

The Rite of Spring: Rhythmic Rebirths as Delivered by Messiaen and Boulez*

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A century has passed since *The Rite of Spring* (*Le sacre du printemps*) provoked a riot at the Théâtre des Champs-Élysées on 29 May 1913 and harvested a captivating success from the Parisian audience soon afterwards.¹ Some of the best minds of our times, Messiaen and Boulez foremost among them, attempted to unravel the ‘secrets’ of *The Rite of Spring*, with rhythm prioritised as one of their main concerns. Even before the end of World War II, during the difficult years of the Occupation, Messiaen had already shared his pioneering study of *The Rite of Spring* with his star students from the Paris Conservatoire at a private analysis class.² Messiaen’s insightful analysis of *The Rite of Spring* is often praised in a vacuum. For a very long time the details of Messiaen’s analysis were known rather exclusively only to his students. In 1953 Boulez, then in his late twenties, published his exegesis of *The Rite of Spring* – *Stravinsky Remains* (*Strawinsky demeure*) – which soon became one of his best known analyses and has since then left an indelible imprint on the reception history of the masterpiece.³ The lack of any formal documen-

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¹ According to Jonathan Cross, Sergey Diaghilev had assumed a critical role in engineering the riotous premiere. See Jonathan Cross, *Rewriting “The Rite of Spring”: Creative Responses to “Le Sacre du printemps”*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidy Zimmermann, London 2013, pp. 198–218, here p. 198.

² Jean Boivin, *La Classe de Messiaen*, Paris 1995, pp. 39–52, and *Musical Analysis According to Messiaen: A Critical View of a Most Original Approach*, in: *Olivier Messiaen: Music, Art, Literature*, ed. by Christopher Dingle and Nigel Simeone, Aldershot 2007, pp. 137–157.

³ As is well-known, Boulez’s analysis is titled *Stravinsky Remains* to pair with the highly polemical essay published in the previous year, *Schoenberg is Dead*. See Pierre Boulez, *Strawinsky demeure*, in: *Musique russe*, vol. 1, ed. by Pierre Souvtchinsky, Paris 1953, pp. 151–224; trans. Stephen Walsh as *Stravinsky Remains*, in: *Stocktakings from the Apprenticeship*, Oxford 1991, pp. 55–110; and *Schönberg est mort*, originally in: *The Score* [1952], quoted from: *Relevés d’apprenti*, ed. by Paule Thévenin, Paris 1966,

tation of Messiaen's analysis has so far hindered us from conducting a comparative study of these two analyses. Thanks to the dedicated efforts of Yvonne Loriod, who in her widowed years worked tirelessly on an inordinate number of manuscripts, Messiaen's analysis of *The Rite of Spring* has at last seen the light of day. In 1995, three years after the death of Messiaen, Alphonse Leduc published the second volume of his *Traité de rythme, de couleur, et d'ornithologie* (henceforth *Traité II*), chapter three of which contains Messiaen's extended analysis of *The Rite of Spring*.⁴ This is followed by an even more elaborate analysis of a complete work, *Turangalîla-symphonie*, before Messiaen rounds off the chapter with brief discussions of his organ music, *Messe de la Pentecôte* and *Livre d'orgue*. Importantly, chapter three of Messiaen's *Traité II*, entitled "Les personnages rythmiques", is built around his theory of rhythmic characters, a topic that will be treated at length later in this contribution.

It is only natural that Boulez's analysis of *The Rite of Spring* in *Stravinsky Remains* [1953] is discussed more often and in greater depth than Messiaen's analysis of the ballet, given the latter's belated publication in *Traité II* in 1995. Unfortunately, the situation has hardly changed since then. Nearly two decades after its publication, Messiaen remains a source that eclipses even some of the most eminent Stravinsky scholars. Pieter van den Toorn's *Stravinsky and the Russian Period: Sound and Legacy of a Musical Idiom* (2012), his latest book, co-authored with John McGinness, takes into account Boulez's but not Messiaen's analysis.⁵ To my knowledge, no substantive effort has so far been made to scrutinise Messiaen's *Traité II* and Boulez's *Stravinsky Remains* comparatively. Werner Strinz (2012) mentions both analyses in *Traité de rythme, de couleur et d'ornithologie – Textauswahl in deutscher Übersetzung*, in a chapter entitled "Der Meister und sein Sacre. Olivier Messiaens und Pierre Boulez' Analysen des *Sacre du printemps*", but his concern is mainly about how their views evolved over time. Strinz addresses his concern by briefly

pp. 265–272; trans. Stephen Walsh as *Schoenberg is Dead*, in: *Stocktakings from the Apprenticeship*, Oxford 1991, pp. 209–214.

⁴ Olivier Messiaen, *Traité de rythme, de couleur et d'ornithologie*, vol. 2, Paris 1995, pp. 93–147.

⁵ Van den Toorn never mentions Messiaen's analysis of *The Rite of Spring* in his writings.

revisiting Messiaen's *Le rythme chez Igor Stravinsky* (1939), *Technique de mon langage musical* (1944), one past student's (Günter Reinhold) recollection of how Messiaen analysed *The Rite of Spring* in class, Boulez's *Propositions* (1948), and even Barraqué's *Rythme et développement* (1954). Strinz's study is more of a survey of the two analyses. Apart from Stravinsky's rhythmic innovations, Strinz also includes other topics that come up in Messiaen's analysis of the ballet, such as the affinity between the *Rite* chord and the so-called Golaud chord, and the exploration of music as magic.

In *Avatar of Modernity: The Rite of Spring Reconsidered*, a book launched by the Paul Sacher Foundation to mark the 2013 centenary of the premiere of the ballet, a handful of writers touch on these two analyses. In a chapter titled "*Le Sacre*, Analyzed", Jonathan Bernard surveys important analytical studies of *The Rite of Spring* published over the past decades, but Messiaen's analysis of *The Rite of Spring* is mentioned only in a footnote. *Stravinsky Remains* receives a lot more critical attention, principally because Bernard reviews van den Toorn's *Stravinsky and The Rite of Spring: The Beginning of a Musical Language* (1987), in which the author takes issue with Boulez's rhythmic analysis of *The Rite of Spring*. In "*Boulez's Rite*", another chapter in the same book, Robert Piencikowski briefly comments on the relation between the two analyses. "Since the posthumous publication of Messiaen's *Traité de rythme*", Piencikowski writes optimistically, "we can now measure easily both Boulez's debt to his teacher and the distance separating them".⁶ Yet Piencikowski did not do so. Instead, his inquiry revolves around the manuscript of *Stravinsky Remains*, lately discovered and acquired by the Paul Sacher Foundation, and Boulez's personal copy of a four-hand piano score of *The Rite of Spring*.⁷ It is particularly relevant to this study that Boulez's copy of the four-hand piano score, also housed at the Paul Sacher Foundation, contains annotations in his hand of Messiaen's highly distinctive reading of *The Augurs of Spring* (*Les augures printaniers*) (figure 13), a reading that

⁶ Robert Piencikowski, *Boulez's "Rite"*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidi Zimmermann, London 2013, pp. 306–315, here p. 308.

⁷ The reception of *Stravinsky Remains* by Boulez's contemporaries – Boris de Schloezer, André Souris and Henri Pousseur – is also lightly discussed.

finds its way into the writings of a range of notable commentators, of which more later.

The analyses by Boulez and Messiaen come up in two other chapters in *Avatar of Modernity*, namely Andreas Meyer's "Disrupted Structures: Rhythm, Melody, Harmony" and Jonathan Cross's "Rewriting *The Rite of Spring*: Creative Responses to *Le Sacre du printemps*". Meyer remarks in his footnote 49 that "Boulez's analysis draws tacitly on Messiaen's",⁸ but he does not probe into the depth of the influence. Cross's focus is also less on the two analyses in question than on his hypothesis that Messiaen might have conceived of *Turangalila I*, the third movement of *Turangalila-symphonie*, by closely modelling it on the opening *Introduction* to *The Rite*. Accordingly, Cross's interest in *Traité II* and *Stravinsky Remains* is mainly about the analytical discussion of *Turangalila I* and the *Introduction* respectively.⁹

In this contribution I shall tackle important rhythmic issues that emerge from a rigorous comparison of Boulez's and Messiaen's analyses. While there is concrete proof that Boulez drew on Messiaen's ideas without acknowledging them, the emphasis of my comparison is not on that. Rather, I am interested in exploring how two leading composer-analysts at once converge and diverge in their perceptive readings of Stravinsky's rhythmic inventions in an epoch-marking work, and how their analytical

⁸ Andreas Meyer, *Disrupted Structures: Rhythm, Melody, Harmony*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidy Zimmermann, London 2013, pp. 102–129, here p. 125.

