he may well have conceived of the work, in addition to being a closed cycle, as possessing a self-reflexive quality through the use of similar materials at the start and end points of “Don” and “Tombeau” that would create a type of feedback loop, reflecting the circular design where the end mirrors the beginning.

As was previously mentioned, “Don” was written last of all the movements of *Pli selon Pli*, so Boulez had the foreknowledge of what was to come, a fact he clearly took advantage of in including the quotations from “Improvisation[s] sur Mallarmé I, II, and III.” These quotations foreshadow the content of later movements, while acting as echoes of the improvisations: a point of formal interest and a quandary in terms of how musical time is experienced. The title *Pli selon Pli*, meaning “fold upon fold,” has already been discussed in Chapter Four with regard to issues including the experience of musical time, formal discontinuity, and the concept of the work “folding back upon itself”. The idea that multiple trajectories of developing materials are braided into a heterogeneous texture is of central importance to Boulez’s theory of formal discontinuity, a concept explored in detail in the previous chapter.

While the title “Don” is taken from Mallarmé’s *Don du poème*, or “gift of the poem,” “Tombeau,” taken literally, means “tomb,” creating an oppositional character between the two movements that keeps in character with Boulez’s penchant for opposition. The tombeau, as a musical term, is also a memorial, homage, or tribute. Opening *Pli selon Pli* with a gift and closing with an homage creates both opposition between the framing movements that mimics their symmetrical structure and, as will be shown in greater detail, serial content. Further insight into Boulez’s influences for *Pli selon Pli* is provided by his reference to Joyce’s *Finnegans Wake*, which can be seen in

the right-hand side of Fig. 5.2 in parentheses. This reference has deep significance when considering the symmetrical structure of “Don” and “Tombeau” and their self-reflexive qualities.

5.2. The Formal Design of “Tombeau”

The symmetrical design and self-reflexivity of “Don” and “Tombeau” have strong implications when interpreted in terms of their extramusical influences. In terms of *Finnegans Wake*, many features seem significant when compared in light of the structure of “Don” and “Tombeau.” To begin with, *Finnegans Wake* takes place at night, when one’s surroundings are not visibly clear. The appearance of familiar objects is changed somehow: obvious paths are obscured and familiar routes take on a new appearance. In Mallarmé’s *Don du poème*, each word and phrase possesses a multiplicity of meanings, a semiotic polyvalency in which words assume new meanings in different contexts, similar to Joyce’s experimentation with multiple meanings of words when they are parsed in a certain way, or cast in a different light, i.e., the homophone “Finnegan” and “Finn again.” The polysemy of these sound objects parallels the musical universe of “Don.” Multiplicity and opposition are inherent in the interwoven, fragmentary trajectories of developing materials that unfold throughout the movement. Familiar musical structures are given new appearances in new contexts, and a single sound object can be viewed from a variety of perspectives, depending on the context and the surrounding material.

Further comparisons between *Finnegans Wake* and “Don” emerge when considering the plot of *Finnegans Wake*, which is, at the very least, non-linear. Like a dream, the experience conveyed in Joyce’s work is a refracted, partially recollected

interpretation of events: a distorted mirror of a tenuous reality, a virtual reality. The most noteworthy aspect of *Finnegans Wake* in relation to both “Don” and “Tombeau” is its formal structure, in that its opening line is a fragment of the line that concludes the text.

In *Finnegan’s Wake*, the opening and closing lines are as follows:

Opening Line:

riverrun, past Eve and Adam’s, from swerve of shore to bend of bay, brings us by a commodius vicus of recirculation back to Howth Castle and Environs.

Closing Line:

Finn, again! Take. Bussoftlhee, mememormee! Till thousandsthee. Lps. The keys to. Given! A way a lone a last a loved a long the.....[riverrun, past Eve and Adam’s,....]

Joyce’s linking of the end and beginning of his novel, in a similar fashion to Boulez’s treatment of the end of “Tombeau” and the beginning of “Don,” unfolds the work and then folds it back upon itself, drawing the ends together like a fold. Like *Pli selon Pli*, *Finnegans Wake* has a circular design, similar to Boulez’s consideration of whether or not the design of “Don” and “Tombeau” is an open or closed cycle. Boulez, however, ultimately envisions *Pli selon Pli* as a closed, self-reflexive design, and *Finnegans Wake* strongly suggests such a design as well.

The significance of the large-scale formal design of “Don” can only be understood in terms of its relationship to the large-scale form and serial content of the individual sections of “Tombeau.” In an early sketch that outlines the sections of “Tombeau” and their serial content, shown in Fig. 5.3, Boulez associates each of the six sections, identified and designated by the letters *a*, *b*, *c*, *d*, *e*, and *f*, respectively, with a

particular row of *blocs sonores* from the multiplication table shown in Fig. 3.10: $M\upsilon$, $N\upsilon$, Ξ , $O\mu$, $\Pi\iota$ and, as will be explained, $M\upsilon$ again. For instance, section *a* of “Tombeau” contains products, or *blocs sonores*, from the $M\upsilon B\eta$, $M\upsilon T\alpha$, $M\upsilon \Delta\epsilon$, $M\upsilon E\pi$, and $M\upsilon A\lambda$ domains.² Section *b* contains products from Domain $N\upsilon B\eta$, section *c* contains products from Domain $\Xi\iota T\alpha$, section *d* products from Domain $O\mu \Delta\epsilon$, section *e* products from Domain $\Pi\iota E\pi$, and section *f* products from Domain $M\upsilon E\pi$ as well as partitions from Domain $M\upsilon A\lambda$, again, similar to the content of section *a*, creating a circular use of the matrix from Fig. 3.10 in that, when Boulez comes to the end of the Domains, he returns to the initial Domain to satisfy the need to provide harmonic content from a matrix

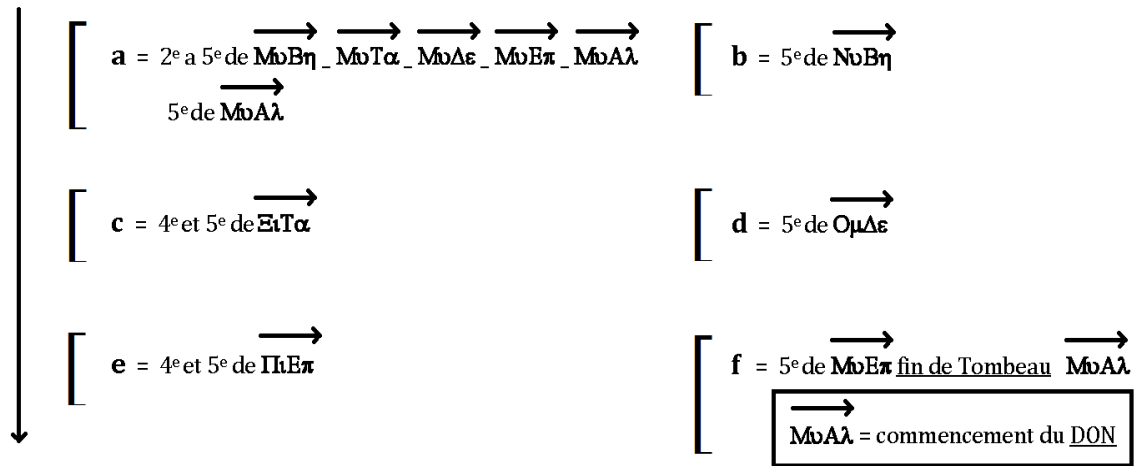


Fig. 5.3. Transcription of early sketch for “Tombeau” showing the serial content from the multiplication table for *Le Marteau sans maître* in each section; see Appendix to Chapter Five, 5.3; original housed at the Paul Sacher Foundation; Microfilm 581: 0455

Robert Piencikowski was the first to acknowledge the formal structure of “Tombeau” by nature of the *bloc sonores* found in Fig. 3.10. Piencikowski lays out groups of *bloc*

² Piencikowski observes this pattern of *bloc sonores* in the facsimile to Tombeau, see Facsimilar edition, p. ___.

sonores and their respective Domains for a series of what he refers to as “sequences” and a “Coda” that concludes the work. For instance, the fifth product (5^e), or *de*, from Domain ΟμΔε initiates section *c* of “Tombeau.” and accompanies it with the relevant instrument, going through all five sections, giving bar numbers and clearly laying out the form in concrete terms.³ It is Piencikowski’s analysis that spearheaded my own investigations into Boulez’s sketches of “Don” and “Tombeau” in order to further establish their symmetrical nature and the systematic manner in which Boulez employs *bloc sonores* from Fig. 3.10 as an organizational scheme.

With regards to the symmetry of “Don” and “Tombeau,” while Boulez uses the letters *a–f* to designate and identify the sections of “Tombeau,” he pairs these letters with the letters designating sections of “Don” that share the same serial content from the multiplication table in Fig. 3.10. By this, I mean that section *f* in “Tombeau” is paired with section *a* in “Don,” *e* is paired with *b*, *d* with *c*, *c* with *d*, *b* with *e*, and finally, to create a symmetrical design between “Tombeau” and “Don,” section *a* is again paired with *f*.⁴ Paired sections share products from the multiplication table in Fig. 3.10, for instance, sections *a* and *f*, or *a/f*, both employ partitions from Domain ΜυΑλ. Section *b/e* employs products from Domain ΝυΒη, section *c/d* from Domain ΞιΤα, section *d/c* from Domain ΟμΔε, section *e/b* from Domain ΠιΕπ, and section *f/a* from Domain ΜυΑλ partitions again. The practice of simultaneously designating a section from “Don”

³ See facsimile to “Tombeau”, 28; and in greater detail, 30.

⁴ For reasons that will be stated later on, “Don” does not actually possess a section *f*, although “Tombeau” does, and its serial content from the multiplication table does, in fact, map onto section *a* from “Don.” Further significance of this aberration will be explored in greater detail later on. The serial content from section *a* of “Don” does, indeed, map onto the the content of section *f* of “Tombeau.”

alongside the section that shares its serial content in “Tombeau” is idiosyncratic to Boulez’s notational style and facilitates quick identification of corollary sections between the two movements.

Boulez’s idiosyncratic notational style requires further explanation. As mentioned above, the labeling system of combining two letters indicates sections of “Don” and “Tombeau” that share specific serial content from the multiplication table in Fig. 3.10. By referring to a specific section in “Don” as a/f , the notation connotes section a of “Don” while making explicit the connection to section f of “Tombeau.” Conversely, if referring to “Tombeau,” the label e/b connotes section e of “Tombeau” while making explicit the connection to subsection b of “Don.” This means that the combination of letters a/f always involves serial content from partitions of Domain $M\upsilon A\lambda$ of the multiplication table, and the letters e/b always involve serial content from Domain $\Pi\iota E\pi$. Following the same logic, the label c/d can refer to section c in “Don” and section d in “Tombeau,” and vice versa, depending upon the context. What remains constant is the nature of the serial content that defines these sections. Henceforth, this notation will be used to pair sections in “Don” and “Tombeau” that share certain content derived from the multiplication table shown in Fig. 3.10. Thus the formal complementarity of “Don” and “Tombeau” is based upon the order in which products from the multiplication table are used in the sequence of sections that comprise their total formal organization. Because the sketch in Fig. 5.3 specifies the exact serial content of each section of “Tombeau,” it is possible to extrapolate the serial content of each section of “Don.” While products from the $M\upsilon$, $N\upsilon$, Ξ , $O\mu$, and Π rows of the multiplication table (Fig. 3.10) are used in the six sections of “Tombeau,” their reverse, rows $M\upsilon$, Π , $O\mu$, Ξ , $N\upsilon$, and $M\upsilon$, respectively, are used in the

respective sections of “Don.” It is important to note that in section *f* of “Tombeau,” Boulez specifies that the $M\upsilon A\lambda$ partitions from the multiplication table that accompany the “fin du Tombeau” also indicate the “commencement du Don,” thereby linking the end of *Pli selon Pli* with the beginning via serial content.

Figure 5.4 shows section *af* of “Tombeau” with serial content from Domain $M\upsilon A\lambda$ presented entirely in the solo piano.⁵ Partitions from Domain $M\upsilon A\lambda$ are labeled *a*, *b*, *c*, *d*, and *e*, respectively, referring to the five partitions of the *Le Marteau* series (see Fig. 3.10). These partitions are immediately followed, again in the solo piano, by partitions from Domain $M\upsilon B\eta$, again labeled *a–e* respectively to designate the five products from this line of the table. As has been the case in numerous examples discussed throughout this investigation, Boulez follows the order of events suggested by the table itself. Fig. 5.4 continues to show partitions from Domain $M\upsilon T\alpha$ in the solo piano: exactly as Boulez lays out the content for section *af* in Fig. 5.3. The identification of sections *b/e*, *c/d*, *d/c*, and *e/b* of “Tombeau” can be found in Appendices 5.4–5.7 respectively, where each section follows the prescribed order of products from the serial content laid out by Boulez in Fig. 5.3. Section *f/a* is reserved for later discussion due to its formal significance, structure, and serial content.

In this regard, the local level of form, that of the specific serial content, has a direct and significant impact on the large-scale form of the work. Serial content not only determines the individual sections of the movements, it determines the manner in which “Don” and “Tombeau” relate to one another. Making the large-scale form directly

⁵ However, other *bloc sonores* from the $M\upsilon$ section of Fig. 3.10 are also present in the percussion, woodwinds, strings, and plucked strings/keyboards, as laid out by Piencikowski in the facsimile edition to *Tombeau*, Cite Page Numbers.

tombeau
(1959 - 62)

pierre boulez
(1925)

ΜυΑλ
Lent et régulier $\text{♩} = 60$

Piano

2^e Harpe

Celesta

Vibraphone

Guitare

ΜυΒη

Piano princ.

1^{re} Harpe

Vibr. 1

Cor en fa

Tpt. en ut

Tbn. ténor

Tbn. basse

Clar. rti

Clar. la

Clar. b. sib

Bsn.

Fig. 5.4. Section a/f of "Tombeau"

dependent upon the local organization of serial content rectifies the primary discord Boulez identified in Schoenberg's merging of idiomatic tonal forms with serial content. In the framing movements of *Pli selon Pli*, not only has Boulez relinquished any effects of tonal, or "architectural" forms, but he has also made form and serial content inseparable from one another. He has effectively eliminated the opposition between the two as he set out to do in *On Music Today*.

Another noteworthy feature of Boulez's use of the multiplication table to organize the content of the individual sections of "Don" and "Tombeau" is that the composer largely follows the inherent organization of the table itself, allowing, within a strict framework, to permit the serial content itself to exert some influence over the organization of the two movements no matter how seemingly significant or important on a large-scale a particular organizational scheme might be. The fact that the concluding section of "Tombeau" initiates the same succession of serial materials as commences "Don" illuminates the question raised by Boulez as to whether or not to conceive of "Tombeau" as a true conclusion to *Pli selon Pli* or as an initiation of the opening movement, making the work self-referential and consequently, a closed cycle. The circular design and closed cycle envisioned by Boulez become apparent when the serial content of "Don" and its sections *a/f* to *e/b* are mapped onto "Tombeau" based upon the content of the multiplication table.

As was previously mentioned, "Tombeau" possesses a sixth section that "Don" does not, section *f*, that recapitulates the content of section *a* of "Don," hence it being referred to as section *f/a* in "Don" and *f/a* in "Tombeau." It allows "Tombeau" to fulfill the closed cycle in and of itself, in addition to drawing a parallel to the opening of "Don."

Though Boulez does not draw on precompositional materials aside from the multiplication table in “Tombeau,” there are features unique to the movement that warrant further investigation into the interconnections between local and large-scale form. As with “Don,” “Tombeau” has a five-part organization (the sixth section, *f/a* is a recapitulation of “Tombeau” and a return of the opening materials of “Don.” This five-part organization is engendered by Boulez’s dividing of the *Le Marteau* series into five partitions that, when subjected to systematic multiplication, yield five Domains comprised of five lines of five products each. The sixth section, *f/a*, as a recapitulatory section, contains a microcosm of the five-part form of “Tombeau,” a remarkable feature that will be explored in detail later in terms of both its structure and content, and its implications for local and large-scale form in *Pli selon Pli*. Figure 5.5 shows one of Boulez’s precompositional sketches for “Don” which clearly shows evidence of the five sections, each represented by one of five interwoven lines.

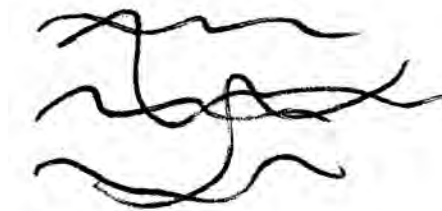


Fig. 5.5. Sketch of “Don” by Boulez with each line representing a specific Domain; original housed at the Paul Sacher Foundation; Microfilm 137: 0058

Though “Tombeau” does not employ multiple constellations of derived structures in a similar fashion to “Don,” it does however raise questions as to the nature of discontinuous form through the microcosm that constitutes the movement’s final section, *f/a*. While the formal organization and serial content of “Tombeau” are perhaps more

straightforward than those of “Don” in that “Tombeau” does not braid trajectories of materials developed from different sources, understanding the construction of “Tombeau” is essential in order to apprehend the significance of the formal design of “Don,” both at the local and large-scale levels of form.

5.3. Local and Large-scale Form of “Don”

In the following analysis of “Don,” I show how Boulez’s carefully constructed constellations of serial structures yield large-scale form through local, interdisciplinary organizational schemes inherent to the serial content involved. While the symmetrical design of “Don” and “Tombeau” is influenced by the extramusical sources of Mallarmé and Joyce, it is also influenced by factors such as 1) the principles of developing trajectories of serial materials; 2) indiscipline and variation; 3) multiplicity and the polyvalency of musical structures; and above all else, 4) the discontinuous and non-linear conceptions of form that coalesce to forge the structure of the movement. As Chapter Four has discussed in detail the role and significance of the quotations of “Improvisation[s] sur Mallarmé I, II, and III,” these quotations will not be discussed further, despite their comprising a substantial part of “Don,” section *d/c*. For the extended discussion, please refer to section 4.5. Consequently, the current analysis will be limited to the unfolding of materials from the two primary constellations of structures: the multiplication table from *Oubli signal lapidé/Le Marteau sans maître* and the various sections of *Strophes*, with *Strophes* functionally expanding the rotational array originally conceived for *L’Orestie*, a topic explored in great detail in Chapter Four. Rather than utilize the rotational array outright, Boulez employs specific sections of *Strophes*,

respecting their organization within the solo flute work rather than selecting cells from the rotational array that gave rise to the work.

Figure 5.6 presents the large-scale formal plan and the content of each section of “Don” that I have compiled from a series of sketches to the movement. I have coalesced and streamlined pertinent features to focus on the main serial content while including certain annotations from Boulez’s sketches that directly reference Mallarmé’s *Don du poème*. The idea of dividing the work into five parts (plus the concluding section of “Tombeau” that recapitulates serial content from the first sections of both “Tombeau” and “Don”) is a significant feature when considering Boulez’s organization of serial materials up until this point:

- 1) The *Le Marteau* series is delineated into five sets of five partitions, shown in Fig. 3.8;
- 2) Each set of five partitions is subjected to pitch-class set multiplication, creating five Domains of five lines each, with the top line substituted for the series’ partitions and the remaining lines comprising the *bloc sonores*, or products of multiplication, shown in Fig. 3.9;
- 3) These five Domains are compiled into a multiplication table shown in Fig. 3.10;
- 4) The series from *L’Orestie* is transformed, subject to a series of transformational principles, and divided into five groups of two-to-three pitches each, as shown in Fig. 3.18a, effectively bringing works based upon this rotational array, including *L’Orestie* and *Strophes*, into the group of works whose organization, on some level, is dictated by five parts;
- 5) Serial content in “Don” is based upon the five Domains from the multiplication table shown in Fig. 3.10 as well as intermittent use of sections from *Strophes*.

These points underscore Boulez’s penchant for partitioning musical space in five-part organizational schemes during this period of 1952–1962.

Consequently, the trajectories that unfold materials derived from either the multiplication table or the rotational array throughout “Don” provide concrete evidence

that the local organization of serial content has the power to generate large-scale form, thus achieving the organic totality in the serial work of which Boulez speaks in *On Music Today* and towards which he strived. There is one important distinction between the formal plan compiled in Fig. 5.6 and the actual layout of “Don.”

Formal Design of “Don”

- a/f* ΜυΑλ *accord total* [aggregate]
 ΜυΕπ
- b/e* ΠιΕπ
 Citation (Quotation) de 3^e *Improvisation sur Mallarmé*
- c/d* ΟμΔε
 Strophes 1b
- d/c* ΞΓα
 Citations (Quotation) de 3^e, 2^e, 1^{er} *Improvisation sur Mallarmé*
- e/b* ΝυΒη
 Strophes 1c, 2b, 3b, 1d
 Citations (Quotation) de 2^e & 1^{er} *Improvisation sur Mallarmé*
- f/a* ΜυΑλ
 Strophes 2d, 3d, 1h
- Palme*
Sommet
- Carillons 6/5 *Strophes 1g*
Carillons 4/3 *Strophes 1f, 3c, 2c, 1e*
Carillons 2/1 *Strophes 3a, 2a, 1a*
- L’Azur! L’Azur! L’Azur! L’Azur!*

FIN

Fig. 5.6. Preliminary form of “Don” compiled from original sketches housed at the Paul Sacher Foundation; Microfilm 581: 0345-0355

While sections *a/f*, *b/e*, *c/d*, *d/c*, and *e/b* all have extensive, complex and highly detailed sketches accompanying them, section *f/a* exists only in very brief, preliminary sketches to the movement that show little detail and represent the early stages of the composer's working out of the movement's overall form. "Don" itself does not conclude with the material described in section *f/a* of Fig. 5.6.

Instead, it concludes with the material from section *e/b*, which will be described in detail in a later section of this chapter. The *f* in section *a/f* of "Don" instead refers to the content of section *f/a* of "Tombeau" which, as will be shown, is initiated by Domain $M \cup A \lambda$ partitions and features other elements of section *a/f* of "Don" which will be discussed later. While "Don" does not conclude with the sixth section, "Tombeau" does contain a sixth section *f/a* which, being the final section of *Pli selon Pli*, functionally concludes the whole work, making the concluding sixth section of "Don" somewhat unnecessary. Consequently, the final section of "Tombeau," and not "Don," contains the true *f/a* section in order to 1) close the "cycle fermé" by folding the end back upon the beginning, and 2) create the circular form Boulez desired for *Pli selon Pli*.

In the sketches to "Don," Boulez breaks down each individual section from *a/f*–*e/b* in remarkable detail. It is not possible within the scope of this investigation to detail Boulez's extensive mapping of the organization of each section of "Don," given the remarkable complexity of the sketches and the fact that I am still in the process of decoding them myself. Instead, I have highlighted specific events in each section that are characteristic of Boulez's compositional process and that illustrate the role of interdisciplinary procedures in the organization of local form. For the majority of sections, I have transcribed sections of Boulez's sketches to provide a window into the composer's

working methods and compensate for his largely illegible annotations and illustrations, many of which are included in the Appendix to Chapter Five.

Section *a/f*

Boulez's sketch for section *a/f* is relatively straightforward in comparison to those for later sections. I have provided a transcription of a sketch for the section in Fig. 5.7. The original sketch can be found in Appendix 5.8. A noteworthy feature in this sketch is the term "Accord total," which refers to the aggregate, written beside the M∪Aλ partitions at the top left-hand side. Boulez uses the aggregate to begin "Don" and conclude "Tombeau," effectively bringing the ends of the movement together and, as Boulez proposes, closes the cycle of the work. The portion of section *a/f* that includes the "accord total" is primarily the woodwinds, horns, and a brief contribution from the piano (not shown) is reproduced in Fig. 5.8, reserving the piano, harps, stringed instruments, and pitched percussion instruments to convey Domain M∪Aλ partitions shown in the score excerpt in Fig 5.10. Figure 5.9 shows the individual breakdown of instruments and their contribution to the aggregate.

DON

a/(f)

MυΑλ Accord Total _ (12 sons)

Restant : 3 4 5 ensemble

MυΕπ 3 durations.....sous y aller (?)

Commentaire sur {5 vertical aller/retour 5 (IV V III II III IV V)
I

Commentaire sur {4 diagonal aller, cessé 3 (sous 3) 2 1 1
I IV III IV V

Commentaire sur {3 mi/diagonal mi/vertical 2 1 1 1
aller/retour I III IV V II



Fig. 5.7. Transcription of sketch for section *a/f* of “Don”; see Appendix to Chapter Five, 5.8.; original housed at the Paul Sacher Foundation; Microfilm 581:0345

<u>Instrumentation</u>	<u>Constituent Pitch-Class Member</u>
1st and 3 rd Flutes	C [♯]
4 th Horn in F	C [♯]
Tenor Trombone	D [♯]
Oboe, 3 rd Horn in F	D [♯] /E [♭]
2 nd Horn in F	E [♯]
Bass Trombone, Bassoon	F [♯]
Trombone Contrabass Clarinet in B [♭]	F [♯] /G [♭]
Trumpet in C	G [♯]
2 nd Flute, Oboe, Clarinet in E [♭]	A [♭]
Clarinet in A, Trumpet in D	A [♯]
Piano	B [♭] and B [♯]

Fig. 5.8. Dispersal of aggregate in the opening gesture of “Don,” the “accord total” in section *alf*

While I have not established the significance of the Roman numerals Boulez notates in Fig. 5.7, Roman numerals are a frequent notational device in a plethora of sketches for the various sections of both “Don” and “Tombeau” and would be worthy of more detailed study in collaboration with the Paul Sacher Foundation.

a/f **Libre** **accord total**

Flûtes 1, 2, 3
 Flûte en sol
 Hautbois
 Clarinette en mi b
 Clarinette en la
 Clarinette basse en mi b
 Basson
 2 s
 Cors en fa 1, 2
 Trompette en ré
 Trompette en ut
 Trombone ténor
 Trombone basse
 Trombone contrebasse
 Soprano
 Parlé
 éventuellement
 Chanté

Fig. 5.9. “Accord Total” in section *a/f* of “Don”; see Appendix to Chapter Five, 5.9

Juxtaposing the Domain $\text{MuA}\lambda$ partitions—an organized, generalized series—against an unorganized aggregate, exemplifies the power of the generalized series to yield new materials that are structurally related to its intervallic content. Additionally, such juxtaposition draws attention to the composer’s freedom and exercising of choice. Unlike the generalized series, whose partitions, when subjected to the process of multiplication (i.e., transpositional combination), have the potential to yield the Domains of the multiplication (Fig. 3.10) that permeate the movement, the unordered aggregate is itself a

statement about the raw material of serialism as a compositional genre. Presenting partitions from Domain $MuA\lambda$ alongside the aggregate enables the former to combine with the opening verticality: a clear statement as to the relationship between the highly organized serial material of “Don” as well as its amorphous origins in the aggregate. The partitions, labeled *a–e* are notated in Fig. 5.10.

Boulez offers further insight into the nature of his material in the opening vocal line which, as was discussed in Chapter Two (Fig. 2.10–2.13), is itself an expression of the first hexachord of the *Le Marteau* series. Boulez is ultimately revealing the initial series that gives rise to the primary constellation that will be employed throughout the movement and whose constituents, as we will see, demarcate and define the individual sections. As previously noted, Boulez often begins a musical work with a relatively straightforward presentation of materials whose organization is dictated by the organization of the serial content itself, such as Boulez’s following the succession of cells from the rotational array in the opening of *Strophes*, or his following of a variety of logical pathways through various matrices from the multiplication table in “L’artisanat furieux” from *Le Marteau sans maître* as described by Koblyakov in Chapter Three.

The image shows a musical score for section a/f of "Don". The score is divided into several systems, each with a specific domain partition indicated by a large letter or letter combination. The instruments and their domain partitions are:

- Piano 3 Pedales: a/b
- Harpe 1 (Mii Faf Soli Lai / Réi Doi Sii): c/d
- Harpe 2 (Mii Faf Soli Lai / Réi Doi Sii): b/d
- Harpe 3 (Mii Faf Soli Lai / Réi Doi Sii): b-e
- Celesta: a-e
- Mandoline: a-e
- Guitarre: a-e
- Xylophone (1. ex. B, 2. ex. C): a-e
- Vibraphone 1 (A, sans pédale): a-e
- Timbales (D): a-e
- Cloches tubes (E): a-e
- Cloches plaque (cloches plate) (F): a-e
- Grosse Caisse (G): a-e

The score includes various musical notations such as notes, rests, and dynamic markings. The domain partitions are indicated by large letters (a, b, c, d, e) and combinations (a/b, c/d, b/d, b-e, a-e) placed above the staves.

Fig. 5.10. Domain $\text{MuA}\lambda$ partitions in section a/f of “Don”; see Appendix to Chapter Five, 5.9

Section b/e

An excerpt of section *b/e* of “Don,” shown in Fig. 5.11, features products from Domain $\text{E}\pi$ of the multiplication table from Fig. 3.10. After presenting the product *ea* from Domain $\text{PiE}\pi$ in the vibraphones, Boulez cycles through product *da* from Domain $\text{O}\mu\text{E}\pi$ also in the vibraphones, product *ca* from Domain $\text{XiE}\pi$ in the harps, product *ba* from Domain $\text{NuE}\pi$ in the mandolin and guitar, and finally partition *a* from Domain

ΜυΕπ in the celeste and tubular bells. Boulez follows a straight-line path through the Fig. 3.10 matrix that preserves a particular partition, *a*, as a common multiplier among the products, thus maintaining his own brand of indisciplinary logic, similar to that used to select paths through the matrices in “L’artisanat furieux” from *Le Marteau*.

The image shows a musical score for section b/e of "Don". The score is for a large ensemble and includes the following parts and markings:

- Section:** b/e
- Tempo/Character:** irrégulier
- Time Signature:** 4/8
- Key Signature:** 3 flats (3s)
- Lyrics (Greek letters):** ΠιΕπσα, ΟμΕπδα, ΞΕπσα, ΝυΕπβα, ΜυΕπα
- Instruments:**
 - Vibr. 1 (sans moteur)
 - Vibr. 2 (sans moteur)
 - Harpe 1 (Do1 Si1)
 - Harpe 2 (Fa1 Si1)
 - Mand.
 - Gult.
 - Cel.
 - Cloches-tubes
- Performance Instructions:**
 - Suture la MAIN GAUCHE ou la MAIN DROITE du Chef battu AU CENTRE
 - pppp
 - L.v.
 - mi
 - pp
 - L.v.
- Other Markings:** A, C, 2, E

Fig. 5.11. Domain ΟμΕπ products in section b/e of “Don”

This trajectory seems to be directed by the proximity of the products to one another and the desire for a common partition, in this case, *a*. As Koblyakov might say, nothing alien is introduced to the system, which itself provides certain logic of succession. Boulez compared the process of traversing products from the multiplication table in Fig. 3.10 to leaping from island to island in an archipelago. This metaphor is apt in that there is no enforced hierarchy to the organization of materials, but certain pathways present a sense of indisciplinary logic. The nature and importance of

indisciplinary logic in Boulez's musical theory has been discussed at length in Chapter Two, where it was suggested that the proximity of one product to another within a specific Domain, or through a series of *blocs sonores* that share a common denominator, is particularly attractive to Boulez.

Section *c/d*

Boulez concentrates a great deal of effort on organizing the local form of section *c/d*, incorporating materials from the multiplication table (see Fig. 3.10) and from the secondary constellation of materials that include *Strophes*, and, indirectly, its underlying rotational array. At the first demarcation of section *c/d*, Boulez presents a series of manipulations of a reduced version of the original product *de* from Domain $O\mu\Delta\epsilon$ that appears in *Vibraphone 2*, marked T0 in the score excerpt shown in Fig. 5.12, while the sound masses in the remainder of the instruments are largely manipulations and transpositions of this initial product. The work manipulates not only products from Domain $O\mu\Delta\epsilon$, but also incorporates materials from *Strophes* to bring together materials from two constellations of structures arising from different series. He also develops various rhythmic schemes reminiscent of integral serialism where specific pitches are tied to specific durations to form duration/pitch-class series. The beginning of this section contains a series of transpositions of an altered (reduced) product *de* containing the pitch content G^{\flat} , A^{\flat} , B^{\flat} , C^{\flat} , and $C^{\#}$ (labeled as T0 in Fig. 5.12) from Domain $O\mu\Delta\epsilon$.

c/d **ΟμΔεde (reduced)**

(12) ^{1s} **T10**

Piano *staccato au signe du chef*

Harpe 1
Mi[♯] Fa[♯] Sol[♯] La[♯]
Ré[♯] Do[♯] Si[♯]
- X - *id.*

Harpe 2
Mi[♯] Fa[♯] Sol[♯] La[♯]
Ré[♯] Do[♯] Si[♯]
- XX - *id.*

Harpe 3
Mi[♯] Fa[♯] Sol[♯] La[♯]
Ré[♯] Do[♯] Si[♯]
- XXX - *id.*

Cel. *id.*

Vibr. 1 *id.*

Vibr. 2 *id.*

Mand. *id.*

Gult. *id.*

Pour tous les instruments pour lesquels on utilisera le même, mais indépendamment les uns des autres -
(l'effet doit être comme s'agissait les uns aux autres, rapidement)

Fig. 5.12. Transposition levels of reduced product *de* from ΟμΔε; see Appendix to Chapter Five, 5.10

The original transposition level appears in Vibraphone 2, with the product *de* reduced from its original seven pitches to a pentachord. Boulez retains the chromatic segments and interval <3> characteristic of *de* to preserve the fundamental sound profile of the product.⁶ A possible motivation for his reduction of product *de* in this fashion is to avoid over-saturating the aural landscape of section *c/d* with chromaticism. Fig. 5.13 compares the original product *de* with the reduced version to highlight the retention of chromatic segments. The product *de* has been re-ordered to highlight these retained intervallic characteristics.

⁶ In sketches to “Don,” Boulez indicates the start of section *c/d* at this moment. It is therefore reasonable to assume that product *de* is reduced, rather than the location of section *c/d* being elsewhere with the product intact.

The figure consists of three musical staves. The first staff is labeled 'de' and shows a sequence of nine notes with a set-class label [0124589]. The second staff is labeled 'de re-ordered to highlight chromatic segments separated by ic 3'. It shows the same sequence of notes but re-ordered to group notes into segments: [01], [01], and [012]. Brackets below the notes indicate intervals of 3 (03) between the first and second notes, and between the second and third notes. The third staff is labeled 'de reduced due to the redundancy of the chromatic segments'. It shows a reduced sequence of six notes with a set-class label [01256]. Brackets above the notes indicate segments [01] and [012], and a bracket below indicates an interval of 3 (03).

Fig. 5.13. Reduction of product *de* from Domain $O\mu\Delta\epsilon$ in section *c/d* of “Don”

The first system in Fig. 5.13 shows product *de* as a member of set-class [0124589]. The second system re-orders the pitches to highlight the chromatic segments, each separated by $\langle 3 \rangle$. The third system shows the reduced form of *de* as a member of set-class [01256], and is ordered to highlight the two chromatic segments, [01] and [012], respectively. Musically, the repeated transpositions function like echoes, nearly indistinguishable from one another. In Fig. 5.14, I have reproduced a portion of Boulez’s sketch of the overall plan for section *c/d* showing both product *de* from Domain $O\mu\Delta\epsilon$, indicated as (5° de $O\mu\Delta\epsilon$) along the top, right-hand side of the sketch and, of particular interest, a series of numbers, 1–7, which I have highlighted in the boxed area. In the sketch shown in Fig. 5.14, Boulez associates each of the numbers from the series of 1–7 with a specific duration and pitch-class, and subjects the duration/pitch-class series to a sequence of permutations. The boxed area in Fig. 5.15 correlates to the boxed area in Fig.

5.14, with the numbers 1–7 correlating to the pitch-classes A^b, C^b, E^b, D^b, C#, F^b, and B^b, respectively (a member of set class [0134568]), and the duration series beginning with the double-dotted eighth note and ending with the sixteenth note.