⁹ Jonathan Cross previously put forth the same hypothesis in *The Stravinsky Legacy*, Cambridge 1998, pp. 114–116. He commented at length on their similarities only to conclude in the end that the similarities are but "interpreted". See p. 116 for this intriguing remark and also p. 254, footnotes 51 and 53 for his reference to *Traité II*. Strictly speaking, only one sentence in Cross's *The Stravinsky Legacy* is about Messiaen's analysis of *The Rite of Spring*. "Messiaen went further [than Boulez] and identified less obviously foreground [*sic*] rhythmic features of *The Rite*, such as the so-called 'non-retrogradable' rhythms, additive rhythms and simultaneous processes of augmentation, diminution and stasis in the *personnages rythmiques* [rhythmic characters], which were not only fully exploited in his own music, but also had a profound influence on his pupils, including Boulez." See Cross, *The Stravinsky Legacy*, p. 87. Messiaen's analysis of the *Introduction* to *The Rite* in *Traité II* seems to have escaped Cross's attention. He reads into the *Introduction* the presence of rhythmic characters (p. 98) when Messiaen clearly points out in *Traité II* (p. 97) that this is not the case.

studies might have been driven by certain factors, musical or otherwise, to their logical ends. While Messiaen's *Traité II* and Boulez's *Stravinsky Remains* constitute the main sources of this study, influential writings on Stravinsky's rhythmic approaches by Jonathan Cross (1998), Richard Taruskin (1996) and Pieter van den Toorn (1987) will also be reflected upon. More specifically, van den Toorn's "rhythmic Types I and II", theoretical models set up to elucidate Stravinsky's rhythmic innovations in *The Rite of Spring*, will be critically reviewed in the light of Messiaen's and Boulez's analyses.¹⁰ With Boosey and Hawkes's 1967 re-engraved edition as the main reference, I shall focus on three musical excerpts that, throughout *The Rite of Spring*, most unambiguously demonstrate how Stravinsky foregrounds rhythm through the insistent use of basically one block chord:¹¹

1. *The Augurs of Spring* (*Les augures printaniers*) (figure 13);
2. *Dance of the Earth* (*Danse de la terre*) (figures 72–74 and 78);
3. *Sacrificial Dance* (*Danse sacrée*), the first couplet (figures 149–166).

In all three excerpts, what Messiaen dubs a "rhythmic rebirth"¹² is delivered at the expense of melody and harmony. Although the excerpts are distinct in their rhythmic attributes, Messiaen treats them all with the theory of rhythmic characters and his signature rhythmic reduction. Our understanding of Messiaen's rhythmic characters and rhythmic reduction is thus pivotal to any critique of his analysis of *The Rite of Spring*. Boulez also attaches importance to these three excerpts, commenting

¹⁰ The theoretical models of "rhythmic Types I and II" are promulgated in Pieter C. van den Toorn, *Stravinsky and The Rite of Spring: The Beginnings of a Musical Language*, Oxford 1987, pp. 97–101. They were formerly called "rhythmic metric types (1) and (2)" and discussed in: Pieter C. van den Toorn, *The Music of Igor Stravinsky*, New Haven 1983, pp. 138–139.

¹¹ Boulez does not clarify which version of *The Rite of Spring* informs his analysis. Messiaen (*Traité II*, p. 97) states that his analytical study is based on the original Russian edition ("la partition d'orchestre de l'Édition Russe de Musique, édition originale"). He also refers to it as the first edition ("la 1^{re} édition"); see Messiaen, *Traité II*, p. 118. With regard to the *Evocation of the Ancestors* and the *Sacrificial Dance*, Messiaen (*Traité II*, pp. 119 and 130) also consults the second edition published by Boosey and Hawkes ("la 2^e édition, Édition Boosey and Hawkes").

¹² Messiaen, *Traité II*, p. 99.

that “the most important thematic feature of *The Rite of Spring* is the appearance of the genuine rhythmic theme, enjoying a life of its own *within an unchanging vertical sonority*”.¹³ Commenting on the first couplet of the *Sacrificial Dance*, in which different block chords are hypnotically repeated one at a time, Boulez points out that the theme is “purely rhythmic, without accents”, and that it “*unfolds on a single chord*”.¹⁴ This excerpt and figure 13 of the *Augurs of Spring* exemplify what Boulez refers to as Stravinsky’s “linear rhythmic procedures”. They contrast with passages in *The Rite of Spring* where “two rhythmic forces interact”, as in the *Dance of the Earth*, which Boulez hails as “one of the most remarkable pieces in the whole score”.¹⁵

Messiaen’s rhythmic characters, rhythmic reduction, and duration series

Messiaen’s fullest explication of rhythmic characters and the use of his signature rhythmic reduction as an analytical tool is embedded in *Traité II* in his analysis of the *Augurs of Spring*.¹⁶ A less formal discussion of rhythmic characters appears in *Music and Color: Conversations with Claude Samuel*, in which he alludes to the dramaturgical interaction between three different roles:

Let’s imagine a scene in a play in which we place three characters: the first one acts, behaving in a brutal manner by striking the second; the second character is acted upon, his actions dominated by those of the first; finally, the third character is simply present at the conflict and remains inactive. If we transport this parable into the field of rhythm, we obtain three rhythmic groups: the first, whose note-values are ever increasing, is the character who attacks; the second, whose note-values decrease, is the character who is attacked; and the third, whose note-values never change, is the character who doesn’t move.¹⁷

¹³ Boulez, *Stravinsky Remains*, p. 68; my emphasis.

¹⁴ *Ibid.*, p. 70; my emphasis.

¹⁵ *Ibid.*, p. 85.

¹⁶ Messiaen, *Traité II*, pp. 92–94.

¹⁷ Claude Samuel, *Music and Color: Conversations with Claude Samuel*, Portland 1994, p. 71.

Messiaen's earliest written account of what later becomes his theory of rhythmic characters can be traced back to a short essay entitled *Le rythme chez Igor Stravinsky* (1939). Commenting on how Stravinsky's rhythmic innovations might have come under the influence of selected musical works by Rimsky-Korsakov and Debussy, Messiaen draws our attention to the Hindu rhythm *simhavikrīḍita*:

In the list of Hindu rhythms passed down to us by Gārngadeva, we find the rhythm [called] *simhavikrīḍita*, which uses the following procedure: one of the two durations is augmented or diminished. ... Stravinsky considerably expanded this procedure by transforming it into the augmentation or diminution of one out of two rhythms [instead of durations]. It was done by brutal and frenzied repetitions, the power of which is frightfully feverish and wrenching, and where the most rigorous rhythmic logic goes hand in hand with the most incredible fantasies. *The Rite of Spring* is absolutely typical in this regard.¹⁸

Nearly the same commentary reappears in *Technique de mon langage musical* (1944; *The Technique of My Musical Language* 1956, henceforth *TML*): "Igor Stravinsky, consciously or unconsciously, drew one of his most striking rhythmic procedures, the augmentation or diminution of one of two rhythms ... from the Hindu rhythm *simhavikrīḍita*."¹⁹ Two music examples are added to illustrate the procedure concerned.²⁰ In

¹⁸ Olivier Messiaen, *Le rythme chez Igor Stravinsky*, in: *Revue musicale* 191 (1939), pp. 91–92, here p. 92. "Dans la série des rythmes hindous que nous a laissés Gārngadeva, on trouve le rythme 'simhavikrīḍita', qui est l'application du procédé suivant: augmentation ou diminution d'une valeur sur deux. ... Stravinsky a considérablement agrandi ce procédé en le transformant en l'augmentation ou diminution d'un rythme sur deux. Et cela par des répétitions brutales et forcenées, d'une puissance effroyablement fébrile et déchirante, où la logique rythmique la plus rigide s'allie aux plus invraisemblables fantaisies. *Le Sacre du printemps* est absolument typique à cet égard." (All translations are mine unless stated otherwise.)

¹⁹ Olivier Messiaen, *Technique de mon langage musical*, Paris 1944; trans. John Satterfield as *The Technique of My Musical Language*, Paris 1956, p. 14. "Igor Stravinsky (consciemment ou inconsciemment) a tiré l'un de ses procédés rythmiques les plus frappants, l'augmentation ou diminution d'un rythme sur deux ... du rythme hindou 'simhavikrīḍita'" (*Technique de mon langage musical*, p. 6).