DON

c / (d)

	Dérivation	(5 ^e de ΟμΔε)		
		IV <u>Homophonie et Transpositions</u> par valeurs rythmique		
<u>Carions</u>	(décomposer de 7)	4	1	
		IV	IV	
<u>Bois</u>	“	3	2	
		IV	IV	
<u>Cords</u>	“	2	3	
		IV	IV	
<u>Carrions</u>	(en 4, aller-retour)	1	4	
		IV	IV	

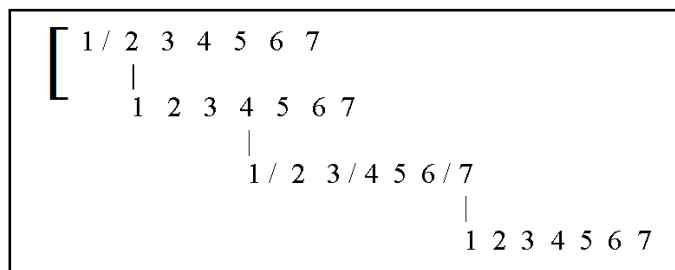


Fig. 5.14. Partial transcription of a sketch for section c/d of “Don”;⁷ see Appendix to Chapter Five, 5.11; original housed at the Paul Sacher Foundation; Microfilm 581:0278

In Fig. 5.15, each duration/pitch-class series is associated with a particular Roman numeral from I–V (omitting IV), and accompanied by an Arabic numeral with a line

⁷ For analysis of another area of this sketch, and its harmonic repercussions throughout primarily the “Cor” section of subsection c/d, see Joseph Salem, *Boulez Revised*, 151–158.

extending it either above or below the series designated by the labels 5____, 1____, 2____, 3____, and 4____, respectively. While some Roman numerals seem to be associated with a particular duration, this is not a consistent relationship, which indicates that Boulez may have added yet another layer of organization to this scheme.

In a more detailed sketch, shown Fig. 5.16, Boulez adds meter to the series of durations. Again, the boxed area corresponds to the boxed areas in Figures 5.14 and 5.15 to provide a point of reference. The first duration series in Fig. 5.14, designated by the number 5 at the start of the line above, begins at the left-hand side of Fig. 5.16 with the $\frac{3}{8}$ meter. The second series in Fig. 5.15, designated by the number 1 underneath the series instead of above it, begins in the fifth measure of Fig. 5.16 with the tied dotted quarter-notes in the lower system. The third series in Fig. 5.15, designated by the number 2 underneath, begins in the seventh measure of Fig. 5.16 with the thirty-second note in the lowest system at this point. The fourth series in Fig. 5.15, designated by number 3 underneath, begins in the ninth measure of the third lowest system at this point, after the thirty-second note rest, with the dotted sixteenth-note tied to the sixteenth note in the following measure. The final series in Fig. 5.15, designated by the number 4, begins directly below series 3 in the lowest system.

① 1 2 3 4 5 6 7
 ↓ ↓ ↓ ↓
 5 4 3 2

{ 5 —————

III II I ⊕ II III

[♩.. ♩ ♩.. ♩.. ♩ ♩.. ♩]

la[♮] do[♮] mi[♭] re[♮] do[♯] fa[♮] si[♭]

↓

[♩.. ♩ ♩ ♩.. ♩]

fa[♮] la[♮] re[♮] si[♭] do[♮] mi[♭] do[♯]

{ 1 —————

V I II III II I V

↓

[♩ ♩.. ♩ ♩ ♩.. ♩]

re[♮] mi[♭] do[♯] do[♮] fa[♮] si[♭] la[♮]

{ 2 —————

I II III V III II I

↓

[♩ ♩ ♩.. ♩.. ♩]

do[♮] do[♯] fa[♮] mi[♭] si[♭] la[♮] re[♮]

{ 3 —————

II III V ⊕ V III II

↓

[♩.. ♩ ♩ ♩.. ♩]

mi[♭] fa[♮] si[♭] do[♯] la[♮] re[♮] do[♮]

{ 4 —————

V I

Fig. 5.15. Transcription of sketch showing Boulez's permutation of the duration/pitch-class series; see Appendix to Chapter Five, 5.12; original housed at the Paul Sacher Foundation; Microfilm 581: 0290

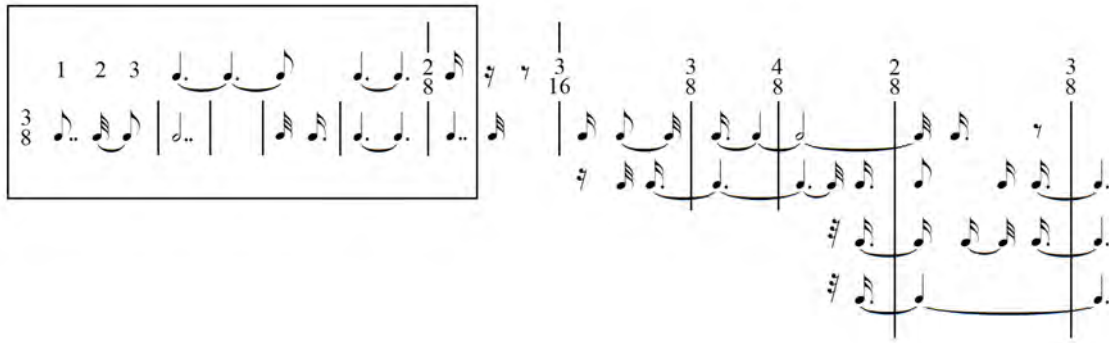


Fig. 5.16. Partial transcription of sketch showing Boulez’s addition of meter to duration series from Fig. 5.15; see Appendix to Chapter Five, 5.13; original housed at the Paul Sacher Foundation; Microfilm 581:0292

The first duration/pitch-class series depicted in Fig. 5.15 and 5.16 is realized shortly after the start of section *c/d* in “Don” at rehearsal 13, an excerpt of which is shown in Fig. 5.17. The succession of the series can be followed starting from Fig. 5.17, from the bass clarinet in B \flat (A \natural), oboe (C \natural , E \flat , and D \natural), bassoon and bass clarinet in B \flat (C \sharp), and clarinet in A (F \natural) with the conclusion of the series on B \flat in the bass clarinet in B \flat (not shown). Fig. 5.18 shows the second duration/pitch-class series assumed by the violins after rehearsal 14, and at the start of the 3/8 meter where all the violins play an F \natural (the link between the two series). The series continues in the strings with the cello (A \natural , D \natural , B \flat), and viola (C \natural , E \flat , C \sharp).

13 Sourdement agité 14

Fl. 1
Fl. 2
Fl. sol
Htb.
Clar. la
Clar. basse sib
Ban.

mf
mf
mf
f
sostenuto
f
sostenuto
f
mf

3
8
2
8
3
8

Fig. 5.17. First duration/pitch-class series in section *c/d* of “Don”

The meticulous attention to detail in the construction of the duration/pitch-class series and its permutations confirms the level of control that Boulez maintains at virtually any moment in the composition. At the same time, the inception of the series itself is not arbitrary, but is instead an action of indiscipline in that the series-permutation scheme follows a discernible logic, but it is a far stretch from the rigidity of the pitch-class and duration series characteristic of the composer’s earlier works such as *Structures 1a* and *Polyphonie X*. The very act of selecting seven elements, a characteristically diatonic number, is itself a rejection of the rigorous working-through of all elements of the aggregate in the pitch-class series for *Structures 1a*. So while the series devised for section *c/d* of “Don” are not arbitrary, they offer Boulez a level of compositional freedom within certain boundaries. In the music surrounding the pitches and instruments involved in expressing the series, certain pitches are repeated freely, others are not part of the

Musical score for section c/d of "Don", measures 14-16. The score is divided into three systems. The first system (measures 14-16) is marked "Sourdement agité". The second system (measures 15-16) includes dynamics like *mf* and *mp*. The third system (measures 16-16) includes dynamics like *div.* and *mp*. The instruments are Violin I (Vi.), Violin II (Vic.), Viola (Vlc.), and Cello/Double Bass (C.-Basses). The score includes various musical notations such as *unis, pizz.*, *arco*, *mf*, *mp*, *div.*, and *mp sub.*.

Fig. 5.18. Second duration/pitch-class series in section c/d of "Don"

series-scheme, while the durations themselves are articulated by various combinations of composite values. There is a pervasive sense of freedom woven around a loosely expressed order, the perception of which would no doubt bring Boulez a great sense of pleasure. Such schemes are the result of the composer's endeavor to introduce a greater degree of freedom into his compositional processes after his earlier failures in overt control and it is *Pli selon Pli* that reaps the rewards.

Associations between pitch classes and durations are pervasive in Boulez's music, so much so that they comprise a genre of study in scholarship of his music. Steve Winnick and Wayne Wentzel have written on the subject of what they refer to as pitch-duration associations, or PDA's as they are abbreviated, a term that captures Boulez's efforts here to tie a pitch series to a rhythmic one.⁸ Winnick describes the PDA as a "technique [that] usually associates pitches of an ascending chromatic scale with durations which increase arithmetically by small increments, such as the sixteenth note."⁹ Winnick's discovered pitch-duration association in *Le Marteau* is similar to the one used in section *c/d* of "Don" in that the pitches in the series are identical, but their associated durations are not. In Winnick's PDA, the duration scheme increases incrementally: C[♯] = sixteenth note, C# = eighth note, D[♯] = dotted eighth note, D# = quarter note, etc. In contrast, the PDA for section *c/d* of "Don" is listed below and provides the same seven pitches in the series depicted in Figure 5.15, but with different corollary values.

⁸ See Steve Winnick, "Symmetry and Pitch-Duration Associations in Boulez's *Le Marteau sans maître*"; and Wentzel, "Dynamic and Attack Associations in Boulez's *Le Marteau sans maître*."

⁹ *Ibid.*, "Symmetry and Pitch-Duration Associations in Boulez's *Le Marteau sans maître*," 280.

C^b = tied eighth and thirty-second notes

C[#] = dotted sixteenth note

D^b = thirty-second note

E^b = double dotted half note

F^b = dotted half note

A^b = double dotted eighth note

B^b = sixteenth note

Pitch-duration associations, regardless of the works in which they operate, reveal an underlying serialization in music where vestiges of serialism are difficult to perceive. Winnick concludes that these associations are organized primarily according to “palindromic, symmetrical, and otherwise ordered arrangements of pitches” and “the instances of strong symmetry are far too preponderant and ordered for them to be considered merely coincidental.”¹⁰

In response to Winnick, Wentzel proposes that if pitches and durations can be associated on an incremental, corollary scheme, then dynamic and attack values can also be correlated. As is often the case with Boulez’s music of this period, any systemization is frequently subjected to interdisciplinary action. Wentzel makes note of deviations from pitch-duration schemes but accounts for many of the deviations through his dynamic-attack scheme. Wentzel considers issues such as overall phrase shape and the implied direction of a particular dynamic action. In short, he looks at musical parameters that may have caused Boulez to deviate from strict adherence to any given PDA. He proposes that “if deliberate changes are actually part of Boulez’ compositional decisions, then it illustrates a possible new freedom he was seeking within an otherwise strict integral

¹⁰ Ibid., 285.

serialization. Errors and other forms of carelessness may never be explained, but deliberate changes might be accounted for....”¹¹ But in the development of this duration/pitch-class series scheme, the process itself and its realization in “Don” brings into play the interdisciplinary freedom Boulez sought after the previous failures in strict integral serialization. This process represents Boulez’s desired balance in this period of freedom and control: control through serial content, and freedom through the nature of its setting. But it does demonstrate the extent to which Boulez will go to develop a particular system, even if it only governs local structure: a musical moment in the grand scheme of a work like *Pli selon Pli*.

Another sketch for section *c/d*, shown in Fig. 5.19, shows Boulez’s exhaustive workings-out of a particular organizational scheme, one that is difficult to establish due to the density, complexity, and illegibility of the sketch. However, some features are discernible; for instance, the first system shows Boulez’s manipulation of a series of pitches in various, experimental groupings accompanied by a series of Roman numerals, again from I–V, with IV omitted. In each subsequent system, Boulez recomposes the material, experimenting with different organizations, altering or transposing some pitch materials while maintaining certain characteristic features. The double dotted half note E^b, for instance, that appears prominently in most of the systems, will remain one of the prominent features in the realization of this material in the score. As in the sketch shown in Fig. 5.15, the composer makes use of downward arrows to show points of intersection that match Boulez’s recomposition of similar materials. In this sketch, under each system,

¹¹ Wentzel, “Dynamic and Attack Associations in Boulez’s *Le Marteau sans maître*,” 150.

the Roman numerals are re-ordered. The addition of the Arabic numbers above the Roman numerals indicates that Boulez is employing a similar organizational or systematizing strategy to the one used in Fig. 5.15.

As shown in Fig. 5.19, this particular combination of Arabic and Roman numerals seems to suggest a correlating rhythmic dimension, but one that is not immediately transparent. A noteworthy feature of this sketch lies in the faint depiction of a series of durations, complete with measure lines, in the space between the third and fourth systems. A transcription of this duration series is provided in Fig. 5.20a. The section of “Don” that uses materials worked out in this sketch adheres to this rhythm verbatim. The only exception pertains to the tied thirty-second/eighth notes that appear in the second measure of the transcription. In the section of score that uses materials from this sketch, Boulez reverses the eighth and sixteenth notes in the pitch grouping that appears in the second vibraphone. The groupings Boulez ultimately settles on appear in the left-hand side of the final system of the sketch, highlighted in the boxed area, which is legible enough to transcribe. In the lower left-hand corner of the sketch is the annotation “*Sous Strophes 1b*,” a noteworthy feature as the music worked out in this sketch appears in the score for “Don” beneath a section that quotes directly from section *1b* from *Strophes* (already discussed with respect to Fig. 3.26).

A transcription of this boxed area appears in Fig. 5.20b, employing the rhythmic series transcribed in Fig. 5.20a. It was important to include an original sketch within the general discussion of “Don” to show how, while some material cannot be accounted for, even using magnifying glasses and a general knowledge of Boulez’s processes and prose, some meaning can be derived from even the most difficult sketches. A plethora of

similarly complex sketches has been omitted from this investigation because they are still under investigation for future projects. While the process behind Boulez's sketch of the duration/pitch-class series is identifiable, the exact nature of the process at work in the sketch shown in Fig. 5.21 is, as of yet, undetermined.

The pitch groupings shown in Fig. 5.20b, are transcribed from the highlighted, boxed area of fig. 5.20 and, in the score excerpt, shown in Fig. 5.21, are realized in the following succession of instruments: Piano/Harp 2, Harp 1, Vibraphone 1, Vibraphone 2, Piano, Harp 2, Harp 3/Piano, respectively. Note the prominent E^b beginning in the second measure in the piano, the longest duration in the passage, is accentuated not only by length but by dynamics as well. These examples from section *c/d*, the workings-out of materials accompanying *Strophes 1b* and the pitch-duration series, are yet another example of the extent to which Boulez tirelessly works and re-works materials, that may only span a fleeting musical moment, according to various interdisciplinary schemes to arrive at the result that appears in the work itself.

columnne - / cr. c/

1-1-1

The image shows a handwritten musical score on multiple staves. At the top right, there is a label "columnne - / cr. c/". In the center, there is a circled number "1-1-1". The score consists of several staves of music with various notes, rests, and markings. A section of the score is enclosed in a rectangular box and labeled "Sous Strophes 1b". There are several annotations and markings throughout the score, including "colonne", "Sous Strophes 1b", and various musical notations like notes, rests, and dynamic markings. The handwriting is dense and detailed, typical of a composer's sketch.

Fig. 5.19. Original sketch to section *c/d* of “Don” with highlighted section labeled “*Sous Strophes 1b*”; original is housed at the Paul Sacher Foundation; Microfilm 581: 0581

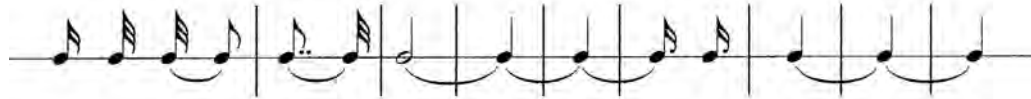


Fig. 5.20a. Transcription of rhythmic systems between series three and four in the sketch shown in Fig. 5.19



Fig. 5.20b. Transcription of boxed material from the sketch in Fig. 5.19 labeled “Sous Strophes 1b”

A full orchestral score for section c/d of "Don". The score is numbered 24 and is in 2/8 time. The tempo/mood is "Soudement agité (comme précédemment)". The instruments listed are: Vibr. 1 (avec vibrato), Vibr. 2 (avec vibrato), Harpe 1, Harpe 2, Harpe 3, Cel., Xyl., and Piano. The score includes various musical notations such as dynamics (mp, mf, f), articulation (accents, slurs), and performance instructions like "L.v." and "M.A. Pak 244". There are also boxed annotations and a large bracket on the left side of the score.

5.21. Material from “Sous Strophes 1b” in section *c/d* of “Don”; see Appendix to Chapter Five, 5.14

Section *d/c*

Section *d/c* is largely comprised of the three quotations from “Improvisation[s] I, II, and III” discussed in detail in section 4.5 of Chapter Four largely as extensions of the constellation based upon the *L’Orestie* series that ultimately gave rise to the vocal material in these central movements of *Pli selon Pli*. Throughout “Don,” Boulez frequently intermingles structures from this constellation among the products of the multiplication table, primarily the various sections of *Strophes* such as the appearance of *Strophes 1b*’s pitch-class material at rehearsal 25 in section *c/d* discussed in Fig. 3.26. Not all quotations of the sections of *Strophes* are as easily identifiable as *Strophes 1b*. Boulez is notorious for disguising his compositional processes as a work progresses and “Don” is no exception, making the later appearances of the sections of *Strophes* increasingly difficult to identify and worthy of further study. Part of the challenge is that Boulez employs pitch-class content of the sections of *Strophes* and not their durational content, and the pitch-class content itself can be expressed in any variety of instrumental combinations and surrounded by unrelated material that both disguises and integrates it seamlessly into the fabric of “Don.” To put it in practical terms, the *Strophes* material does not appear as prominent flute solos, as from the original, which would make it easily identifiable. Moreover, Boulez’s integrating of materials from different origins is not intended to create unity within “Don.” Regardless, the role of the quotations of “Improvisation[s] I, II, and III” (which are notably more prominently displayed) in addition to the quotations of the pitch-class content from *Strophes* creates moments of formal discontinuity in “Don.”

While the self-quotations from each of the “Improvisation[s] I, II, and III” are readily identifiable due to the obvious rhythmic and instrumental characteristics (and not their pitch content which has been heavily altered), the material from the *L’Orestie* constellation has either been buried so deeply among the surrounding music, or altered beyond recognition. It may be suggested that the *Le Marteau* series, and the multiplication table generated from it, provides the primary developmental trajectory in “Don” while the *Strophes* material originally initiated by the *L’Orestie* series is a secondary, less prominent trajectory, providing a supportive, or even ornamental role. The inequality in the representation of the two unfolding trajectories has serious repercussions when considering certain aspects of Boulez’s formal theory. Heterophony, a concept which at first seemed promising to Boulez in describing the nature of multiple trajectories within the same work, refers to, in his words, “the superposition on a primary structure of a modified aspect of the same structure,”¹² which the *L’Orestie* trajectory is not. The *L’Orestie* trajectory may be less prominent, but it is not developed from, or a response to the *Le Marteau* trajectory nor is it in any way a variant upon it: they evolved along separate, albeit circuitous paths and largely in different works.

Section *e/b*

Section *e/b* is unique given that it is itself divided into five sections, reiterating the number of sections of “Don,” the number of partitions of the *Le Marteau* series, the number of Domains yielded by systematic multiplication, the number of lines and products per Domain, and the number of cells parsed from each defective series of the

¹² Boulez, *On Music Today*, 117. An extended description of Boulez’s theories of monody, polyphony, and heterophony can be found in 116–142.

rotational array. Like section f/a in “Tombeau,” which recapitulates the five sections of that movement in an ingenious microcosm concluding with the “accord total” and partitions from Domain $M\cup A\lambda$ that re-initiates, or completes the cycle with section a/f of “Don,” section e/b fulfills a recapitulatory function in “Don.” Since “Don” was written after “Tombeau,” it is appropriate that Boulez embeds a similar allusion to the large-scale form of the movements in miniature form in the final sections of each movement, particularly because the composer neglected to write section f/a for “Don.” Shown in Fig. 5.22 is a partial transcription of one of Boulez’s sketches to the section. Of particular interest are the letters $A/$, $B/$, $C/$, $D/$, and $E/$ along the left-hand column of the sketch. Each of these letters designates a particular harmony within the $N\cup B\eta$ row of Domain $B\eta$ of the multiplication table.

In Boulez’s sketch for section e/b , notation that contradicts the composer’s norm is employed to refer to specific products within Domain $N\cup B\eta$. Throughout the previous sketches that refer to products from the multiplication table, Boulez indicates specific products by their position within the group of five partitions using either Arabic numerals (1–5) as order numbers or letters (single letters for partitions and letter combinations for products). Typically, Boulez reads a particular group of five products from left to right, e.g., 1° refers to the first of five products, 2° to the second, and so on. The one exception is the sketch transcribed in Fig. 5.22 in which Boulez reads the order numbers from right to left so that 1° ($D/$) actually refers to product be in the second order position, 2° ($C/$) to product bd in the third position, 3° ($B/$) to product bc in the fourth position, and 4° ($A/$) to product bb in the fifth position, with 1° ($E/$) left unspecified in the sketch. The actual products of multiplication are indicated to the right of the diagram in Fig. 5.22. Boulez

often reads successive materials from right to left (e.g., the note-fields designed for “Improvisation sur Mallarmé I, II, III” discussed earlier with respect to Figures 4.2–4.3).

e/ (b)		[actual products]
A/ 4^e de N \cup B η	(4)	[<i>bb</i>]
	II	
B/ 3^e de N \cup B η	(3)	[<i>bc</i>]
	II	
C/ 2^e de N \cup B η	(2)	[<i>bd</i>]
	II	
D/ 1^e de N \cup B η	(1)	[<i>be</i>]
	II	
E/ 5 _____		
	V IV II I	

Fig. 5.22. Partial transcription of sketch for section *e/b* of “Don”; see Appendix to Chapter Five, 5.15; original housed at the Paul Sacher Foundation; Microfilm 581:0280

In analyzing section *e/b* for N \cup B η Domain products, the plethora of transpositions highlights the inherent chromaticism of this particular matrix in Fig. 3.10. Chromatic segments pervade this matrix, with the central product *bc* anchoring the set with a chromatic dyad (F#–F \natural). Products *ba*, *bb*, *be*, and *bd* also contain chromatic segments. The product *ba*, A \sharp /B \flat /B \natural /C \sharp /C \natural /D \natural , a member of set-class [012345], forms a chromatic hexachord while *bd*, C \sharp /C \natural , E \sharp /F \natural , G \sharp /A \natural , a member of set class [014589], is a symmetrical hexachord comprised of three pairs of semitones. If attempting to establish the prescribed order of products from the N \cup B η Domain in section *e/b*, some subsections conform while others vary. Section A/, shown in Appendix 5.15b, begins with various transpositions of *bb*. While this analysis may work to some degree, many products in

later subsections, in addition to being transposed, are parsed into their respective chromatic components, raising the question of whether or not these heavily parsed, transposed products are indeed members of Domain $N\cup B\eta$, or, rather, products of other processes of which this characteristic chromaticism is simply a fall-out.¹³ Another sketch provides a more complex view of how Boulez arrived at the pitch materials for section *e/b* of “Don” and one that I find more convincing. A sketch for this section of “Don,” shown in Appendix 5.16a, suggests a much more complex approach to the generation of pitch materials for each subsection within *e/b*, however, even the original sketch is barely legible and reproduces poorly.¹⁴ Joseph Salem has collegially permitted me to use his transcription of this sketch, shown in Appendix 5.16b.

First, in Appendix 5.16a, rows A, B, C, D, and E, are designated by a circled letter to the left of each row, which is shown much more clearly in Appendix 5.16b. The harmonies in each row are themselves identified by their order position.¹⁵ So “1” refers to the first harmony in the row being discussed, “2” the second, “3” the third, and so on

¹³ Though not shown, Section B/ begins with transpositions of *bc*, section C/ begins with, again, a series of transpositions of *bb* with some additional iterations of *bd*. Section D/ begins with a series of transposed *be* products, and section E/ with transpositions of *bd* products, though it concludes with *ba* products, perhaps to bring the sequence back to the initial product in the series of five products. And yet virtually all the products are transposed, many without the type of logic that Boulez employed in the transposition of materials described in Chapter Three, which suggests that these chromatic units that appear as transposed $N\cup B\eta$ products are a result of another process that relies upon Domain $N\cup B\eta$, which is itself saturated with chromaticism that is bound to express itself in whatever process Boulez applies to it.

¹⁴ For an account of this process, and how it is ultimately based upon the Domain $N\cup B\eta$ products, see Salem, *Boulez Revised*, 131–155.

¹⁵ Salem adds another row “D” below the one that correlates to Boulez’s sketch. For a discussion of this figure, see *ibid.*, 154.

(although these harmonies could also be described as *blocs sonores* given that they originate with the Domain $N \cup B \eta$ products). While I have not conducted an exhaustive analysis of each subsection of *e/b*, I have traced the harmonies up until at least the fourth or fifth order position at the beginning of each subsection to establish the table from Appendix 5.16b as a more viable means of explicating pitch content instead of searching for Domain $N \cup B \eta$ products.

Section A/, shown in Appendix 5.16c, begins with the harmonies from row A in Appendix 5.16b. The harmonies from order numbers 1–4 are spread out over the clarinets (Clarinet in E^b , Clarinet in A, and Bass Clarinet in B^b) as if these four harmonies contain a compound melody. By this I mean that the top pitch in each harmony becomes the melody for the Clarinet in E^b , the middle pitches become the melody for the Clarinet in A, and the lowest pitches the melody for the Clarinet in B^b . Next, the Horns in F contain the pitch content of the harmony in order position 5, G^\sharp , B^b , G^{\natural} , and A^{\natural} , followed by the flutes with the pitch content of the harmony in order position 6, G^{\natural} , A^{\natural} , F^\sharp , and G^\sharp .

Section B/, shown in Appendix 5.16d, begins with the harmonies from the corresponding row in Appendix 5.16b, with the Oboe, Clarinet in E^b , and Clarinet in A containing the pitch content of the first harmony, C^{\natural} and C^\sharp , followed by the second harmony in the flutes, C^\sharp and D^{\natural} , and then the third, fourth, and fifth harmonies in short order spread across the woodwinds consisting of F^\sharp , D^\sharp , C^\sharp , B^b , and A^\sharp for the third, E^{\natural} and F^\sharp for the fourth, and A^{\natural} , D^{\natural} , C^\sharp , B^b , and F^\sharp for the fifth.

Section C/, shown in Appendix 5.16e, presents the harmonies in order positions 1, 2, and 3 in short order again, partitioned vertically along the simultaneities that arise from

the gestures in the flutes and clarinets. The first harmony comprises F[♯], F[♯], and E[♯], the second E[♭], D[♯], and C[♯], and the third C[♯], D[♯], and C[♯]. Harmonies 4 and 5, combined to some degree and, again, spread across the woodwinds, are comprised of G[♯], F[♯], F[♯] and B[♯], B[♭], and A[♯], respectively. Section D/, shown in Appendix 5.16f, in contrast, lingers on the first two harmonies, with both encompassing the totality of the woodwinds, comprising the harmonies C[♯], E[♭], E[♯], G[♯], A[♭], B[♯], and F[♯], G[♯], B[♯], D[♯], E[♭], and B[♭], respectively. These drawn-out harmonies are followed by harmonies 3, 4, and 5 in short order, again partitioned vertically along the simultaneities that arise from the gestures in each of the woodwind instruments. Harmonies 3, 4, and 5 are comprised of A[♯], E[♯], C[♯], C[♯], G[♯], F[♯], and G[♯], G[♯], C[♯], E[♭], D[♯], B[♯]/[♯] (it is not clear), and B[♭], D[♯], C[♯], F[♯], A[♯], and F[♯], respectively.

Finally, section E/, shown in Appendix 5.16g, takes a similar approach in that harmonies 1 and 2 are held for much longer among the Flute in G, Oboe, Clarinets, and Bassoon with the harmonies comprising B[♭], G[♯], D[♯], B[♯], F[♯], E[♭], and A[♯], F[♯], D[♯], B[♭], B[♯], respectively. Following harmonies 1 and 2 are two brief expressions of harmonies 3 and 4, again arising from the vertical partitioning of the simultaneities that arise from the gestures in the Flute in G, Oboe, Clarinets, Bassoon, and Horns in F, with harmony 3 comprising F[♯], C[♯], A[♯]/[♯] (it is not clear), F[♯], D[♭], B[♭], and harmony 4 comprising G[♯], F[♯], E[♭], D[♯]/[♯] (it is not clear), C[♯], and B[♭], respectively. It is important to note that some pitches are not identical to the transcription in Appendix 5.16b. This is largely due to the fact that the original sketch is nearly illegible and there may be some errors, particularly in

determining which accidentals belong to which notes. While the connection between the products of this matrix and the exact manner in which Boulez arrives at his harmonic table will not be explored at length here, it is investigated in detail by Salem.¹⁶

Overall, however, I find this approach to section *e/b* more convincing particularly because the products from Domain $N\cup B\eta$ that supposedly coincide with the start of each subsection are largely transposed and/or parsed into their chromatic segments. While it is possible to find the products prescribed by Boulez in Fig. 5.22 at the start of sections A/, B/, C/, D/, and E/, there is the distinct impression that the chromatic segments that characterize the $N\cup B\eta$ products are pervasive because they form the basis for the table in Appendix 5.16a and 5.16b. Also, it is possible to find chromatic dyads and larger chromatic segments throughout various sections of “Don,” which raises the question of how these transposed segments are unique in section *e/b*. With respect to using the table in Appendix 5.15a, it is possible to match the pitches exactly as well as predict their organization and groupings in the score. It is largely the potential to predict exact pitch content and groupings that makes this approach more convincing.

The next section of “Don” to analyze would be *f/a*; however, there is no section *f/a* as Boulez did not write one. Leaving out the final section that would have shared serial content with the opening section of “Don” raises the question of why Boulez considered the cycle to be closed, rather than open-ended. The answer to this question lies not in “Don,” but in the ending of “Tombeau,” whose final section *f* completes the cycle laid out by the formal design for “Don” and provides a type of bookended symmetry via its serial content with section *a* of “Don.”

¹⁶ Ibid., 152–155.

5.4. A Microcosm of Large-Scale Form in Section *f/a* of “Tombeau”

Robert Piencikowski refers to the final section of “Tombeau” as a “Coda,” which lasts from mm. 518-548.¹⁷ This Coda fulfills the dual functions of concluding the work and recapitulating content from “Don.” This section, the *f/a* section, brings back Domain $M\cup A\lambda$ partitions of section *a/f* of “Don” and preserves certain pitch and instrument combinations. Because this final section of “Tombeau” possesses equivalent serial content to the first section of “Don,” it renders the work a “closed cycle” and completes the circular form of *Pli selon Pli* as Boulez had envisioned it in Fig. 5.2. As illustrated in Fig. 5.4, the finale of “Tombeau” coincides with the opening of “Don” through their shared serial content. “Don” opens with a combination of Domain $M\cup A\lambda$ materials as well a complete aggregate, thus again juxtaposing the generalized series with the unordered aggregate. The final gesture of “Tombeau” is, like the opening of “Don,” an “accord total,” or an aggregate.

Not only does “Tombeau” conclude the cycle initiated in “Don,” but it also demonstrates Boulez’s main thesis from *On Music Today*: that local form yields large-scale form. Boulez transforms the final section of “Tombeau,” *f/a*, into a microcosm of the structure of the whole movement by parsing it into even smaller subsections, and labeling them *b/e*, *c/d*, *d/c*, *e/b*, and *f/a*, and using the appropriate serial content from Fig. 3.10 in each. Because the larger section *f/a* in “Tombeau” begins with $M\cup A\lambda$ materials, the microcosm does not require a smaller-scale *a/f* section as it would share the same content as the larger-scale *f/a*.

¹⁷ See facsimile to “Tombeau”, 28.

In this small-scale reconstruction of the large-scale form of “Don”/”Tombeau,” Boulez clearly articulates the relationship between local and large-scale form. Section *f/a* of “Tombeau” is shown in Appendix 5.17, with the small-scale versions of sections *a/f*–*f/a* indicated in the score and identifiable by shared content with their large-scale versions.¹⁸ The microcosm begins at m. 530 with the label *b/e* (Domain $M\cup A\lambda$ partitions that characterize section *f/a* at the large-scale form of section *f/a* in “Tombeau” have the dual purpose of also initiating the small-scale section *f/a* that begins the microcosm). Instead of using the solo piano to initiate the content that defines each small-scale section as he does in the large-scale form of “Tombeau,” Boulez mainly relies on the vocal material to delineate sections of the microcosm. A transcription of Boulez’s sketches for the subsections of the microcosm are shown in Fig. 5.23, with the original sketches shown in Appendix 5.18.

This microcosm was discovered during my sketch studies of “Tombeau.” Its discovery raises important questions about whether “Tombeau” was originally conceived on a much smaller scale, comparable to “Improvisation[s] I and II,” and later incorporated into a larger-scale version of “Tombeau” when Boulez felt the need to conclude *Pli selon Pli* with a more substantive movement. A similar example exists in the comparison between Boulez’s initial orchestration of *Strophes* and its ultimate incarnation as a relatively modest (and unpublished) solo flute piece, indicating that the work may have been envisioned as a grand, orchestral work. The second option is that Boulez conceived of subsection *f/a* to be unique from the outset and to function as both

¹⁸ While Robert Piencikowski identifies the major sections of “Tombeau,” he neglects to mention the microcosm in section *f/a* in Piencikowski, ed., “Tombeau,” *Facsimile of the Draft Score*.

the culmination and recapitulation of the movement: a hidden gem that has gone unnoticed even in the recent facsimile of “Tombeau” that is by far the most involved and detailed examination and discussion of the movement to date. The local organization of the final section of “Tombeau” into a literal microcosm of the large-scale form of the movement provides further concrete evidence of the goals espoused in *On Music Today* regarding local and large-scale form. Boulez’s belief that local, serial form gives rise to large-scale form is well demonstrated here, with local organization acting as a mirror for larger-scale formal organization. This type of symmetry is a fundamental principle in both “Don” and “Tombeau.”

Boulez has created a parallel between the closing of section *f/a* of “Tombeau” and the opening of section *a/f* of “Don,” both closing the cycle and completing the symmetrical design of *Pli selon Pli*’s framing movements. Specifically, the final vertical harmony of “Tombeau,” shown in Appendix 5.17 in the boxed area, contains a vertical gesture similar to the “accord total” that opens “Don,” shown in Fig. 5.4. Like the aggregate that opens “Don,” it is possible to find partitions from Domain $M \cup A \lambda$, although to achieve a complete, and clearly identifiable expression of the individual partitions of the series requires some analytic acrobatics, with many of the partitions transposed and combined with one another in a way that makes it seem as if the few, TO versions of the series’ partitions are, perhaps, simply a product of the aggregate. Consequently, I have left the “total accord” that completes section *f/a* of “Tombeau” as a single gesture, rather than parsing it into somewhat unconvincing versions of the partitions from Domain $M \cup A \lambda$.

b/ (e) *voix*

Un _____ peu _____ pro _____ fond ruis _____ seau

c/ (d)

Cordes xylo/cloches *ppp*

Bois *p* *ppp*

Harfe/violon *tr*

d/ (c) *voix*

ca _____ lom _____ ni _____ e

cor

Guit.

e/ (b)

mp

f cloches

Fig. 5.23. Transcription of sketch for section *f/a* of “Tombeau”; see Appendix to Chapter Five, 5.18; original housed at the Paul Sacher Foundation; Microfilm 582: 0171 and 0172



Fig. 5.23. Continued

In “Don” and “Tombeau,” symmetry exists beyond the terms of the small-scale design of the microcosm in section *f/a* of “Tombeau” and the movement’s large-scale design. Symmetry is active at various levels of form from the local musical moment to larger organizational schemes for individual sections. As has already been observed, the “five-ness” inherent in the partitioning of the *Le Marteau* series into five *blocs sonores*, which, when subjected to systematic multiplication, yield five Domains comprised of five lines of five products each. Products from these five Domains are frequently deployed in a variety of logical or quasi-logical series suggested by the organization of the multiplication table itself. The sequence of Domains (following the order suggested by the table itself) signals the start of each of the five sections of both “Don” and “Tombeau.” The difference being that “Tombeau” possesses a sixth subsection, one that

brings full circle serial materials from Domain $M \cup A \lambda$ and effectively closes the cycle, as Boulez had intimated in an early sketch to section *a/f* of “Don.”