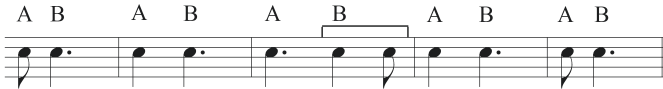
²⁰ The first two music examples of *TML* appear in chapter two ("Rāgavardhana, rythme hindou") under the heading of "Musique amesurée".

the first music example of *TML*, Messiaen extracts figure 186 from the *Sacrificial Dance*, labels the four bars as A–B–A–B, and pinpoints that A is curtailed upon repetition (marked with a cross), whereas B remains invariable (Ex. 1).



Ex. 1: *Sacrificial Dance*, figure 186 in example 1 of *TML*

In the second music example of *TML*, Messiaen discusses the schematic alternation between variable and invariable durations in the Hindu rhythm *simhavikridita* (Ex. 2). While the variable duration A grows incrementally from 1 to 2 to 3 before declining through 2 to 1, the invariable duration B remains invariable.



Ex. 2: *Simhavikridita* in example 2 of *TML*

Although Messiaen's discussion is sketchy on both occasions and the term "rhythmic character" is not yet in use, no doubt the idea is already there. It is also noteworthy that Messiaen hints at the use of an additive approach to rhythm shortly before he discusses these two music examples:

[W]e shall replace the notions of "measure" and "beat" by the feeling of a short value (the sixteenth-note, for example) and its free multiplications, which will lead us toward a music more or less 'ametric', necessitating precise rhythmic rules.²¹

²¹ Messiaen, *The Technique of My Musical Language*, p. 14. "[N]ous remplacerons les notions de 'mesure' et de 'temps' par le sentiment d'une valeur brève (la double croche, par exemple) et de ses multiplications libres. Ce qui nous conduira vers une musique plus ou moins 'amesurée', nécessitant des règles rythmiques précises." (Messiaen, *Technique de mon langage musical*, p. 6)

Messiaen relates the “free multiplications” of a short duration to “music more or less ‘ametric’”, though without commenting on how they correlate with the first two music examples of *TML*.

In his analysis of *The Rite of Spring* in *Traité II*, published decades later, Messiaen revisits figure 186 of the *Sacrificial Dance* and offers a substantially different reading (Ex. 3). In *Traité II*, Messiaen disregards the bar lines and groups each attack with the ensuing rest to define a duration. This kind of rhythmic reduction is typical of Messiaen’s analysis of *The Rite of Spring* in *Traité II*. The durations thus defined are likewise grouped into A–B–A–B, albeit with the number of semiquavers indicated in each case: A5 [semiquavers] is diminished to be A2 [semiquavers], while B4 [semiquavers] remains unchanged.²²

(a) *TML*, example 1



(b) *Traité II*, p. 144



Ex. 3: *Sacrificial Dance*, figure 186 as analysed in (a) *TML*, example 1 and (b) *Traité II*, p. 144

In order to justify his addition of the duration taken up by individual rests to that of the preceding attack, Messiaen proposes a “law of relation between attack and duration”²³ and elaborates at some length on how all these silences may contribute to the ways we experience musical time:

A *brief* sound followed by a silence is *longer* to our internal perception of time – for an equal span of clock time – than a sound *held* for *the same duration* as the previous sound and silence. In the first case: two events attracted the attention of our ear and consciousness: the *sound*, and the *silence*. In

²² See Messiaen, *Traité II*, p. 138.

²³ *Ibid.*, p. 101.

the second case, only one event: the sound. In the case of sound [followed by] silence, our memory registered two events: the effort was doubled, and [hence] the impression of a longer duration. This perception is based on reality: for us, the duration was truly longer.²⁴

All three excerpts from *The Rite of Spring* to be examined below feature the use of attacks that are immediately followed by rests. In each case, Messiaen adds the duration taken up by a rest to that of the preceding attack in order to unearth any duration series that might have lurked behind the surface notation of the music. Boulez is less consistent in his analytical approach, as he varies between ascribing the duration of a rest to that of the preceding or the following attack.²⁵

Case study I: *Augurs of Spring* (figure 13)

According to Messiaen, the rebirth of rhythm calls for “a murderer of harmony and melody” and Stravinsky had metaphorically killed them both at specific moments in *The Rite of Spring*, including not least the *Augurs of Spring*:

We have here, perhaps for the first time in the history of Western civilized music, a purely rhythmic theme, a special partition of time that carries thematic weight, delivered to the listener through sounds so unimportant that they are almost noises ... This contempt for music as a phenomenon of sound to favour time, which is the medium, the unworthy vehicle, is something really unheard of. The loathing of sound – a *murderer* of harmony and melody – was necessary for the *rebirth* of rhythm.²⁶

²⁴ Ibid., p. 101. Messiaen then reflects on the distinction between clock time and internal time, and ventures further into physiological time and psychological time, citing Alexis Carrel's *L'homme, cet inconnu* in each case. In conclusion Messiaen asserts that childhood has a larger number of physiological and psychological events and therefore seems longer than adulthood and old age. Ibid., p. 101.

²⁵ Van den Toorn often treats a rest as distinct from the flanking attacks in his rhythmic analysis of *The Rite of Spring*. I shall return to discuss this in association with my critique of van den Toorn's “rhythmic Types I and II”.

²⁶ Messiaen, *Traité* II, p. 99; my emphasis. “Nous avons ici, pour la première fois peut-être dans l'histoire de la musique occidentale civilisée, un *thème purement rythmique*,

Figure 13 of the *Augurs of Spring*, where we hear the forceful and insistent repetition of a block chord (heard more as a noise?), is by far the best known among all such ‘murder’ cases. The block chord is thumped out by the strings through thirty-two consecutive quavers, with selected quavers accented and doubled by eight horns (Ex. 4). Because of the use of only one type of block chord and note value, the identity of the theme rests primarily on the irregular placement of accents.²⁷

The image displays a musical score for the 'Augurs of Spring' section of Stravinsky's 'The Rite of Spring'. The top part is a piano score in 2/4 time, featuring a continuous sequence of block chords. Above the piano staff, a series of numbers (2, 6, 3, 4, 5, 3) and brackets indicate rhythmic groupings. The piano part is marked with 'f' (forte) and 'sempre simile'. Below the piano staff, a horn part is shown with rhythmic notation, including quaver notes and rests, with accents marked by greater-than symbols (>). The horn part is divided into sections labeled 'a1', 'a2', 'b1', 'b2', 'b2', and 'b1'.

Ex. 4: Rhythmic analyses of figure 13 as a series of 2–6–3–4–5–3 quavers (Messiaen), a1–a2–b1–b2–b2–b1 rhythmic cells (Boulez), or an interplay between conflicting 2/4s (Cheong)

Instead of the commonplace hearing of thirty-two quavers with selected ones accented (Ex. 5a), Messiaen read into the music six durations (2–6–3–4–5–3), each of which is defined by the number of quavers that span successive accents. Ex. 5b reproduces Messiaen’s rhythmic reduction of the horn parts. The first attack is followed by a quaver rest, and the duration adds up to two quavers. The second attack is followed by a much

un découpage particulier de la durée ayant la force thématique, transmis à l’auditeur par des sons si peu importants qu’ils sont presque des bruits ... Ce mépris de la musique, en tant que phénomène sonore, au profit de la durée dont elle est le truchement, l’indigne véhicule, est quelque chose de proprement inouï. Le dégoût du son, meurtrier pour l’harmonie et la mélodie, était nécessaire à la renaissance rythmique.”