Symmetry is pervasive from the local to the large-scale levels of form, thereby achieving Boulez’s goal of eliminating the inherent opposition between serial content and tonal forms in Schoenberg’s approach to the serial genre. In *Pli selon Pli*, as the serial content not only defines the form, but gives rise to it, not only is there no opposition between form and content, the two are synonymous with one another. What appeared to be a lofty, idealistic, and perhaps even pompously unequivocal claim laid out by Boulez in *On Music Today* is indeed the reality of the construction of *Pli selon Pli*. While only a fraction of the content of the sketches for the work has been explored in the course of this investigation, Boulez’s meticulous attention to a plethora of interdisciplinary organizational schemes explored in this and earlier chapters lays the foundation for the controlled freedom expressed in Boulez’s techniques for organizing individual sections in “Don” and are worth pursuing in greater detail in future studies. The sheer volume of information encoded in Boulez’s typically idiosyncratic and, at times, impenetrable notational style in his sketches warrants further study to unlock and unravel the mysteries of a work of the magnitude of *Pli selon Pli*.

Further study of *L’Orestie* and *Strophes*, in cooperation with the Paul Sacher Foundation, which houses the original scores and accompanying sketches for the works, could reveal more about the organization of certain sections of “Don” and “Improvisation[s] sur Mallarmé I, II, and III.” Additionally, further study of *Oubli signal lapidé*, making use of the sketch materials housed at the Paul Sacher Foundation, could give further insight into *Le Marteau sans maître*. Given that materials common to both

these works are used in *Pli selon Pli*, such further study could offer additional insight into this work as well. That the works spanning the period of 1952–1962—culminating in the completion of *Pli selon Pli*—share materials, techniques, processes, and inspiration to such a great extent, warrants further study of the retracted and unpublished works, as they have, by far, received the least amount of attention in Boulez scholarship to date. I would argue that pursuing these works further is the responsibility of the Boulez scholar in order to expand the breadth of knowledge beyond the relatively sizable body of literature on *Le Marteau*, the majority of which does not explicate or explore the organizational strategies that do not involve the express use of multiplication products, with a few notable exceptions. The true challenge of understanding Boulez’s compositional processes lies in his development of interdisciplinary organizational schemes: the modules, the defective series, and the abstract, as of yet indecipherable spatial diagrams that express Boulez’s vision of form for various works that, if decoded, could provide remarkable insight into how Boulez conceived of musical form, not just in *Pli selon Pli*, but in the groups of works whose composition led to the construction of this masterpiece.

5.5. *Pli selon Pli* on *Pli selon Pli*

Like Boulez’s comment that *Structures Ia* was not music, but was *about* music, a similar sentiment can be applied to *Pli selon Pli*. It is no doubt music: it is arguably Boulez’s magnum opus. But what he manages to accomplish in terms of demonstrating his evolving theories on form and serial content put forth in his writings renders the work as much of a treatise about music as it is a musical masterpiece. Boulez clearly understood music’s self-referential potential. Even the final section of “Tombeau” being

a microcosm of the movement's large-scale structure, a work within a work, a picture within a picture, has the capacity to reflect upon its own theoretical underpinnings. In a similar vein, Boulez's self-quotation of "Improvisation[s] sur Mallarmé I, II, and III" in "Don" effectively foreshadows what is to come while at the same time echoes elements of music that has yet to be heard. These self-references hold profound implications for the perception of time, such as the concept of time folding back upon itself in a reference to the work's title meaning "fold upon fold," and the unavoidable association with the later Deleuzian fold and all of its implications for time and space, interiority and exteriority. If we consider "Don" and "Tombeau" to be a closed cycle, with the final section of "Tombeau" effectively presenting a simulacrum, or an echo of the structure of the movement of which it is a part, and by way of structural reversal, of "Don" as well, Boulez is undoubtedly experimenting with how form can be manipulated to raise challenges to the normative concept of formal linearity, and of clear start- and end-points. Without the need to pass through B on the way from A to C, Boulez widens the playing field for what is possible to achieve with musical form with respect to theory, practice, experience, and representation.

While Boulez has frequently claimed that he enjoys inventing rules so as to have the pleasure of destroying them, destructive power seems to be lacking in *Pli selon Pli*. Instead, intense moments of organization coupled with the freedom to present materials that are either systematically derived or freely conceived, in any manner desired by the composer, imbues the work with a marked creative force, impressionism, and a lack of inhibitions, coupled with a general sense of underlying coherence and cohesion. The work is the culmination of manifold constellations of structures, sometimes perceivably

related, sometimes simply sensed as indefinable belonging, unfolding around one another, having developed across one of Boulez's most productive compositional periods that ties together a multitude of musical works and musical ideas, compositional techniques, styles, and processes, and characterized by some of the most profound breakthroughs in twentieth-century musical thought. From Boulez's initial conceptualization of the generalized series, to his decision to divide a specific series into five partitions, to his development of a harmonic vocabulary on which to base a symmetrical form for the outer movements of what is arguably his greatest work, to all of the unique and idiosyncratic techniques devised along a circuitous pathway to materials that would constitute the inner movements of this same work: from the smallest to the largest formal decision about design, *Pli selon Pli* unites serial content with a truly serial form. In this regard, Boulez has succeeded in evolving serial composition into a genre that rivals tonality in its scope and complexity, but that does create discord with it.

Chapter Six: Conclusion

6.1 A Summary of this Investigation

This investigation began with a critique of Pierre Boulez's failed attempt at total serial control in *Structures Ia* and *Polyphonie X* based largely upon the fact that the series itself cannot support large-scale form. Boulez's solution to his self-professed "theoretical exaggeration," his concept of indiscipline, brought with it a surge of creative energy and focus during the period of 1952–62 as demonstrated by a selection of works that share a certain fluidity as the boundaries between those that use similar materials are blurred. My investigative approach, described as genealogical, relies upon sketch studies to unveil specific lineages of materials used in works of this period, including the retracted drama *L'Orestie*, for which Boulez wrote the incidental music, the unpublished work for solo flute *Strophes*, the unpublished *Oubli signal lapidé*, *Le Marteau sans maître*, and *Pli selon Pli*, arguably Boulez's magnum opus. *Pli selon Pli* is a culmination of years spent honing various serial techniques that balance his desire for a relationship between local and large-scale formal organization. From a single musical gesture to the totality of the work itself, Boulez's desire to introduce a new level of freedom allowed his whims, desires, and aesthetic goals to thrive during this period. Indiscipline led to the evolution of a new theory of form based upon the principle of discontinuity. The relationships between different threads of unfolding materials became a means of creating digressions, parenthetical passages, and even contrapuntal dialogues between different threads.

Boulez's theory that form need not be linear, that new models must be explored (such as the closed cycle and circular design of the framing movements of *Pli selon Pli* being inspired by James Joyce's *Finnegan's Wake*), ties the issue of control and indiscipline into the organization of serial materials and their contribution to large-scale form. Boulez's large-scale form, like that explored in Chapter Five in the symmetrical design of "Don" and "Tombeau," retains elements of predictability (through Boulez's respect for the organization of serial materials that enables the analyst to presume a particular order of musical events) and indiscipline (in that Boulez consistently intervenes and interjects new transformative, organizational schemes at every twist and turn within the larger, more predictable framework). For instance, Boulez follows the order of the five Domains in the multiplication table from Fig. 3.10 to demarcate the start of each section of both "Don" and "Tombeau." He also selects logical paths through the Domains, such as using all the products from one particular set of five, or maintaining a common multiplier between products, e.g., *da* and *ba*. But at the same time, Boulez creates local organizational schemes such as the pitch-duration association (PDA) and its permutations used in the *c/d* section of "Don" (see Figures 5.14–5.18). The pitch-duration association is a momentary digression that fits into Boulez's concept of form as being discontinuous and comprising multiple trajectories of developing materials braided together. These trajectories can unfold, momentarily halt, move in tandem, or be superimposed upon each other.

6.2. Heterophony, Polyphony

To develop his theory of discontinuous form, Boulez made use of existing musical terminology characteristic of contrapuntal writing to describe his new methods of combining multiple trajectories of materials by likening them to distinct voices that are viewed as independent lines despite the fact that, in choral music, for example, multiple participants contribute to a single line. Invoking terms such as heterophony, polyphony, and homophony, among others, Boulez treated these trajectories not as distinct lines, *per se*, but as distinct textures whose interaction invoked quintessential contrapuntal relationships. When Boulez refers to a particular contrapuntal relationship, he is not referring to the interaction among melodic themes or to any other linear quality associated with fugal, or choral writing. Instead, he describes textured masses of materials that interact in unique ways that can be categorized.

Boulez defines heterophony as a “simultaneous variation, accidental or deliberate, of what is identified as the same melody.”¹ In his words,

Heterophony can be defined, generally speaking, as the superposition on a primary structure of a modified *aspect* of the same structure; this should not be confused with polyphony, which makes a structure responsible for a new structure. In heterophony, several aspects of a fundamental formulation coincide...; its density will consist of various strata, rather as if several sheets of glass were to be superposed, each one bearing a variation of the same pattern.²

Heterophony is distinct from polyphony, which Boulez defines as “a fitting together of structures, which amounts to the use of ‘counterpoint’ and ‘harmony’, provided that the sense generally implied by these words is extended; or again, on a distribution such as

¹ Campbell, *Boulez, Music and Philosophy*, 209.

² Boulez, *On Music Today*, 117–118.

can be related neither to harmony nor to counterpoint.”³ Polyphony better explains how materials that do not share an obvious identity can be interwoven and braided according to the composer’s desire, much like the various developing trajectories unfolded in “Don” that derive from two different constellations of materials (given that the rotational array and the multiplication table each rely upon their own, distinct, generalized series).

Campbell identified heterophony in “Don” based upon the early sketch for the movement shown in Fig. 5.5, in which “Don” is depicted as a series of five interwoven lines. Each line correlates not only to one of the five major sections of “Don” (and “Tombeau,” for that matter), but to the five Domains of the multiplication table (shown in Fig. 3.10) whose content defines each section. These five lines can also represent the symmetry that manifests itself in all levels of form from local- to large-scale, from the five sets of five partitions of the *Le Marteau* series, with each partition generating one of the five Domains. Each domain also comprises five lines, each containing five products of multiplication. In a similar vein, each defective series from the rotational array (shown in Fig. 3.18a) is partitioned into five cells of two or three notes. While the sixth section of “Don” was never written, the sixth section in “Tombeau” functions as a microcosm of the large-scale form, and can be considered superfluous in terms of the basic symmetrical structure of the framing movements of *Pli selon Pli*. In essence, “...heterophony will show how a large number of consequences, all generalisable, may be drawn from a single point of departure.”⁴ In Boulez’s words, cited by Campbell from the *College du France*

³ Ibid., 117–118.

⁴ Ibid., 120.

lectures, heterophony “is a way of affirming the identity of the group while acknowledging variants, even individual ‘deviances’.”⁵

The characteristic polyvalence of Boulez’s musical objects (whether that object is a multiplication product or a partition from a defective series in the rotational array), fundamentally lends itself to the concept of heterophony in that there is latent potential in any given structure that allows it to be used in a variety of ways. When Boulez does employ variations of a given structure, each variation retains some structural residue of the “original,” similar to the isomorphic relationships explored in Chapter Two. Because heterophony and polyphony, in Boulez’s theory, address textures and sound masses rather than traditional melodic themes, they have the capacity to extend beyond the strictures of traditional contrapuntal composition and into more qualitative evaluations on musical relationships and interactions. The emphasis on the qualitative suggests parallels between Boulez’s theory and other disciplines, particularly the visual arts, which may be the most qualitative of the humanities disciplines.

6.3. Boulez and Klee

Paul Klee’s fascination with translating polyphony into the visual arts is well documented, not in the least by the whimsical titles of his “polyphonic paintings.” But it is Campbell who first acknowledges commonalities between Boulez’s theory of heterophony and Klee’s formal theory of visual art,⁶ a connection that could prove fruitful for future studies into intersections between their respective theories of music and

⁵ Campbell, *Boulez, Music, and Philosophy*, 210.

⁶ *Ibid.*, 209–16. Edward Campbell’s discussion focuses on Fig. 5.5 (from this investigation), which depicts “Don” as a series of five interwoven lines.

art, and may also serve to illuminate Boulez's complex theory of form. Boulez acknowledged the influence of Klee's Bauhaus lectures on him: "[Boulez] recalls the powerful impression which Klee's Bauhaus lectures that made upon him, as he recognized a certain 'coincidence of ideas'. In Klee, he found corroboration of his own ideas and a 'specifically visual approach', which, he believes, led him to 'extensions and consequences' which had previously escaped him."⁷ Initially, there are many important similarities between Boulez's and Klee's approaches to their theories of music and art, respectively.⁸ Both Boulez and Klee wrote in highly individualistic styles, rife with philosophical dictums, illustrative dialogues, and a generally esoteric sensibility. They both delved into highly rationalized, systematic accounts of the materials involved in their respective crafts. Both used idiosyncratic terminology that, while defining their approaches, also at times make it difficult to translate them into modern terminology. Both inherited issues surrounding form and content in their respective traditions and share similar approaches to these challenges. At the beginning of this investigation, I quoted Boulez as having said: "I am convinced that in music there is no opposition between form and content, between abstract on the one hand and concrete on the other. Form and content are of the same nature, subject to the same analytical jurisdiction. Content...draws its reality from its structure, and what we call form is the *structural*

⁷ Ibid., 211. Campbell is quoting Boulez from *Leçons de musique (Points de repère III)*, ed. Jean-Jacques Nattiez (Paris: Christian Bourgois, 2005).

⁸ Ibid. Campbell is quoting Boulez from *Le pays fertile: Paul Klee*, ed. Paule Thévenin (Paris: Gallimard, 1989). An earlier essay by Boulez that shares the title of this book focuses on the potential and current state of electronic music and is included in a collection of essays titled *Relevés d'apprenti* (Paris: Editions du Seuil, 1966). This version is translated in English as "At the Edge of Fertile Land (Paul Klee)," and appears in *Stocktakings of an Apprenticeship*, 158–171.

disposition of local structures, in other words of the content.”⁹ Klee, in a 1902 diary entry, in a similar vein said: “Now, my immediate and at the same time highest goal will be to bring the architectonic and poetic painting into a fusion or at least to establish a harmony between them.”¹⁰

Campbell finds the roots of Boulez’s heterophony in Klee’s endeavor to represent multiple perspectives, or the polyvalence of objects, within an individual work.¹¹ Klee’s ability to view an object, or a scene, from different perspectives, is similar to the polysemy of words in Mallarmé’s *Don du poème*, and Boulez, having been inspired by this idea, viewed the basic compositional building blocks at his disposal in various lights in order to explore fully their polyvalence. In *Le pays fertile*, Boulez acknowledges Klee’s theory of multiple perspectives, and his own penchant for “proliferation,” in that a single musical object has the capacity for great development and can provide the foundation for a plethora of new materials. The limitations traditional thematicism placed upon the twelve-note series restricted the potential of the series to be viewed in terms of its intervallic content, its potential to generate harmonic as well as linear results, and its capacity for inherent isomorphisms that fell beyond the traditional transformations.

⁹ Boulez, *On Music Today*, 32.

¹⁰ Paul Klee, *The Diaries of Paul Klee 1898-1918*, ed. Felix Klee (Berkeley and Los Angeles: University of California Press, 1964), 125. In this statement, the term “architectonic” is synonymous with a painting’s form while the “poetic” is synonymous with its material content.

¹¹ Klee’s sketches and diagrams to this effect can be found in Paul Klee, *Notebooks Vol. I: The Thinking Eye*, ed. Jürg Spiller, trans. Ralph Manheim (London: Lund Humphries, 1961). Sketches in Klee’s own hand with his hand-written annotations are available in Pierre Boulez, *Le pays fertile: Paul Klee*, ed. Paule Thévenin (Paris: Gallimard, 1989), 55–71.

Boulez's careful construction of masses of materials, each component of which contains latent potential for innumerable realizations, parallels Klee's belief that any object is done a disservice if viewed only according to pre-existing and narrow conventions. Boulez's use of the expression "proliferation of the series" to describe the expansion of a constellation of continuously evolving musical structures underscores his belief in the potential of his basic materials to undergo procedures that alter their course of development and fulfill their potential. In turn, Klee's development of multiple perspectives relied upon his fascination with polyphony, in particular eighteenth-century counterpoint and its interactions between musical voices, or lines, which he endeavored to incorporate into his pedagogy. Klee's understanding of counterpoint influences his line drawings in which lines (as points in motion) represent a series of dynamic interactions that are metaphors for the interaction of musical lines.¹²

Klee's line drawings rely upon the interaction between principal (or structural) and secondary (supportive or accompanimental) lines. Shown in Fig. 6.1 are Klee's line drawings, taken from his lecture notes, and reproduced by Boulez in *Le pays fertile*.¹³

¹² Several studies have explored Klee's incorporation of counterpoint and polyphony into his own theory of art including: Hajo Düchting, *Paul Klee: Painting Music* (Munich, New York: Prestel-Verlag, 1997), particularly the section that addresses Klee's line diagrams and their representation of musical themes in pp. 33-39. Also, see Andrew Kagan, *Paul Klee/Art & Music* (Ithaca and London: Cornell University Press, 1983), 43-95. Kagan focuses on Klee's knowledge of eighteenth-century counterpoint and his development of line-drawings into representations of the interaction of musical lines. Klee's focus was on polyphony, given his desire to imbue a painting with the complexity and complementarity of choral writing.

¹³ While I will not be addressing Klee's hand written notes in Fig. 6.1 here, the artist left exhaustive notes from his Bauhaus lectures that summarize his theory of art while providing a rich source of illustrations that show the potential of the materials of his craft. See Paul Klee, *Notebooks Vol. I: The Thinking Eye*, and *Notebooks Vol. II: The Nature of Nature*. Of particular interest are the line drawings on pp. 105-107, 123, and 297-99 in Vol. I.

Working downward from the left-hand side, the sketch depicts a single, principal line, a principal line with a secondary (accompanimental or supportive) line that intertwines with it, a principal line with a series of secondary lines originating from it, and a principal line with a host of intertwined secondary lines that originate from the principal line while at the same time interacting with each other.

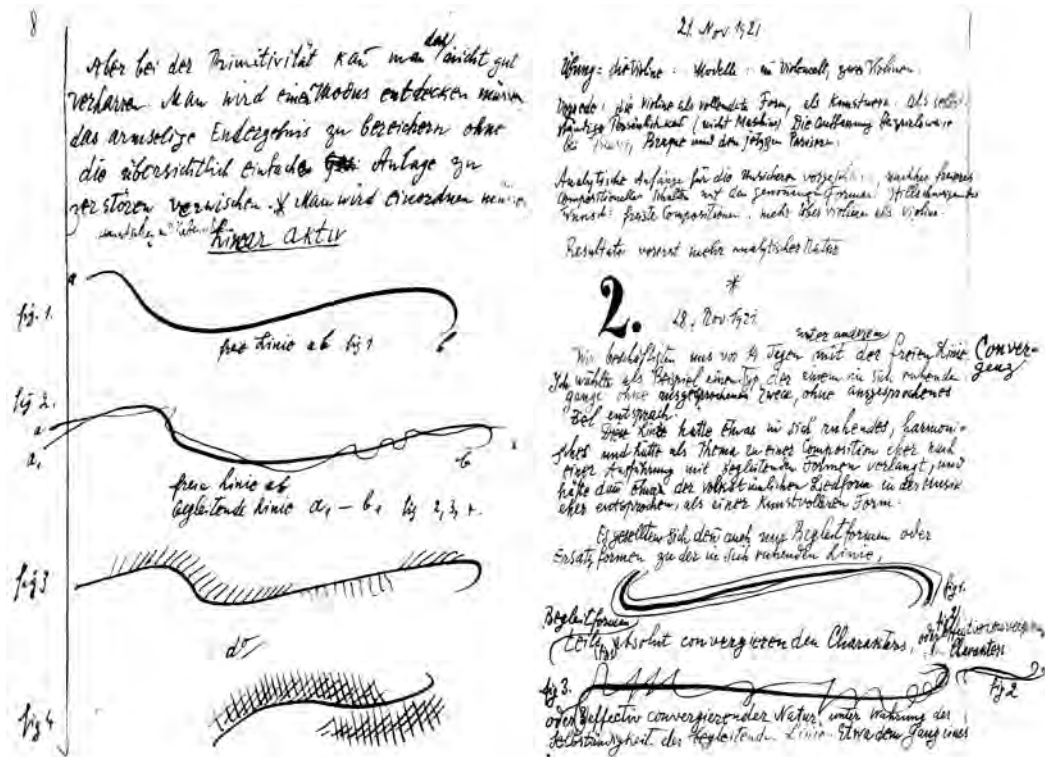


Fig. 6.1. Line Drawings from Klee's Bauhaus Notes; reproduced from Pierre Boulez, *Le pays fertile*

Boulez incorporates Klee's concept of counterpoint into complex interactions between trajectories of materials developed from different constellations of structures. For Boulez, counterpoint provides useful metaphors for various types of formal discontinuity. Multiple lines can be thought of as unique trajectories of materials identifiable by the constellation to which they belong. Some lines assume greater importance in conveying

musical form, while others unfold materials in a secondary capacity that does not interfere with the large-scale formal design. For instance, Klee's theory of principal and secondary lines can be applied to the case of "Don," in which the principal line would be the unfolding of the Domains of the multiplication table based upon the *Le Marteau* series. Products from these Domains, presented in the sequence in which they appear in the table shown in Fig. 3.10, demarcate formal boundaries and articulate the five-part large-scale form of the work. Various section from *Strophes*, itself based upon a rotational array comprising series defected from the *L'Orestie* series, periodically provide another trajectory of unfolding materials from a different constellation and function as a secondary line.

Boulez also accounts for digressions that, though they may share materials with the principal line, develop in an idiosyncratic way that lends them a degree of independence. Digressions in particular provide evidence of Boulez's continuous experimentation with the polyvalence of his materials. One such example is the PDA discussed in Chapter Five, section *c/d*, Figures 5.15–5.19, which is unrelated to either the *L'Orestie* or *Le Marteau* series that form the basic constellations used in "Don." In another example from "Don," section *e/b*, discussed in Chapter Five, the unique trajectory of materials that unfold through subsections A/, B/, C/, D/, and E/, shown in Appendices 5.15–5.16g, function more like digressions than distinct secondary lines. In each subsection, the harmonies depicted in Appendices 5.16a–5.16g derive from the principal line material, Domain $N\cup B\eta$ (see Fig. 3.10), but have undergone yet another stage of development that separate themselves from the principal trajectory. It is difficult to find a straightforward association between intervallic characteristics of Domain $N\cup B\eta$,

the *Le Marteau* series upon which it is based, and the intervallic content that arises in these subsections. Rather than a secondary line that converges around a principal line, these trajectories function like a series of digressions from the principal line and its relatively straightforward presentation of Domain materials in a predictable order across the whole of “Don.” This example is reminiscent of Klee’s line drawing from Fig. 6.1 in which a plethora of digressions depart from the principal line. Such digressions allow the composer a certain degree of interdisciplinary freedom to explore all possible perspectives for particular musical materials.

6.4. “Improvisation sur Mallarmé III”

My fascination with the visual representation of complex musical interactions, at least in terms of future research, focuses on the formal diagrams Boulez designed for the fourth movement of *Pli selon Pli*, “Improvisation sur Mallarmé III.” The most challenging of the three “Improvisation[s] sur Mallarmé” is due to Boulez’s seemingly impossible vision for the form of the movement’s six subsections.¹⁴ Given titles like “Enchaînements multiples,” “Bulles de temps,” “Sectionnements multiples, polyvalents,” “Hétérophonies,” “Echiquier,” and “Parenthèses, commentaires,”¹⁵ for the formal diagrams (see Figs. 6.2–6.7), Boulez seems to be exploring the limits of the spatial/visual representation of music. Each section explores different ways in which musical form can

¹⁴ Used with permission of Joseph Salem, and are taken from his PhD. Dissertation, *Boulez Revised: Compositional Process as Aesthetic Critique in the Composer’s Formative Works, Vol. II*, 180-187.

¹⁵ These titles translate as “Multiple Links,” “Time Bubbles,” “Multiple Sections, Polyvalences,” “Heterophonies,” “Chessboard,” and “Parentheses, Commentaries,” respectively.

be expressed graphically, largely through schematic representation where lines (both unidirectional and bidirectional) link together a system that has multiple paths through it. Three striking features are common to each section: 1) formal discontinuity; 2) the suspension of the traditional senses of time; and 3) the challenges of translating graphic representations of music into music (and vice versa). Boulez's experimentations with formal discontinuity in "Improvisation sur Mallarmé III" are a continuation of the theory explored in Chapter Four based upon the premise that linearity is not a necessary feature of musical form, or time for that matter. Boulez's sentiment that a line from point A to point C need not pass through point B is tested in these diagrams in a variety of ways. In "Enchaînement multiples," "Sectionnements multiples, polyvalents," "Hétérophonies," and "Echiquier," Boulez explores both divergent and intersecting paths through musical form. In "Bulles de temps," he explores suspended sound masses framed by the boundaries of the movement itself. In "Parenthèse; commentaires," the final movement, he explores a concept also discussed in Chapter Four, and demonstrated through the *L'Orestie/Strophes* line of materials within the broader framework of the multiplication table-organization of "Don," that of the parenthetical passage. The idea that one particular trajectory can be paused, while material belonging to another, secondary trajectory is explored, captivated Boulez and he developed an intricate model for the suspension of a principal trajectory much in the vein of "Don" in this final movement. The interaction of principal lines and secondary, or parenthetical, ones is a reflection of Klee's line drawings being used as a visual frame of reference for a particular concept in musical form. Given Boulez's acknowledgment of Klee's influence upon his own theory of music, further investigation into these connections may offer invaluable insight into

Boulez's compositional theory and practice, specifically the relationship between serial content and form.

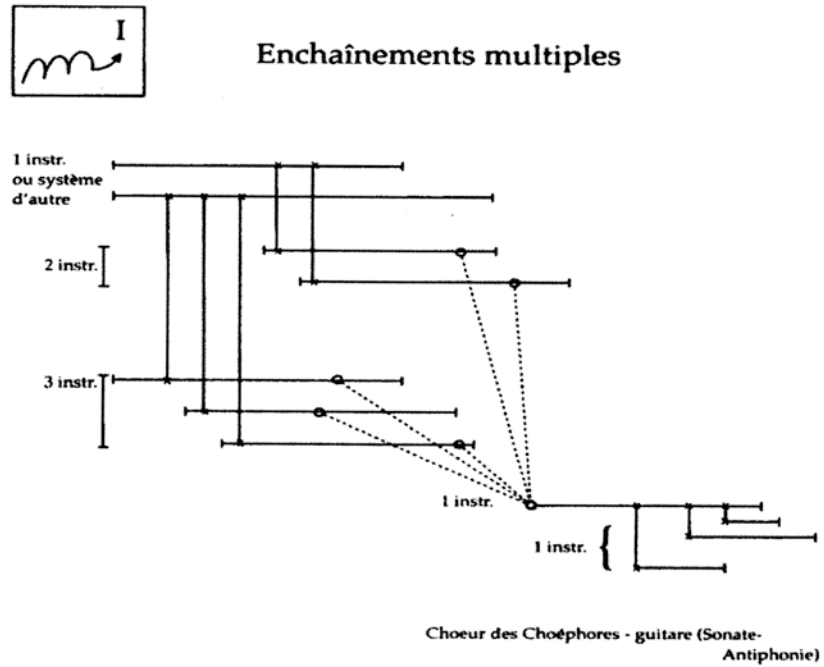
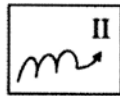
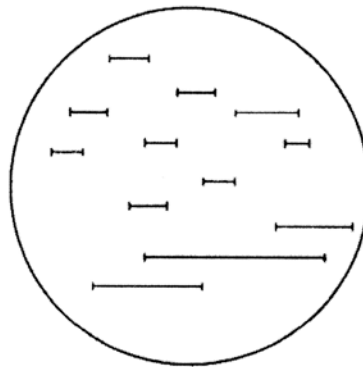
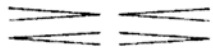


Fig. 6.2. Salem's transcription of sketch to "Enchaînements multiple"; original housed at the Paul Sacher Foundation; Microfilm 581:0784



Bulles de temps

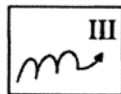


dynamique ad libit. {  sur enjeu du chef ou sur toute autre détermination

Allant du total hasard du succession à des embranchements multiples
 Emploi de séries d'accords multiples...de moins en moins...une seule série d'accords
 (d'un [enchaînement?] de hasard)

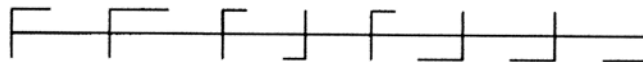
choeur final avec permutation

Fig. 6.3. Salem's transcription of sketch to "Bulles de Temps"; original housed at the Paul Sacher Foundation; Microfilm 581:0806



Sectionnements multiples, polyvalents

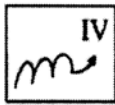
1^{er} différent suivent le sectionnement adapté –
 en calculant le rapport de fragment par rapport à la totalité



Détermination par un signal [lié à la?] fragmentation (instrument [prêt?] pour telle fragmentation); ou sur signe du chef dépendant d'une autre détermination

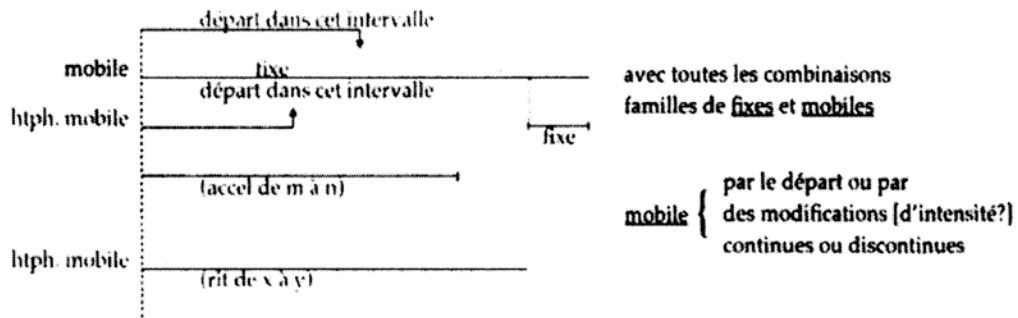
Marche Agamemnon

Fig. 6.4. Salem's transcription of sketch to "Sectionnements multiples, polyvalents"; original housed at the Paul Sacher Foundation; Microfilm 581:0835

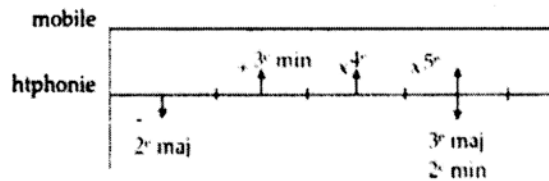


Hétérophonies

avec glissements possibles
superposition obligatoire ou non.



Transposition possible de l'hétérophonie à des intervalles variables
ou Multiplication possible de l'hétérophonie par des intervalles variables

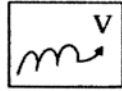


- Existence** : obligée / possible
- Nature** : ornamentale / structurale
- Nombre** : simple / double / trille, etc...
- Tempo** : fixe / mobile (accel. - decel.)
- Départ** : attaché / flottant
- Hauteurs** - absolu : sans transposition / avec transposition (mobile-fixe)
: sans multiplication / avec multiplication (mobile-fixe)
- relative (registre) : bandes de fréquences identiques / bandes de fréquences réduites
- Rythmes** : semblables (par transformation simple-complex) /
dissemblables (aucun rapport d'engendrement)

Rythme de Scène Cassandre

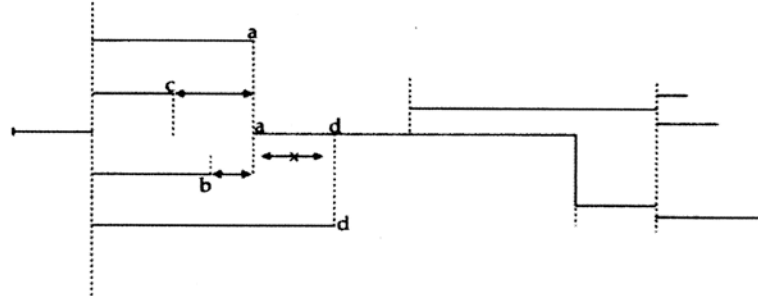
- Intensité** : id. à rythmes et hauteurs relatives
- Instruments** : Invariant (identique / différent) // changeant (selon autres structures /
([indépendamment d'?] autres structures))

Fig. 6.5. Salem's transcription of sketch to "Hétérophonies"; original housed at the Paul Sacher Foundation; Microfilm 581:0927



Echiquier

Une voix se lit toujours dans le même sens, mais avec des bifurcations

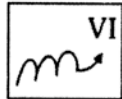


-[Enchaînées?] sans silence ou avec silence, suivant la bifurcation
-ou suppression d'une partie d'enchaînement

- a - enchaînement sans silence
- b - c - enchaînement avec silence
- d - enchaînement par élision

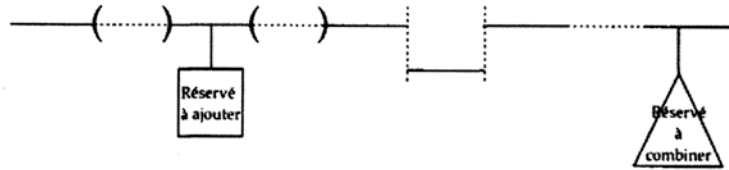
Sonnet ac

Fig. 6.6. Salem's transcription of sketch to "Echiquier"; original housed at the Paul Sacher Foundation; Microfilm 581:0941



Parenthèse; commentaires

Parenthèse et petites notes
Commentaires libres – [Pointilles?] tombés - Réserves



choeur des Erinys

Fig. 6.7. Salem's transcription of sketch to "Parenthèses, Commentaires"; original housed at the Paul Sacher Foundation; Microfilm 581:0953

6.5. Final Thoughts

Regardless of the challenges to reconciling Boulez's serial materials with large-scale formal ideas that draw inspiration from extra-musical sources, the methodology employed in the current investigation, and its focus on connecting local content and local organization to large-scale formal designs, remains viable for future studies. Boulez's penchant for developing the simplest musical ideas into increasingly complex constellations of related structures, renders the smallest details of his compositional techniques inextricable from the large-scale formal designs. Given the freedom he affords himself in directing their development, even forms that fold musical time back upon itself and obliterate the norm of the linear composition become feasible. Boulez is in the unique position to challenge not only the extents and limits of serial composition, but also the basic properties of music and experience. And the analyst is in the unique position, given their access to sketch materials and writings that illuminate compositional process, of having the tools necessary to establish exactly how seemingly impossible music is achieved.