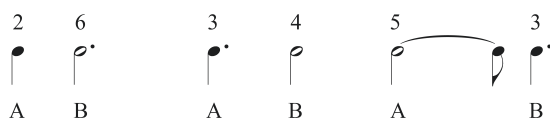
²⁷ Boulez calls it an “accent theme”. See Boulez, *Stravinsky Remains*, p. 68. This is an “accidental theme” in David Code’s terminology. See David Code, *The Synthesis of Rhythms: Form, Ideology, and the “Augurs of Spring”*, in: *The Journal of Musicology* 24 (2007), pp. 112–166, here p. 126.

longer rest, and the duration adds up to six quavers. Through this kind of rhythmic reduction, Messiaen interprets the “accent theme” as a duration series of 2–6–3–4–5–3 quavers, a pattern that alternates between A, which augments from 2 to 3 to 5 quavers, and B, which diminishes from 6 to 4 to 3 quavers, even though there is no difference between A and B where pitches are concerned. A and B are, in Messiaen’s terminology, rhythmic characters. He also draws a parallel between 2–6–3–4–5–3 and the Hindu rhythm *simhavikrīḍita* 1–3–2–3–3–3–2–3–1–3, which is included in the same analysis (Ex. 6). Messiaen’s discussion of rhythmic characters in *Traité* II becomes more concrete when compared to that in *TML* (not to mention *Le rythme chez Igor Strawinsky*) and there is a change of music examples from figure 186 of the *Sacrificial Dance* to figure 13 of the *Augurs of Spring*, but Messiaen hails *simhavikrīḍita* as a reference all the same.²⁸

(a) Eight horns at figure 13



(b) Messiaen's reading in *Traité* II, p. 100



Ex. 5: The six accented quavers: (a) played by eight horns at figure 13, and (b) analysed by Messiaen in *Traité* II, p. 100



Ex. 6: Hindu rhythm *simhavikrīḍita* interpreted as a duration series of
1-3-2-3-3-3-2-3-1-3 quavers

²⁸ At figure 186 as in *simhavikrīdita* one of the two rhythmic characters varies in time-span. Figure 186 of the *Sacrificial Dance* is, in this sense, more like *simhavikrīdita* than figure 13 of the *Augurs of Spring*.

Boulez's analysis of the accent theme

The publication of *Traité II* in 1995 enables us to assess the extent to which Boulez's analysis of *The Rite of Spring* is indebted to Messiaen's. Unacknowledged borrowing, if obvious at other points, is apparently not an issue in Boulez's reading of the accent theme. Unlike Messiaen, Boulez takes into account the notated metre of 2/4. He treats bars 1–2 as a preparatory gesture and each of the remaining six bars as a one-bar unit (see Ex. 4). Bars 3–6 are labelled as a1, a2, b1 and b2 respectively. Bar 7 shares with bar 6 the same label of b2, presumably because they share the same notation. Similarly, bar 8 shares the same notation with bar 5 and Boulez refers to both as b1.

The rhythmic theme is formed by accents over a regular flow of quavers. The first appearance of these repeated chords lasts eight bars and develops in units of two bars. We start with an unaccented preparation of two bars. Then cell A is divided into an accent on each weak quaver of the first bar (a1), and an accentual rest in the second (a2). Cell B is divided into an accent on the weak part of the strong beat of the first bar (b1) and an accent on the strong beat of the second bar (b2). The second B cell (B') is a retrograde of the first: b2–b1 with the same characteristics.²⁹

But this can be problematic. Although bars 5 and 8 are graphically the same, they are distinct in their musical effects. The same applies to bars 6 and 7. The reasoning is as follows. Selected accents added to the series of quavers do not comply with the notated 2/4. They frustrate it and establish the fleeting presence of a conflicting aural 2/4 (see Ex. 4). In

²⁹ Boulez, *Stravinsky Remains*, p. 68. Boulez then studies their recurrences in the music. His pairing of a1 and a2 as “A” and that of b1 and b2 as “B” leads him to designate the singleton recurrence of a1 or a2 as “A elided” and that of b1 or b2 as “B elided”. See Boulez, *Stravinsky Remains*, pp. 68–70. Code does without any such pairing in his analysis of the *Augurs of Spring*. He labels the opening eight bars simply from 1 to 8 and traces their recurrences all the way up to the end of the dance. See Code, *The Synthesis of Rhythms*, p. 157, for his example 13, “Summary chart of the form of ‘Augurs of Spring,’ indicating principal sections and proportional relationships”. (There is a typo in Code's graphic representation of the last four bars of figure 31. As shown in his example 11, only the fifth and sixth bars of the accent theme are recapitulated.)

order to explain this, let us consider all the six accents in sequence. The first accent is preceded by nine quavers, and prior to them the pentatonic motif ($D^b-B^b-E^b-B^b$), which clearly prefigures the notated 2/4. This explains why we hear the first accent as falling on an offbeat. By the time we reach bar 5, however, the same placement of an accent over the second quaver of the bar is no longer heard as falling on an offbeat, for the preceding two accents have effectively set up a conflicting 2/4, which differs from the printed one.

The two accents in bars 6–7 contradict the first three accents (bars 3–5) by restoring the notated metre. Again, these two accents share the same graphics but are different in musical effects. The fourth accent is placed on the downbeat of bar 6, but it impresses us as an offbeat owing to the prevailing aural metre.³⁰ The feel of a notated downbeat is, however, restored by the time we reach the fifth accent. This is ultimately followed by a hint at a return of the disruptive 2/4 brought by the last accent in bar 8. All this explains why we sense more resistance with the fourth and sixth accents when compared to the rest of them. The accents are not randomly planted. They effectively create and juxtapose two conflicting 2/4s – the notated metre and a contrasting aural metre.³¹

However much we are impressed by Messiaen's originality, his reading of the only block chord heard at figure 13 as rhythmic characters A and B fails to convince. His reading of these eight bars as a duration series of 2–6–3–4–5–3 quavers is just as questionable.³² Boulez's segmentation of

³⁰ The distinction between an aural and the printed metre is central to Jeanne Jaubert, *Some Ideas about Meter in the Fourth Tableau of Stravinsky's "Les Noces", or Stravinsky, Nijinska, and Particle Physics*, in: *The Musical Quarterly* 83 (1999), pp. 205–226. A much earlier discussion of the limitation of printed metres appears in Messiaen (*The Technique of My Musical Language*, pp. 28–29, and *Technique de mon langage musical*, p. 11). At figure 13 of the *Augurs of Spring* Stravinsky's notated 2/4 arguably stops acting simultaneously as an aural metre only when the conflicting 2/4 comes into being.

³¹ The music is perceptually "re-barred". Van den Toorn uses this word differently in situations where he contends that a governing metre undergoes frequent changes at the foreground. See chapter three ("Stravinsky Re-barred") in van den Toorn, *Stravinsky and The Rite of Spring*, and an article of the same title: *Stravinsky Re-barred*, in: *Music Analysis* 7 (1988), pp. 165–195.

³² Messiaen's reading of figure 13 as a duration series of 2–6–3–4–5–3 appears in Boulez's hand in his copy of the four-hand piano score housed at the Paul Sacher

bars 1–8 into seven accentual units may seem banal, but it makes better sense if we take into consideration the fact that they recur (individually or in groups) at different points in the dance. We know well how the accentual unit first heard in bar 3 recurs multiple times and eventually ends the *Augurs of Spring*.³³ Messiaen's duration series of 2–6–3–4–5–3 quavers obviously does not lend itself to fragmented use. A performance of the accent theme as varying multiples (i. e. 2–6–3–4–5–3) of a quaver will also eliminate much of the vigour and excitement that come with the conflict between the notated and aural metres.

Case study II: *Dance of the Earth*

Although Messiaen's theory of rhythmic characters falls short of illuminating the accent theme of the *Augurs of Spring*, it does not follow that it never works. Quite on the contrary, there are times when it works perfectly well. The *Dance of the Earth*, a frenzied dance that ends the first part of *The Rite of Spring*, is a case in point.³⁴ At the outset, the bass drum leads in, which is soon joined by the timpani, and they play together a

Foundation. It also reappears in Roger Nichols, *Stravinsky*, Milton Keynes 1978; van den Toorn, *Stravinsky and The Rite of Spring*; van den Toorn and John McGinness, *Stravinsky and the Russian Period: Sound and Legacy of a Musical Idiom*, Cambridge 2012; and Matthew McDonald, "Jeux de Nombres": Automated Rhythm in "The Rite of Spring", in: *Journal of the American Musicological Society* 63 (2010), pp. 499–551. Nichols takes into account the first nine quavers and reads into the series of 9–2–6–3–4–5–3 quavers two interlocking lines: 9–6–4–3 and 2–3–5. "These apparently random numbers make sense when split into two groups ... the top line is decreasing, the bottom line is increasing, and by respectively decreasing and increasing amounts." Nichols adds that "the way two different rhythmic 'orders' interfere with each other to produce apparent chaos is ... a typically Stravinskyan notion". See Vera Stravinsky and Robert Craft, *Stravinsky: In Pictures and Documents*, New York 1987, pp. 568–569, endnote 8. The latter extracts from Nichols's *Stravinsky*, though without specifying the page number. I am grateful to François de Médicis for pointing me to this information. Nichols's reading of 9–2–6–3–4–5–3 quavers is shared by van den Toorn, *Stravinsky and The Rite of Spring*, p. 69; *Stravinsky and the Russian Period*, p. 296, and McDonald, "Jeux de Nombres", p. 501.

³³ The pitches involved are, however, variable.

³⁴ The *Dance of the Earth*, in contrast to the *Sacrificial Dance* that ends the second part of the ballet, is a group dance. Stravinsky remarks that the earth is dancing.

multitude of quick notes nonstop. A whole-tone bass ostinato, strictly 3/4 in metre, is heard concomitantly and just as insistently. It is against this machine-like backdrop that three blocks of disparate material (A, B and C in Messiaen's labelling) are foregrounded. Juxtaposed in varying order at high speed, they demarcate the continuum of time as they add further to the energy and excitement of the music. A and C seem to revolve around B, which ends both the first main section (figures 72–74) and the *Dance of the Earth* as a whole (Ex. 7).³⁵

(a) Figures 72–74

Figure 72-74 shows the rhythmic reduction of blocks A, B, and C. Block A consists of a single note with a value of 4. Block B (mouvement droit) consists of a sequence of notes with values 4, 5, 3, and 4. Block C consists of a sequence of notes with values 2, 6, and 2. The notation includes rhythmic values and directions (droit, rétrograde) for each block.

Block A: 4

Block B (mouvement droit): 4 5 3 4

Block C: 2 6 2

Block A: 4

Block C: 2 4

Block C: 2 4 4

Block B (rétrograde): 3 5 4

Block C: 2 2 4 2 4 6

Block A: 6

Block C: 6

Block A: 4

Block B (droit): 2 4 5 3 4

Block B (rétrograde): 3 5 4 4 2

(b) Figure 78

Figure 78 shows the rhythmic reduction of blocks A and B. Block A consists of a single note with a value of 4. Block B consists of a sequence of notes with values 5, 5, 3, 3, and 4. The notation includes rhythmic values and directions (droit, rétrograde) for each block.

Block A: 4

Block B: 5 5 3 3 4

Ex. 7: Messiaen's rhythmic reduction of blocks A, B and C at (a) figures 72–74 and (b) figure 78 in the *Dance of the Earth* (*Traité II*, p. 105)

³⁵ Boulez views the dance as bipartite in structure, with the curtailed reprise of the first section heard as integral to the second section rather than as a third section. This squares with the fact that the reprise does not displace but is instead superimposed on the last six bars of the second section. Nevertheless, the perception of a tripartite design seems just as convincing. The reprise of the first section after the intervention of the second section marks one of the most dramatic moments in the dance. In addition, the outer sections take up twenty-four and six bars respectively and thus strike a perfect balance with the thirty-bar-long middle section. Similar interplays between “two-ness” and “three-ness” (Code’s words) operate on many different planes in *The Rite of Spring*.

Messiaen designates the arpeggio as A (bar 2), a sweeping ascent that is squeezed into the timespan of a crochet and dramatised by a crescendo (Ex. 8).³⁶ As in the accent theme of the *Augurs of Spring*, the exclusive use of one punctuating chord (C–E–G–F[#]) in B (bars 3–5) heightens our hearing of the rhythmic design.³⁷ C (bars 6–7) brings us fanfare-like quintuplets and triplets and more melodic interest, though the presence of pounding block chords remains a hallmark.³⁸



Ex. 8: Boulez's identification of the same three blocks in the *Dance of the Earth* (*Stravinsky Remains*, example 14)

Messiaen's designation of the three blocks of material as A, B and C simply follows the order in which they first appear in the *Dance of the Earth*. Boulez also attaches importance to these three blocks, and yet he calls them B, A, and A' instead.³⁹

³⁶ For Messiaen, A always begins with an arpeggio and is occasionally followed by a rest. For Boulez, however, it can be an arpeggio with or without rest(s), or even nothing more than just a rest.

³⁷ The repeating block chord of B is adorned with a few grace notes. When B recurs to end the dance, the grace notes disappear altogether.

³⁸ C is more varied in gesture than A and B. Boulez partitions its first appearance into five vertical segments. Messiaen, in contrast, treats the segments as varied repetitions of a block chord.

³⁹ Boulez could have labelled the arpeggio as A and the other two chord-based blocks as B and B' respectively if the avoidance of any overlap with Messiaen's labelling of A, B and C is not considered a factor. His designation of the arpeggio as B might have taken into consideration the fact that it plays a more subsidiary role as an anacrusis. Boulez does not explain why he chooses to call the three blocks B, A and A'. He need not do so. For there is no trace of Boulez's citing Messiaen's analysis of *The Rite of Spring* as a source, however hard we delve into *Stravinsky Remains*.

A – the C major triad with appoggiatura F[#]; B – an arpeggio of septuplet and sextuplet semiquavers preceded or followed by rests, where a process of elimination will leave only the silences; A' – an auxiliary of the C major chord in the form of a D major chord with sharpened fourth, itself auxiliary.⁴⁰

What makes Boulez's labelling of A, A' and B intriguing is, above all, the fact that he arrives at the same duration series as Messiaen's by focusing on the unyielding use of the C–E–G–F[#] block chord, possibly because it most forcefully asserts an aural metre that conflicts with the notated metre of 3/4. In the following discussion I shall adhere to Messiaen's labelling of the three different block chords in order to avoid any possible confusion.

Messiaen works out the underlying duration series of all the three blocks of material, and yet he comments only on the temporal design of B. His analysis of B in the *Dance of the Earth* falls perfectly in line with that of the accent theme in the *Augurs of Spring*. Messiaen lists the number of quavers that span successive attacks of the repeating block chord (C–E–G–F[#]) and reads into the discrete statements of B the following four duration series (Table 1):

Table 1: Messiaen's reading of the duration series of block B

Block B	Duration series (in quavers)	Total no. of quavers
Figure 72, bars 3–5	4–5–3–4	16
Figure 73, bars 3–4	3–5–4	12
Figure 74 (complete)	2–4–5–3–4–3–5–4–4–2	36
Figure 78 (complete)	5–5–3–3–4–5–5–2	32

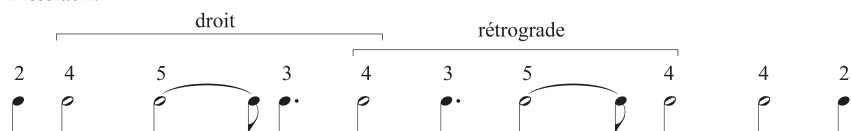
Messiaen's commentary is brief.⁴¹ He points out that selected segments of the duration series are retrogrades of one another. These include 4–5–3 and 3–5–4 in the first two statements of B (figures 72 and 73), which

⁴⁰ Boulez, *Stravinsky Remains*, p. 87.

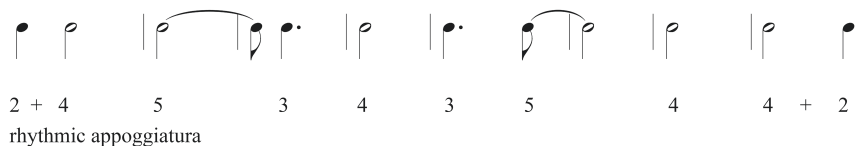
⁴¹ Messiaen, *Traité* II, pp. 105–106.

join hands and contribute to figure 74, the third and longest statement of B (Ex. 9). Messiaen interprets the concluding duration series of 5–5–3–3–4 (figure 78) as an extension of 5–3–4 (figure 72) through internal repetition (Ex. 10). The eventual appearance of 5–5–2, which ends the whole dance, is interpreted as a truncated restatement of 5–5–3–3–4.