It is necessary to reiterate the uses of the genealogical approach to Boulez's music. In addition to revealing the origins and developmental trajectories of materials used, sketches help the analyst fill in a picture that begins with an initial series and ends with viable and verifiable practice. Being able to trace the smallest details of the musical materials and how they are manipulated provides a window into how Boulez realizes the most challenging formal designs. This investigation began with a mandate to connect the local- to the large-scale, therefore keeping in line with Boulez's philosophy of content and form, while at the same time re-establishing the power of serial content after the

failure of *Polyphonie X* and *Structures Ia*, a methodology that shows promise for future studies.

In this regard, this investigation concludes in the manner in which it began: arguing for the necessity of sketch studies in order to understand the local and large-scale organization of Boulez's works and the relationship between the serial materials he uses, their development, and the uniqueness of their setting within the context of major works like "Don" and "Tombeau." Even in the absence of a complete, definitive portrait of a work's construction in the sketches, or the absence of intermediary sketches that connect pre-compositional materials with the musical score, and the illegibility of portions of Boulez's sketches, the benefits of insight into such complex, idiosyncratic compositional processes outweigh the challenges of "filling in the blanks" that is so often necessary when analyzing Boulez's serial music. It is both a challenge and a reward to illuminate the structural connections between materials that are known to be related based upon methods of development likely used by Boulez after a great deal of study into his favored techniques.

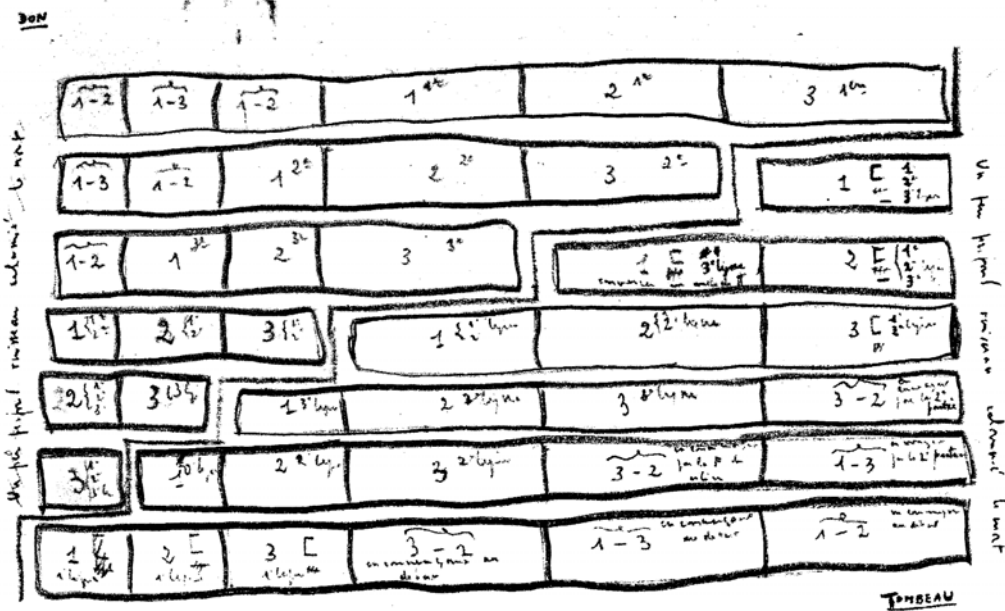
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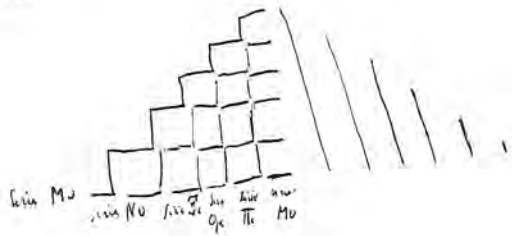
Appendix 5.1. Preliminary sketch for "Don" and "Tombeau"; original housed at the Paul Sacher Foundation; Microfilm 582: 0113



Appendix 5.2. Preliminary sketch for "Don" and "Tombeau"; original housed at the Paul Sacher Foundation; Microfilm 581: 0345

Emploi de mois en 20 ans.

~~dit~~

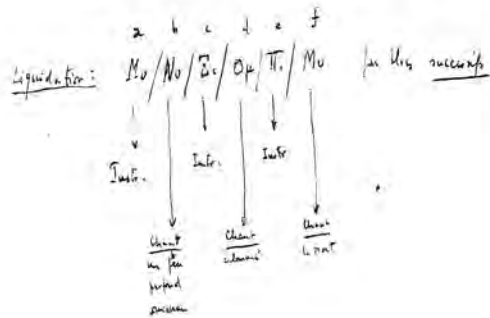


~~dit~~

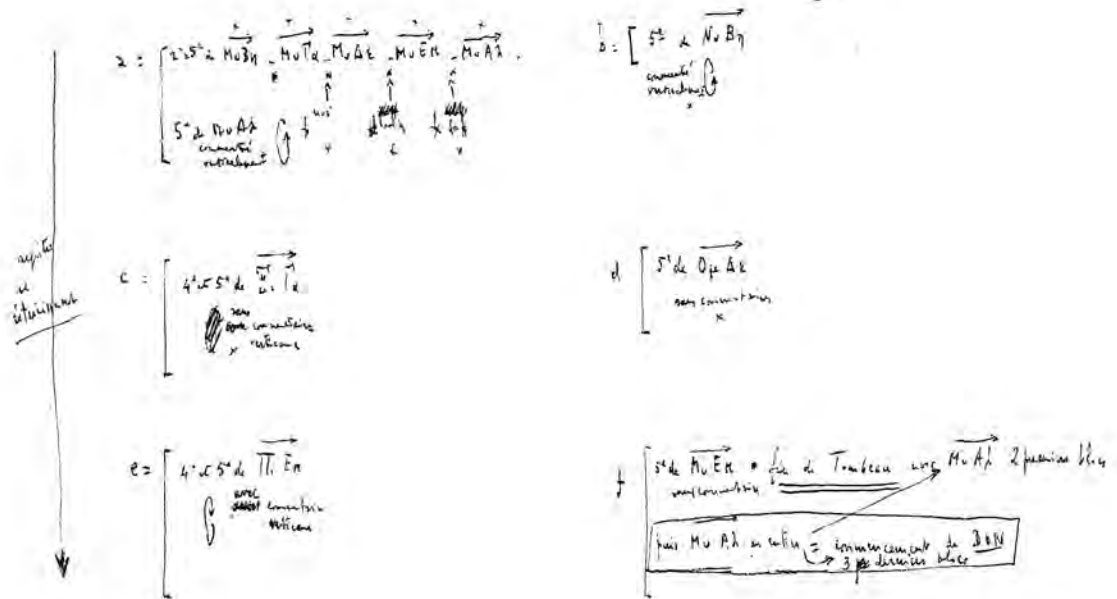
dit
Mo A1 cycle prop 2 ^{fin} Mo A1 = cycle fermé
dit
Mo A1 ^{dit} Mo A1 = cycle ouvert

Fin du Tombeau = commencement de Don (1994 toujours) ^{dit}

dit
dit



Appendix 5.3. Preliminary sketch for "Tombeau"; original housed at the Paul Sacher Foundation; Microfilm 581: 0455



Appendix 5.4. Section b/e of "Tombeau"

e Ralentir jusqu'à $\frac{3}{4}$ **40** → $\frac{1}{2}$ T° un peu plus lent $\text{♩} = 50$ **ba** **bb** **45**

Piano princ.

Vibr. 1

Guit.

Kyl.

baguette très douce

Cloches tubes

Timb.

Ralentir jusqu'à $\frac{3}{4}$ **40** → $\frac{1}{2}$ T° un peu plus lent $\text{♩} = 50$

Vceille [2]

C-basses [1]

Les 2 Vceilles M

bc **50** **bd** **be** **55**

Piano

Guit.

Cor onça

1^{re} Fl.

2^{de} Fl.

Tbn. ténor

Tbn. basse

Bsn.

Kyl.

baguette mi-douce

Cloches tubes

Gongs

Vins

Alt.

55

Appendix 5.5. Section c/d of "Tombeau"

The score is divided into two systems, each spanning measures 85 to 90. The first system includes:

- Piano:** Features a complex texture with *legato* and *tenuis* markings. Dynamics range from *ppp* to *mf*. Pedal markings are present.
- Woodwinds:** Flutes (1 and 2), Clarinet in A (C.A.), Clarinet in Bb (Clar. Bb), and Bassoon (Bsn.). Dynamics include *pp*, *pppp*, and *mf*. Performance instructions like *Flatterag.* and *normal* are noted.
- Strings:** Violins (1 and 2), Violas, and Cellos/Double Basses (Vclles.). Dynamics include *pp*, *mf*, and *mp*. Performance instructions like *arco* and *pizz.* are used.
- Other Instruments:** Xylophone (Xyl.), Glockenspiel (Cloches), and Timpani (Timb.).
- Vocal Soloists:** Soprano (Sopr.), Alto (Alt.), and Tenor (Ten.). They sing the lyrics: "multo di-mi-nu-en-da", "poca cre-scen-da", and "poca di-mi-nu-en-da".

The second system (measures 85-90) features:

- Vocal Soloists:** Continuation of the vocal lines with lyrics: "poca cre-scen-da", "poca di-mi-nu-en-da", and "poca cre-scen-da".
- Woodwinds:** Clarinet in A (Clar. A) and Clarinet in Bb (Clar. Bb) with dynamics *mp* and *mf*.
- Strings:** Continuation of the string parts with dynamics *mf* and *mp*.
- Vocal Ensemble:** A vocal ensemble part (Voc. en ch.) is introduced at measure 90, marked *mf*.

Appendix 5.5. Continued

The musical score is divided into three main sections: measures 95, 100, and 105.
Measures 95-100: The Piano part features a complex rhythmic pattern with a 'Ped.' (pedal) marking. The woodwind section includes Cor on fa, Tbn. ténor, Tbn. basse, and Tbn. basse. The strings section includes C.A., Clar. mlt, Clar. la, Clar. b. sib, and Bsn. Percussion includes Xyl. 1er, Xyl. 2e, Cloches-tubes, and Timb.
Measures 100-105: This section introduces the Harpe (1^{re} and 2^e) and Guit. The Piano part continues with a 'Ped.' marking. The woodwind section includes Cor on fa, C.A., Clar. mlt, Clar. la, Clar. b. sib, and Bsn. Percussion includes Xyl. 1er, Xyl. 2e, Cloches-tubes, and Timb.
Measures 105-110: This section features the Fl. (Flute) and continues the woodwind and string parts.
Performance Instructions: The score includes numerous performance markings such as dynamics (ppp, pp, p, mp, f, ff, fff), articulation (acc., stacc., marc.), and specific techniques (e.g., 'sourd. sèche', 'sans Ped.', 'moteur: vibrato lent, saquelles de diaphragme (metal)').
Section Markers: The measures are clearly marked with large numbers 95, 100, and 105.
Rehearsal Marks: There are double bar lines with diagonal slashes indicating rehearsal points.

Appendix 5.7. Section e/b of "Tombeau"

$\Pi \text{E} \pi$ $\frac{1}{2}$ $\frac{2}{2}$ 180
 e/b ea ec

Piano

1^e Harpe
 2^e Harpe
 Cel.
 Vibr. 1
 Guit.

Cor en fa
 Tpt. en ré
 Tpt. en ut
 Tbn. tenor
 Tbn. basse
 Tbn. crosse

FL.
 C. A.
 Clar. mi.
 Clar. la.
 Clar. b. si.
 Bsn.

$\frac{1}{2}$ $\frac{2}{2}$ 180
 $\frac{1}{2}$ $\frac{2}{2}$ 180

Detailed description of the musical score: This is a page of a musical score for the section 'e/b' of 'Tombeau'. The score is written for a large ensemble. At the top, the tempo is marked as $\Pi \text{E} \pi$ with a time signature of $\frac{1}{2}$ and $\frac{2}{2}$, and a metronome marking of 180. The section is divided into three parts: 'e/b', 'ea', and 'ec'. The piano part is the most prominent, with various dynamics like *mf*, *ff*, and *rit.*. The harp parts (1^e and 2^e) have specific markings like 'rit.' and 'sans strouffer'. The string section includes Violin 1 and Guitar. The woodwind section includes Cor en fa, Trumpets in Ré and Ut, Trombones in Tenor, Bass, and Crosse, Flutes, Clarinet in A, Clarinet in B-flat, and Bassoon. The score includes various musical notations such as slurs, accents, and dynamic markings.

Appendix 5.8. Preliminary sketch for section *a/f* of "Don"; original housed at the Paul Sacher Foundation; Microfilm 581: 0345

Don

~~1/4~~ $\frac{2}{1} (\rightarrow f)$

ritorn

No. A.1 Arcand Total . (32 sm)

Rehearsal : 3 4 5 ensemble

No. E.11 . 3 mesures No. 2 sur 4 mesures de 2/4.

Construction sur $\left\{ \begin{matrix} 5 \\ 2 \end{matrix} \right.$ vertical aller/retour . 5 (IV V III II III IV V)

Construction sur $\left\{ \begin{matrix} 4 \\ I \end{matrix} \right.$ diagonal aller, ^{aller} 3 (par 3) 2 1 1
 III IV V

Après la construction sur $\left\{ \begin{matrix} 3 \\ I \end{matrix} \right.$ sur diagonal ou vertical . 2 1 1 1 aller/retour
 II III IV V

- { remonter à la fin - si impossible
 sinon en 3-4me.

Registers :



~~1/4~~

Appendix 5.9. Full score of section *a/f* of “Don”

don pierre boulez

a/f Libre accord total Assez rapide et rebattu au fur et à mesure (comme le texte parlé)

Flûtes 1, 2, 3
Flûte en sol
Hautbois
Clarinete en sol
Clarinete en la
Clarinete basse en sib
Basson
Corno en fa
Trompette en fa
Trompette en ut
Trombone Mezzo
Trombone basse
Trombone contrebasse
Baritone
Soprano
Piano
Harpe 1
Harpe 2
Cymalis
Mandoline
Bouleze
Xylophone
Vibraphone
Timbales
Cymbales tubes
Cymbales plaques
Grosse Caisse
Violons 1, 2, 3, 4
Violas 1, 2, 3, 4
Violoncelles 1, 2, 3, 4
Contrebasses 1, 2, 3, 4

a/b
c/d
b/d
b-e
a-e
a-e

2s 3s 1s 5s 1s 1s

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Universal Edition Nr. 13614 LW

Appendix 5.10. Full score of section c/d in "Don"

The score is divided into several sections:




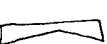
- Piano:** Includes parts for Flauto (Flute), Cymb. grave (Cymbals), and T. Timb. grave (Tom-toms).
- Harp:** Three harp parts (Harpe 1, Harpe 2, Harpe 3).
- Brusque (Section 12):** A section marked 'Brusque' starting at measure 12, featuring parts for Timb. (Toms), T. Timb. (Tom-toms), Trompe (Trumpets), Trombone (Trombones), Clar. (Clarinets), Basson (Bassoons), Alt. (Alto Saxophones), Viol. (Violins), and Viol. basso (Violoncellos).
- Section 13:** Marked 'Sourdement agité' (Agitatedly), starting at measure 13. It includes parts for Fl. (Flute), Fl. sol. (Flute solo), Hrn. (Horns), Clar. in. (Clarinets in E-flat), Clar. basse (Clarinets in B-flat), and Bass. (Bass).
- Section 14:** Also marked 'Sourdement agité', starting at measure 14. It includes parts for Vl. (Violins), Alt. (Alto Saxophones), Vl. (Violins), and C. Basso (Cello/Bass).

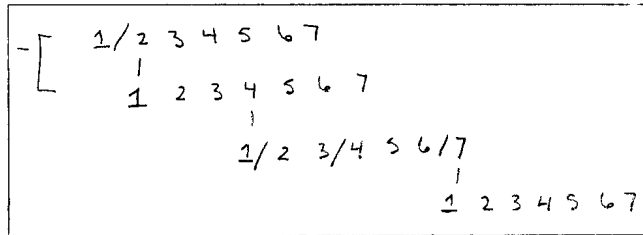
The score includes various musical notations such as dynamics (e.g., *f*, *pp*), articulation (e.g., *acc.*, *stacc.*), and performance instructions (e.g., 'Sourdement agité').

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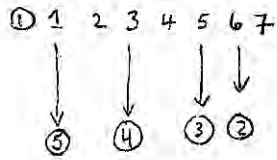
Appendix 5.11 Partial sketch of section c/d in "Don"; original is housed at the Paul Sacher Foundation; Microfilm 581: 0278

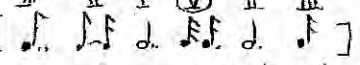
Don
 c] (= d)


<u>Corions</u>	Dérivation (décomposer de 7)	$\frac{4}{IV}$	$\frac{1}{IV}$	(5 de OM ΔE) Homophonie + Transpositions par valeurs rythmique	
<u>Bois</u>	"	$\frac{3}{IV}$	$\frac{2}{IV}$		
<u>Cords</u>	"	$\frac{2}{IV}$	$\frac{3}{IV}$		
<u>Corions</u>	(en 4, aller-retour)	$\frac{1}{IV}$	$\frac{4}{IV}$		




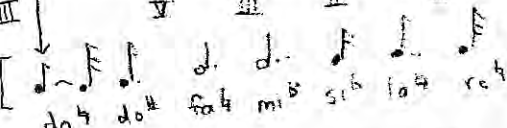
Appendix 5.12. Sketch for duration/pitch-class series in section *c/d* of “Don”;
original is housed at the Paul Sacher Foundation; Microfilm 581: 0290

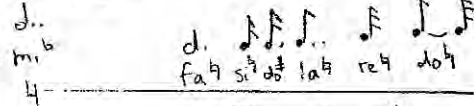


5.
 III II I V II III
 []
 la⁴ do⁴ mi⁶ re⁴ do⁴ fa⁴ la⁴

[]
 fa⁴ la⁵ re⁵ si⁶ do⁵ re⁵ do⁵

I
 V I II III II I V
 []
 re⁴ mi⁶ do⁶ do⁵ do⁵ fa⁴ si⁶ la⁵

2
 I II III V III II I
 []
 do⁴ do⁴ fa⁴ mi⁶ si⁶ la⁴ re⁴

3
 II III V ① V III II
 []
 do⁶ do⁶ fa⁴ si⁶ do⁴ la⁴ re⁴ do⁴
 4
 V I etc.

Appendix 5.13. Duration series with added meter for section *c/d* of “Don”; original is housed at the Paul Sacher Foundation; Microfilm 581: 0292

Handwritten musical notation for section *c/d* of “Don”, showing duration series with added meter. The notation is organized into several systems, each with a time signature and musical notes on a staff.

The notation includes various time signatures: $\frac{3}{8}$, $\frac{2}{8}$, $\frac{4}{8}$, $\frac{3}{16}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{3}{8}$, $\frac{3}{16}$, $\frac{3}{8}$, $\frac{5}{16}$, $\frac{5}{8}$, and $\frac{4}{8}$.

Key features of the notation include:

- Staff 1: $\frac{3}{8}$ time signature, notes with stems, and a circled number 1.
- Staff 2: $\frac{2}{8}$ time signature, notes with stems, and circled numbers 2 and 3.
- Staff 3: $\frac{4}{8}$ time signature, notes with stems, and circled numbers 4 and 5.
- Staff 4: $\frac{3}{8}$ time signature, notes with stems, and circled numbers 6 and 7.
- Staff 5: $\frac{3}{16}$ time signature, notes with stems, and circled numbers 8 and 9.
- Staff 6: $\frac{3}{8}$ time signature, notes with stems, and circled numbers 10 and 11.
- Staff 7: $\frac{4}{8}$ time signature, notes with stems, and circled numbers 12 and 13.
- Staff 8: $\frac{3}{8}$ time signature, notes with stems, and circled numbers 14 and 15.
- Staff 9: $\frac{3}{16}$ time signature, notes with stems, and circled numbers 16 and 17.
- Staff 10: $\frac{3}{8}$ time signature, notes with stems, and circled numbers 18 and 19.
- Staff 11: $\frac{5}{16}$ time signature, notes with stems, and circled numbers 20 and 21.
- Staff 12: $\frac{5}{8}$ time signature, notes with stems, and circled numbers 22 and 23.
- Staff 13: $\frac{4}{8}$ time signature, notes with stems, and circled numbers 24 and 25.

The notation also includes a double bar line, a repeat sign, and a section labeled "Chant".

Appendix 5.14. Complete score for "Sous Strophes 1b in section c/d of "Don"

24

molto

Fl. 1, 2, 3
Fl. soli
Hrh.
Clar. alt.
Clar. in
Bsn.
2^e Cor. in
Tpt. ut
Glockenspiel
Cloches tub. ee
Gult.
Vl. [tutti]
Alt. [tutti]
Vie. [tutti]
C.-B. [tutti]

25

molto

T⁹ Modéré (T⁹ 1) *scel.* - T⁹ subito
Souple et flexible

Fl. 1, 2, 3
Fl. soli
Hrh.
Clar. alt.
Clar. in
Clar. basso
Bsn.
Cora. 1, 2, 3, 4
Tpt. ut
Glockenspiel
Vibr. 2
Mand.
Guit.
m. 1, 2, 3, 4
Alt. 1, 2, 3, 4
Vie. 1, 2, 3, 4, 5
C.-basso [tutti]

Tempo rapport 1/3, 1 ←

24

2 *Soudement agité (comme précédemment)*

Vibr. 1 (sans vibrato)
Vibr. 2 (sans vibrato)
Harpe 1
Harpe 2
Harpe 3
Cel.
Xyl.
Piano

Appendix 5.15a. Full sketch of section e/b of "Don"; original is housed at the Paul Sacher Foundation; Microfilm 581: 0280

e) (=b)

Voix
↓
{ Bois
Cords }

A) 4^e NuBn (II)
B) 3^e de NuBn (II)
C) 2^e de NuBn (II)
D) 1^{re} de NuBn (II)
E) 5^e NuBn (II)

(commentaire horizontal)
(commentaire vertical)

r. e. p. o. s. commentaire en 6 valeurs longues

4	II	3	III
4	IV	3	IV
4	III	3	I
4	I	3	V

1

Placement de intensités (interval)

vaieur original	1	2	3	4
A				
B	1	2	3	4
C	1	2	3	4
D	1	2	3	4
E	1	2	3	4

Réversément - pivot de l'original
Sur meme autour de l'original.

Guitars →

Antiphonie

— ABCDE —
— CDABE —

Cor
↓
Cords
Trumpets
Trombone

Appendix 5.16a. Sketch for section e/b of "Don"; original is housed at the Paul Sacher Foundation; Microfilm 0581: 0313

This image shows a handwritten musical score sketch for section e/b of "Don". The score is written on multiple staves, with various musical notations including notes, rests, and dynamic markings. The notation is dense and includes many annotations and corrections. Key features include:

- Staff 1 (top):** Contains the title "Don" and the section identifier "e/b". It also includes the instruction "Mus. from original manuscript" and "V. 104".
- Staff 2:** Features a sequence of notes with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 3:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 4:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 5:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 6:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 7:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 8:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 9:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 10:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 11:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 12:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 13:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 14:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 15:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 16:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 17:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 18:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 19:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 20:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 21:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 22:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 23:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 24:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 25:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 26:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 27:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 28:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 29:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 30:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 31:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 32:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 33:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 34:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 35:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 36:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 37:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 38:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 39:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 40:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 41:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 42:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 43:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 44:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 45:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 46:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 47:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 48:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 49:** Contains notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".
- Staff 50:** Includes notes and rests, with the instruction "Mus. from original manuscript" and "V. 104".

Appendix 5.16b. Transcription of sketch for section *e/b* of “Don” shown in Appendix 5.16a; reprinted with permission of Joseph Salem

The image displays a musical score for section *e/b* of the piece "Don". The score is organized into six systems, each labeled with a letter: A, B, C, D, |D|, and E. Each system consists of two staves. The upper staff of each system contains a melodic line with various note values, including eighth and sixteenth notes, and rests. The lower staff contains a complex accompaniment with dense chordal textures and rhythmic patterns. The notation includes various accidentals (sharps, flats, naturals) and dynamic markings such as *p* (piano) and *f* (forte). The systems are connected by a horizontal line at the bottom, with a bar line separating system D from system |D|. The overall style is that of a musical sketch, with some notes and markings appearing less finalized than in a standard score.

Appendix 5.16c. Analyzed excerpt from subsections A/ from "Don," e/b

Agité et instable
A) Suivre main droite du chef (signes éventuels avec main gauche vers la droite
—pour harpes et Xylophones—)

The musical score is arranged in a standard orchestral format. The instruments and their parts are as follows:

- Fl. (Flutes):** Three staves (1, 2, 3). The first two staves have a circled 'A' at the beginning. The third staff has a circled '6' at the end.
- Fl. sol (Solo Flute):** One staff.
- Htb. (Horn):** One staff.
- Clar. mib (Clarinet in B-flat):** One staff with a circled '1-4' above it.
- Clar. la (Clarinet in A):** One staff with a circled 'p sub.' below it.
- Clar. basse sib (Bass Clarinet in B-flat):** One staff with a circled 'p sub.' below it.
- Ban. (Bassoon):** One staff.
- Cors fa (Trumpets in F):** Four staves (1, 2, 3, 4). The first two staves have a circled '5' above them.

The score includes various musical notations such as dynamics (*pp*, *p sub.*), articulation marks (accents, slurs), and performance instructions. The bottom of the page shows a sequence of numbers: 1, 2/4, 3/8, 3/4, a dashed line, and 2/4.

Appendix 5.16d. Analyzed excerpt from subsections B/ from "Don," e/b

(B)

Fl. 1 2 3

Fl. sol

Htb.

Clar. mi^b

Clar. la

Clar. basse si^b

Bsn.

Cors fa 1 2 3 4

les 4: { bouché enlvré } ouvert

5/16 (quasi 1/4) (avec rit.) 3/4 1 3/16 (quasi 1/4) (avec accel.)

mp *mp* *ffsub.* *ppsub.* *ppsub.* *ppsub.* *ppsub.* *ppsub.* *ppsub.* *ppsub.*

Appendix 5.16e. Analyzed excerpt from subsections C/ from "Don," e/b

©

1 2 3 4

Fl. 1
Fl. 2
Fl. 3

Fl. sol

Htb.

Clar. mib

Clar. la

Clar. basse sib

Bsn.

Cors fa 1 2 3 4

1. bouché

(come sopra)

1/4 5/16

Appendix 5.16f. Analyzed excerpt from subsections D/ from “Don,” *e/b*

(D)

1 2 3-4 5

pour tous

Fl. 1
Fl. 2
Fl. 3

Fl. sol

Htb.

Clar. mi \flat

Clar. la

Clar. basse si \flat

Bsn.

Cors fa
1
2
3
4

pp les \acute{a} : bouché

3 4 2 3 4

Appendix 5.16g. Analyzed excerpt from subsections E/ from “Don,” *e/b*

The musical score is for an analyzed excerpt from subsections E/ of "Don," in E-flat major. It features the following instruments and parts:

- Fl. (Flute):** Three parts (1, 2, 3) with dynamics *pp* and *mf*.
- FL. sol. (Flute solo):** Part with dynamics *pp*, *mfsub.*, and *mf*.
- Htb. (Horn):** Part with dynamics *pp*, *mfsub.*, and *mf*. Includes the instruction *poco sfz*.
- Clar. mi-b (Clarinet in B-flat):** Part with dynamics *pp*, *mfsub.*, and *mf*. Includes the instruction *peu sfz pp*.
- Clar. la (Clarinet in A):** Part with dynamics *pp*, *mfsub.*, and *mf*.
- Clar. basse sib (Clarinet in B-flat):** Part with dynamics *pp*, *mfsub.*, and *mf*.
- Bsn. (Bassoon):** Part with dynamics *pp*, *mfsub.*, and *mf*.
- Cors fa (Cor Anglais):** Four parts (1, 2, 3, 4) with dynamics *pp*, *mf*, and *pp*. Includes the instruction *les 4 bouchés*.

The score is divided into two main sections:

- Section 1:** Measures 1 and 2, both in 4/4 time.
- Section 2:** Measures 3, 4, 5, and 6. Measure 3 is in 5/16 time, measure 4 is in 4/4 time, and measures 5 and 6 are in 3/8 time.

The excerpt begins with a circled "E" and includes various dynamics such as *pp*, *mf*, and *mfsub.*, along with performance instructions like *poco sfz* and *peu sfz pp*.

Appendix 5.17. Microcosm of large-scale form in section *f/a* of “Tombeau”

5s. $\text{M}\nu\text{A}\lambda$ 2s. e

530

f/a Piano

1^{re} Harpe
2^e Harpe
Cel.
Vibr. 1
Guit.

Ad libitum - Signes individuels

5s. 2s. e

530

Cor en fa
pte Fl.

Cloches-tubes
Gongs
Tams-tams

5s. 2s. e

Vios
Alt.
Vclles
Cbasses

les Signes du chef sont indiqués par des flèches -
Au Signe général, tutti

NuBη

b/e Voix

Guit
Cor en fa
Vclle
Voix

peu pro- long ruis- seau

The image displays a complex musical score for the section *f/a* of the piece "Tombeau". The score is organized into several systems, each representing a different instrument or voice part. At the top, there are time signatures: "5s." (5 seconds) and "2s." (2 seconds), along with a tempo marking "M ν A λ ". A box labeled "530" is present in the upper right. The first system includes parts for Piano, 1^{re} Harpe, 2^e Harpe, Cel., Vibr. 1, and Guit. The piano part has a section labeled "f/a" and includes instructions like "garder la pédale enfouée" and "L. v. jusqu'à la mesure suivante". The guitar part has instructions: "baisser au minimum l'amplificateur électrique" and "jouer aussiôt sans signal". The second system includes parts for Cor en fa, pte Fl., Cloches-tubes, Gongs, and Tams-tams. The third system includes parts for Vios, Alt., Vclles, and Cbasses. The fourth system is for the Voix (voice) part, labeled "NuBη" and "b/e", with lyrics: "peu", "pro-", "long", "ruis-", "seau". The score is annotated with various musical notations, including dynamics (ppp, p, mf, f, ff, fff, sfz, sfz fortissimo, sfz tenuto), articulation (accents, slurs), and performance instructions like "Ad libitum - Signes individuels" and "les Signes du chef sont indiqués par des flèches - Au Signe général, tutti".

Appendix 5.18. Continued.

Handwritten musical score for a string quartet, consisting of five staves. The notation includes various notes, rests, and dynamic markings. A wavy vertical line is drawn through the score, likely indicating a section boundary.

- Staff 1 (Violin I):** Starts with a treble clef and a sharp sign (#). The first note is a whole note on the line (A4), marked with a diamond symbol and the word "mort". A slur extends from this note to the right.
- Staff 2 (Violin II):** Starts with a treble clef. The first note is a whole note on the space (B3), marked with a diamond symbol. A slur extends from this note to the right.
- Staff 3 (Viola):** Starts with a treble clef. The first note is a whole note on the space (B3), marked with "ppp". A slur extends from this note to the right. A second note, a whole note on the line (A4), is marked with "fff".
- Staff 4 (Cello):** Starts with a bass clef. The first note is a whole note on the space (B2), marked with "ppp". A slur extends from this note to the right.
- Staff 5 (Double Bass):** Starts with a bass clef. The first note is a whole note on the space (B2), marked with "cor". A slur extends from this note to the right.

Additional annotations include a handwritten "[] (⇒ a)" at the top left, a "DON" marking above the first staff, and a "f h" marking with a downward arrow between the second and third staves.

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Education

PhD: University of Western Ontario, 2015. Advisor, Dr. Catherine Nolan.

Dissertation Title: “*Pli selon Pli: A Study in the Compositional Theory and Practice of Pierre Boulez.*”

Masters: McGill University, M.A. in Music Theory, *magna cum laude*, 2006. Advisor, Dr. Don McLean.

Thesis Title: “Viennese Expressionism: Sickness and Spirituality in the New Aesthetic Theory 1909-1913.”

Bachelor: McGill University, B.Mus. in Music Theory and Piano Performance, *summa cum laude*, 2004.

Teaching Experience

University of Western Ontario

- 2014 - Analysis: Romantic Music: Music 3604B (Sole Instructor)
- 2014 - Studies in Music Theory IV: Music 2650B (Instructor)
- 2013 - Analysis: Baroque and Classical Music: Music 3603A (Sole Instructor)
- 2013 - Studies in Music theory III: Music 2649A (Instructor)
- 2013 - Fundamentals of Music Theory: Music 1122 650 LEC (Online)
- 2013 - Studies in Music Theory IV: Music 2650A (Instructor)
- 2012 - Studies in Music Theory III: Music 2649A (Instructor)
- 2012 - Studies in Music Theory IV: Music 2650B (Instructor)
- 2011 - Studies in Music Theory III: Music 2649A (Instructor)
- 2011 - Studies in Music Theory IV: Music 2650B (Instructor)
- 2010 - Studies in Music Theory III: Music 2649A (Instructor)
- 2010 - Introduction to Jazz: Music 2702B (TA)
- 2009 - Fundamentals of Music Theory: Music 1122A (Sole Instructor)
- 2008 - Fundamentals of Music Theory: Music 1122A (Sole Instructor)
- 2008 - General Integrated Musicianship II and IV: Music 1636B, 2636B (lab)
- 2007 - Studies in Music Theory III: Music 2649A (Instructor)
- 2007 - Studies in Music Theory II: Music 1650B (TA)
- 2006 - Studies in Music Theory I: Music 1649A (TA)

McGill University

2006 – Tonal Theory and Analysis 2: Mus 1301 (TA)

2005 – Tonal Theory and Analysis 1: Mus 1193 (TA)

2005 – Tonal Theory and Analysis 2 tutorial: Mus 1301 (TA)

2004 – Tonal Theory and Analysis 1 tutorial: Mus 1193 (TA)

Student Evaluations

For numerical data from student evaluations pertaining to all courses taught at Western, please see:

<https://www.ipb.uwo.ca/evaluation/evaluation.php?id=3013&term=1109>

Refereed Publications

Emily J. Adamowicz, “Structure and Subjectivity in Milton Babbitt’s *Philomel*,” *Music Theory Online* 17/2 (2011).

Lectures and Conference Presentations

2013 - Society for Music Theory, Charlotte, NC

"Spiraling Outward: From Local to Large-Scale Form in *Pli selon Pli*."

2012 - Music Theory MidWest, University of Michigan, Ann Arbor

"The Concept of Indiscipline in the Music of Pierre Boulez."

2012 - Canadian University Music Society, Wilfrid Laurier, Waterloo

"The Concept of Indiscipline in the Music of Pierre Boulez."

2011 – Music Theory Society of New York State, SUNY, Buffalo

“Indiscipline as a Concept and Technique in the Music of Pierre Boulez.”

2010 – Society for Music Theory National Conference, Indianapolis, IN

“Structure and Subjectivity in Milton Babbitt’s *Philomel*.”

2010 – New England Conference of Music Theorists, University of Connecticut, Storrs

“Choice and Subjectivity in *Le marteau sans maître*.”

2010 – Classics Department Annual Conference, McMaster University, Hamilton

“Ovid’s *Philomela* and Babbitt’s *Philomel*.”

2009 – Rocky Mountain Society for Music Theory, University of Colorado, Boulder

“The Absent Subject in Post-War Serialism.”

2008 – Canadian University Music Society, University of British Columbia, Vancouver
“Velasquez’ *Las Meninas* and a Musical Response.”

2008 – Music Theory Midwest, Bowling Green State University, Bowling Green
“The Limits of Extremism: From a Subjective to Objective Ontology of the Musical Work.”

2008 – American Musicological Society Midwest, Western Michigan University, Kalamazoo
“*Don Giovanni*: The Musical work in Nineteenth-Century Aesthetic Theory.”

Grants and Academic Awards

2011 - 2013	Graduate Thesis Research Award
2006-2010	University of Western Ontario Graduate Teaching Award
2004	Ontario Graduate Scholarship
2004-2006	Max Sterns Fellowship (McGill)
2005	Austria Society Research Grant
2002, 2003	Oxford University Award (McGill)
1999	Mount Allison University Entrance Scholarship

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