Messiaen:

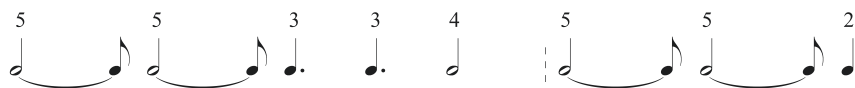


Boulez:

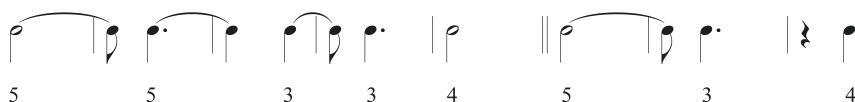


Ex. 9: Messiaen's and Boulez's rhythmic analyses of the third statement of B at figure 74 (*Traité II*, p. 105; *Stravinsky Remains*, p. 87)

Messiaen:



Boulez:



Ex. 10: Messiaen's and Boulez's rhythmic analyses of the fourth statement of B at figure 78 (*Traité II*, p. 105; *Stravinsky Remains*, p. 93)

Remarkably, Boulez adopts the same analytical strategy and works out nearly the same duration series in his analysis (Ex. 9 and Ex. 10).⁴² His commentary, which refers to the first three statements of B as A (I), A (II), and A (III), mostly restates the retrograde relationships pointed out by Messiaen, albeit in more elaborate terms:

A (I) starts and finishes with 4s, which thus makes a symmetry round the central dissymmetry 5–3. A (II) is the retrograde of A (I) with the final 4 omitted. A (III) is a combination of A (I) and (II) with a rhythmic appoggiatura 2 on the initial 4, and with this whole 2–4 cell added on to the end in retrograde, which gives a symmetry similar to the one we observed in A (I). (Note that while A (I) is prime and A (II) retrograde, A (III), as a combination of these two, is neutral; we can describe it as A (I) prime, then either A (II) prime or AI retrograde, this being a natural consequence of the retrogradings).⁴³

The only difference between Messiaen's and Boulez's duration series concerns the ending of the last series. Boulez's reading of 5–3–4 differs from Messiaen's 5–5–2, but in both cases the last two durations add up to 7, which is clearly not accidental.

This final schema for A [figure 78] is thus identical, in its initial phase, to the first schema of the first part [figure 72, bars 3–5], except that the odd values are repeated, while by contrast the even value comes only once. Its closing phase is a varied repetition of the second schema in part 1 [figure 73, bars 3–4], with the odd values reversed and the attack on the final, even, value delayed.⁴⁴

Boulez's insistence on tracing how one fragment might have been conceived of as a retrograde of another fragment seems to have led him to interpret the last two durations as 3–4 rather than 5–2. This calls for an unprecedented change of analytical rule. Up to this point, a rest has always been added to the duration of the preceding block chord. And

⁴² Boulez, *Stravinsky Remains*, p. 87.

⁴³ Ibid. Boulez's "AI" is a typo for "A (I)".

⁴⁴ Ibid., p. 93.

yet Boulez breaks the rule, adding the last crochet rest to the duration of the following block chord, and thereby changing the last duration from 2 to 4.⁴⁵ Having altered Messiaen's reading of 5–5–2 to 5–3–4, Boulez presents it as a distorted retrograde of 3–5–4, the duration series of the second statement of B (Boulez's A), and drives home an analytical point that reveals perhaps more about him than about Stravinsky.

Boulez's metrical reading

As mentioned in the foregoing, what Messiaen calls A, Boulez calls B, and what Messiaen calls B, Boulez calls A instead. Boulez might have found it necessary to name the three blocks of material differently from Messiaen in view of the many overlaps between their analyses. In addition, Boulez adds barlines to the duration series of B (Boulez's A) to indicate his reading of 2/4, an aural metre that is distinct from Stravinsky's notated metre of 3/4.⁴⁶ This is insightful. An aural metre of 2/4 is clearly pounded out by the repeating C–E–G–F# block chord of B.

Ex. 11: The superimposition of 2/4 and 3/4 in the *Dance of the Earth* (figure 74) versus Messiaen's reading of a duration series

More specifically, when B first appears at bars 3–5 of figure 72, the punctuating block chord strongly suggests six bars of 2/4 despite the fact that the music is notated as four bars of 3/4. All except one block chord are heard on the downbeat of an aural metre of 2/4. The only exception

⁴⁵ The penultimate duration is changed from 5 to 3 accordingly.

⁴⁶ Boulez, *Stravinsky Remains*, p. 87.

misses the downbeat by a quaver and fleetingly disrupts the 2/4. Similarly, when B recurs at bars 3–4 of figure 73, we hear three bars of 2/4 rather than two bars of 3/4. With just one exception (this time a quaver ahead of time), the C–E–G–F[#] block chord always concurs with the downbeat of the 2/4. The aural metre is reinforced when the preceding two statements of B are brought back in tandem from figure 74 to end the first main section of the *Dance of the Earth*. As shown in Ex. 11, the block chord is heard on the downbeat of an underlying 2/4, except for two points where it appears a quaver too late and a quaver too early respectively. These two points are highly charged in tension, as they disrupt and add rhythmic intricacy to what would otherwise be a rather mechanical use of 2/4.

The musical score for Ex. 12 is presented in two systems. The top system shows the vocal line (treble clef) and the piano accompaniment (bass clef). The vocal line begins with a melody in 5/4 time, marked 'ff sempre'. The piano accompaniment features a repeating block chord in 5/4 time, with a 'subito meno f e crescendo sino al Fine' marking. The bottom system continues the vocal and piano parts, with the piano part showing a series of chords and a final 'ff' marking. The score is divided into measures by vertical bar lines, with some measures containing multiple bar lines to indicate complex rhythmic structures.

Ex. 12: The superimposition of 5/4 and 3/4 in the *Dance of the Earth* (figure 78) versus Messiaen's reading of a duration series

When B appears for the last time (figure 78) to end the dance as a whole, however, a 2/4 reading reveals a very different scenario (see Ex. 10). The repeating block chord affirms the downbeat of only three out of the purported eight bars of 2/4. This ratio is substantially lower when compared to the preceding three statements of B (respectively 3 bars out of 4, 2 bars out of 3, and as many as 7 bars out of 9), all of which fit well a 2/4 reading. It is questionable whether the fourth statement of B still claims 2/4. If we do without Boulez's 2/4 reading and propose an aural metre of 5/4, however, the rhythmic design of the last statement of B becomes lucid (Ex. 12). My reading of a 5/4 can of course be interpreted as 2/4 plus 3/4 or vice versa, but the conjecture that 2/4 may have alternated

with $3/4$ implies that neither of them is used on its own. Stravinsky might have ventured to forge a momentous culmination with the superimposition of $5/4$ and $3/4$, having superimposed $2/4$ over $3/4$ at the outset of the dance. This is further complicated by the division of each beat of the notated $3/4$ metre into two and three respectively in the first and middle sections of the *Dance of the Earth*, and concomitantly into two and three when the first two sections become superimposed in the last section. There are clear signs that this wild dance is meticulously calculated and controlled.

Although it is not clear whether Boulez's ill-fitted $2/4$ reading of the last statement of B had led him to reproduce Messiaen's duration series in his analysis, it seems clear that Boulez adopts essentially a metrical approach, one that is missing from Messiaen's analysis. But it is questionable why the duration series should matter musically. As in the accent theme of the *Augurs of Spring*, a performance that treats the block chords in the *Dance of the Earth* as whole-number multiples of a quaver would lose much of the excitement generated by pitting them as time points that fall in and out of phase with the notated metre of $3/4$. The duration series resonate well with Messiaen's expressed liking of an additive, if not serial, approach to rhythm and also music that is ametric in makeup, and they are technically and aesthetically closer to Messiaen and Boulez than to Stravinsky at the time he composed *The Rite*.

When compared to the accent theme of the *Augurs of Spring*, Messiaen's theory of rhythmic characters makes better sense in the *Dance of the Earth* (bars 1–24). A, B and C are distinct in gesture. A remains largely immobile, while B and C do not simply augment or diminish and therefore are not readily definable as rhythmic characters. A, B and C, distinct as they are, share the same bass ostinato. The bass ostinato asserts an uncompromising and machine-like regularity of $3/4$.⁴⁷ The conflicting metre of $2/4$ asserted by B is just as defiant in gesture. The music is characterised by a head-on conflict between this pair of metres. However hard the $2/4$ strikes, the $3/4$ remains unfaltering. There is of

⁴⁷ What boil down to be three crochets to a bar are perpetually reiterated by the bass ostinato to outline a whole-tone ascent. $F^\sharp-G^\sharp-B^b$ is at times extended into an ascent of $F^\sharp-G^\sharp-B^b-C-D-E$ to take up two rather than just one bar.

course nothing new to the use of two against three in Western art music, but the way Stravinsky sets up 2/4 and 3/4 as conflicting metres in the *Dance of the Earth* is blatantly raw, and unprecedentedly so.⁴⁸

Case study III: *Sacrificial Dance* (first couplet)

The first couplet of the *Sacrificial Dance* shares with the *Augurs of Spring* and the *Dance of the Earth* the same insistent repetition of block chords, though here they are used to achieve quite different aesthetic ends. The repeating block chords are often subdued in tone. No thumping out is allowed even when the music becomes climactic in expression. The repetition of block chords goes on for a prolonged period of time, eighty-two bars to be exact, to take up the whole couplet. A backdrop is thereby set up, against which the wind and brass interject brusquely and irregularly.



Ex. 13: The first couplet of the *Sacrificial Dance*, figures 149–150

Ex. 13 shows the opening bars of the first couplet. Throughout the first couplet, the notated metres are restrictively 2/8 and 3/8, with 2/8 as the

⁴⁸ Code (*The Synthesis of Rhythms*) discusses a similar layering of 2/4 and 3/4 in the *Augurs of Spring*. Realised through light-weighted melodic strands rather than any such pounding block chord, they are much less violent in effect.

prevailing one.⁴⁹ What I find most striking about the first couplet is that the repeating block chords are assigned only two durations – either one or two quavers, henceforth the short and the long – if we adopt the kind of rhythmic reduction advocated by Messiaen. The duration that spans successive attacks is expressed in terms of the number of quavers involved, with all intervening rests added to the timespan concerned. Since every attack deployed throughout these eighty-two bars is, without any exception, a semiquaver or a quick succession of two demisemiquavers, the ensuing rest, which occupies either one or three semiquavers, is a decisive factor. When an attack is followed by a short rest of only one semiquaver, they are combined to give a duration that lasts a quaver. When an attack is followed by a long rest of three semiquavers, they are combined to give a duration that lasts two quavers instead. The stringent use of only two durations (either one or two quavers) boosts rhythmic uniformity, but the permutation of the longs and the shorts is highly unpredictable, suggesting that the rhythm is worked out, for the most part, additively.

total de 13 croches
Bacchius

Anapeste

Spondée

Total de 16 croches
Iambe

Anapeste

Amphimacre

Spondée

thème : anacrouse

accent trillé

désinence

thème :

Total de 22 croches

Amphimacre

Spondée

Trochée

Iambe

Trochée

Dactyle

Total de 16 croches
Iambe

Ex. 14: Messiaen's reading of Greek rhythms in the *Sacrificial Dance*, figures 149–152 (*Traité II*, pp. 134–135)

⁴⁹ 4/8 appears only once in figure 161.

The first couplet is certainly more ametric in effect when compared to the accent theme of the *Augurs of Spring* and the C–E–G–F[#] block chord of the *Dance of the Earth*. The exclusive use of two durations, the long being an exact double of the short, leads Messiaen to argue that Stravinsky had filled this passage with an exceptionally rich display of Greek rhythms (Ex. 14). The ambiguities encountered when grouping the multitude of longs and shorts into different Greek rhythms owe much to the fact that often only one block chord is repeated hypnotically.⁵⁰ Changes in pitch profile, instrumentation and texture would have offered critical clues when conducting scansion. Nevertheless, Stravinsky's beaming of notes is considered a key indicator in Messiaen's analysis of the first couplet:

Another analysis of the first couplet, taking into account the beams Stravinsky used for the grouping of semiquavers or demisemiquavers with reference to the Boosey & Hawkes edition. To facilitate reading, I transcribe the score notation into sustained notes [quavers and crochets]. Numerous Greek rhythms are to be found here [figures 149 to 167].⁵¹

For instance, in the opening two bars, three semiquaver attacks are beamed and interleaved with one short and two long rests respectively. Messiaen's rhythmic reduction reveals a short–long–long pattern or *bacchius* in the terminology of Greek rhythm. With recourse to rhythmic reduction as such, Messiaen identifies anapests (short–short–long) and spondees (long–long) in the following bars and altogether forty-five rhythmic patterns – thirteen distinct Greek rhythms – in the first couplet. The Greek rhythms comprise different numbers of quavers (basic duration units), ranging from three to seven. Most of them comprise four or five quavers and take up two bars, but a few three-quaver ones

⁵⁰ The first couplet begins with a block chord (D–E–F–G–A) that is played forty-two times in a row (figures 149–153). It is subsequently transposed down a tone and played twenty-one times consecutively (figures 162–164). Other block chords are repeated less persistently.

⁵¹ Messiaen, *Traité* II, p. 134. "Autre analyse du 1^{er} Couplet, en tenant compte des ligatures en enjambement utilisées par Stravinsky pour ses groupes de doubles croches ou triples croches, et d'après l'Édition Boosey and Hawkes. Pour la facilité de la lecture, je transcris le texte en sons tenus. Nous allons y trouver de nombreux rythmes grecs."

reside in a bar. Only two Greek rhythms comprise seven quavers and occupy three bars. They are situated at a climactic point three bars before and after figure 160.

This is telling. That the most extended Greek rhythms emerge at a climax strengthens the argument that the beams are not just arbitrarily added. Although Messiaen discovers a wealth of Greek rhythms in the first couplet, it does not stop him from applying his theory of rhythmic characters to arrive at a markedly different analysis.⁵² In it, Messiaen plays down the importance of beams as possible signifiers of scansion of the longs and shorts and argues instead that two rhythmic characters A and B alternate throughout the first couplet.

A 3 croches | B 5 noires

A 3 croches (immobile) | B 3 noires (il décroît)

A 3 croches (immobile)

thème : [5-beam] [5-beam] [6-beam]

thème : [9-beam] [5-beam] [6-beam]

B 3 noires

A 3 croches (immobile) | B 6 noires (il croît)

A 3 croches (immobile)

Ex. 15: Messiaen's reading of rhythmic characters A and B in the *Sacrificial Dance*, figures 149–152 (*Traité* II, p. 132)

Messiaen interprets instances of short–long and long–short collectively as the rhythmic character A, which remains immobile (Ex. 15). All the outstanding rhythmic patterns are then interpreted as different manifestations of the rhythmic character B. Since any pattern that is not A is B, the latter is unavoidably varied in rhythm and in this sense plays a

⁵² Messiaen, *Traité* II, pp. 132–134 and pp. 134–136.

mobile role.⁵³ Messiaen's espousal of his theory of rhythmic characters leads him, on this occasion, to ignore Stravinsky's beaming of notes and, more regrettably, to impose groupings that severely violate those that are meticulously engraved in the score.

Boulez's analysis of the first couplet

The rhythmic patterns identified by Boulez overlap with Messiaen's except for five Greek rhythms that appear only once in the first couplet (Table 2).⁵⁴ This is not to say that he slavishly borrows. Boulez makes no reference to Greek rhythms and adopts labels such as a5 and c4 instead, presumably because they can show, almost at a glance, how rhythmic patterns or cells (Boulez's word) are related.

We can see straight away that the component cells come in families of two: b4, c4 – even values (four quavers); a3, a5 – uneven values (three and five quavers); c4 is neutral in character, since it cannot be retrograded, whereas b4 and a3 can, and a5 can be either neutral or retrogradable, thus providing a link between the other three cells.⁵⁵

As shown in Ex. 16, each label comprises a letter, an integer and an optional arrow. For instance, long–short–long, short–long–long and long–long–short are denoted as a5, a5→ and a5←; the integer indicates the number of quavers involved, while the arrows in a5→ and a5← show that they are retrogrades of each other.⁵⁶

⁵³ On two occasions (at the end of both figure 160 and the first couplet) Messiaen treats a long–short pattern as part of a statement of the rhythmic character B, but these are the only exceptions.

⁵⁴ See Appendix for a chronological listing of all the rhythmic patterns identified by Messiaen and Boulez in the first couplet.

⁵⁵ Boulez, *Stravinsky Remains*, p. 70.

⁵⁶ It is not clear what the letters stand for except that the first three rhythmic patterns are labelled as a5→, b4→ and c4 respectively. It seems inconsistent to label rhythms with three or five quavers as “a” when rhythms with four quavers are given the label of either “b” or “c”. While Boulez places an arrow either above or behind such labels as a5 or b4, I opt for the latter to simplify typography.

The Rite of Spring: Rhythmic Rebirths as Delivered by Messiaen and Boulez

1st period

1st period

III. (= II permuted, developed and retrograded) IV. (=II)

2nd period

2nd period

3rd period

3rd period

4th period

4th period

5th period

5th period

II. (permuted) III. (elimination of b4)

6th period

6th period

III. (permuted)

Ex. 16: Boulez's analysis of the first couplet (*Stravinsky Remains*, example 8)

Table 2: Rhythmic patterns (Greek rhythms) shown in Boulez's and Messiaen's lists

Boulez	Messiaen
a5→, a5←, a5	Bacchius, Antibacchius, Amphimacre
b4→, b4←	Anapeste, Dactyle
c4	Spondée
a3→, a3←	Iambe, Trochée
b2 (listed belatedly)	(no corresponding pattern)
(no corresponding pattern)	Amphibraque, Péon III, Épitrite II, Épitrite IV, Péon I

Although Boulez may have taken advantage of Messiaen's analytical findings, he ventures beyond them to explore less familiar terrains. One key question posed by Boulez is how Stravinsky might have organised the rhythmic patterns schematically, since it seems unlikely that Stravinsky would have lined up so many Greek rhythms without considering how their deployment may affect our perception.⁵⁷ As a first step towards answering this question, Boulez eliminates Greek rhythms that appear only once in the first couplet:

1. Short–long–short (Amphibraque), which appears only once, two bars before figure 157, is converted into short–short–long, which is on Boulez's list. This requires that Boulez breaks his analytical rule in the course of the rhythmic reduction and counts two-thirds of the long rest towards the duration of the following attack.
2. Boulez's formulation of b2, which appears belatedly in his analysis, helps eliminate the three odd cases located between figures 159 and 160. While Messiaen observes Stravinsky's beaming and accepts these three cases as Péon III, Épitrite II and Épitrite IV, Boulez renders each of them as b2 plus a different rhythmic cell from his list.

⁵⁷ Although Messiaen does not take the interrelationship between different Greek rhythms into account when analysing the first couplet, his chapter-long discussion of Greek rhythms in *Traité* I is solid proof that he is fully aware of it.

3. Towards the end of the first couplet, Boulez rejects Péon I as yet another Greek rhythm that appears only once in the music and decomposes it into rhythmic patterns that comply with his list.

It is worth asking why Boulez finds it necessary to eliminate Greek rhythms that appear only once by violating his own analytical rule. Having finalised his list of nine distinct rhythmic cells, which differs from Messiaen's list of thirteen different Greek rhythms, Boulez asserts that the rhythmic cells are organised into more extended patterns, which he calls fragments I to IV:

One notices that fragment II is a permutation of cells a5 and b4 from fragment I, with a5 becoming neutral, and with the addition of a3. Fragment III is a (diagonal) permutation of II with a3 augmented on both sides by its own retrograde. Finally fragment IV is a return to the layout of fragment II.⁵⁸

What Boulez refers to as the first period (figures 149–153) commences with fragments I to IV (Table 3). In Boulez's view, "all the following periods (indicated each time by a change of chord) are derived from the first [period]".⁵⁹ In short, the rhythmic organisation of the first couplet is derivative in basis:

We can see what extraordinary richness of rhythmic variation can be achieved, without change to the cell durations, but by simple permutation and the operation of a process as simple as retrogradation.⁶⁰

But is it truly so? Table 3 aligns what Boulez understands as the varied restatements of I, II and III to their respective paradigms. The extent to which they differ is astounding. Only the varied restatement of III in the fifth period closely resembles the paradigm.⁶¹ Boulez's argument is at its weakest in the fourth and sixth periods. It is hard to understand,

⁵⁸ Boulez, *Stravinsky Remains*, p. 72.

⁵⁹ Ibid.

⁶⁰ Ibid., p. 73.

⁶¹ At the outset, the fifth period recapitulates the repeating block chord and the four rhythmic cells with which the first period begins. Boulez's reading of the four

for instance, what drives Boulez to assert the fourth period as comprising the varied restatements of I and II. That he fails to hear the literal restatement of I, an obvious case of isorhythm, at the outset of the sixth period is just as perplexing.⁶²

Table 3: Fragments I to IV (shaded) and their varied restatements as proposed by Boulez

period 1	I (figure 149) a5→, b4→, c4	II (figure 150) a3→, b4→, a5, c4	III (figures 151–52) a5, c4, a3←, a3→, a3←, b4←	IV = II (figure 153) a3→, b4→, a5, c4
period 2	I c4, a5→	II c4, a3←, a5→, b4←, b4→		
period 3	I b4←, a5←	II a3←, a5←		
period 4	I b2, a3←, b2, a5→	II b2, a5←		
period 5		II (permuted) a5→, b4→, a3→, c4	III (elimination of b4) a5, c4, a3←, a3→, a3←	
period 6			III (permuted) a5→, b4→, c4, a3→, a3←, a3→	

Boulez's reading of I–II–I–II–I–II–II (permuted)–III (b4 eliminated)–III (permuted) as varied restatements of I, II and III is deeply flawed, his contention that the whole couplet can be derived from I, II and III is at best problematic. Boulez is apparently attracted to the idea of an order-

rhythmic cells of the fifth period as constituting a permuted restatement of II is problematic.

⁶² Ironically, Boulez extols the use of isorhythm in music by Philippe de Vitry, Guillaume de Machaut and Guillaume Dufay with much enthusiasm. See Boulez, *Stravinsky Remains*, p. 109.

ly progression from I to II to III, and he might have deliberately reduced the number of rhythmic cells in order to forge his argument.

Metric versus ametric readings of *The Rite of Spring*

The three case studies are revealing. An important theoretical underpinning in Messiaen's analysis of *The Rite of Spring*, a point first made in *TML* together with his discussion of figure 186 of the *Sacrificial Dance*, is that Stravinsky's rhythmic approach is additive in conception at the tactus level. Messiaen's allusion⁶³ to "the feeling of a short value (the sixteenth-note [semiquaver], for example) and its free multiplications" clearly anticipates his later use of the so-called chromatic durations in the *Strophes I* and *II* of *Chronochromie* (1963). Thirty-six durations, ranging from the first to the thirty-sixth multiples of the same "short value", demisemiquaver in this case, are engaged to set up rhythmic profiles and thereby safeguard the creation of an ametric sound world. With the publication of *Traité II* in 1995, it becomes evident that Messiaen, and Boulez following him, had envisaged in *The Rite of Spring* the dawning of ametric music, which at once resurrects old rhythmic practices (Greek and Hindu rhythms) and projects new ones, not least the serialisation of durations.

In contrast, van den Toorn's understanding of Stravinsky's rhythm is consistently metric. There is scarcely any trace of Messiaen's concerns as to how an additive approach to rhythm might be conducive to ametric writing in van den Toorn's theorisation about the rhythmic language of *The Rite of Spring*, though his "rhythmic Types I and II" are to date commonly viewed as the theoretical models that encapsulate the crux of Stravinsky's rhythmic innovations in the ballet.⁶⁴ In *The Stravinsky Legacy* Cross affirms the "rhythmic Types I and II" and expresses that van den Toorn (1987) and Taruskin (1996) are in accord where the "two basic aspects of the rhythmic language of *The Rite*" are concerned:

⁶³ Messiaen, *The Technique of My Musical Language*, p. 14.

⁶⁴ The near canonic status acquired by these models is comparable to that attained by van den Toorn's research work on Stravinsky's octatonicism, in which he designates the three octatonic collections in a similar fashion as I, II and III.

Taruskin and van den Toorn *agree* on the two basic aspects of the rhythmic language of *The Rite*. The first is what Taruskin calls the “immobile” ostinato and corresponds to van den Toorn’s “rhythmic Type II” which is characterised by foreground metric regularity. ... Immobility also allows for the possibility of the “superimposition of two or more motives that repeat according to periods, cycles, or spans that are not shared but vary independently of, or separately from, one another” (van den Toorn [1987, p. 100]) – as in the *Cortège du sage*. ... The second basic aspect of the rhythmic language of *The Rite* is described by Taruskin [1996, p. 959] as of an “‘invincible and elemental’ kind, and it was truly an innovation – for Western art music, that is. ... This is the rhythm of irregularly spaced downbeats, requiring a correspondingly variable metric barring in the notation”, and resulting in variable metric stress. This corresponds to van den Toorn’s “rhythmic Type I”, which is characterised by “foreground metric irregularity; an irregular or shifting meter” and which he further associates with the definition of block structures.⁶⁵

Although the second of Taruskin’s “two basic aspects of the rhythmic language of *The Rite*” maps well to van den Toorn’s “rhythmic Type I”, Cross’s mapping of the first of them (“what Taruskin calls the ‘immobile’ ostinato”) to “rhythmic Type II” is problematic. As explained below, “rhythmic Type II” is defined first and foremost by the “superimposition of two or more motives that repeat according to periods, cycles, or spans that are not shared”, but this is clearly not integral to what Taruskin understands as the first of “the two basic aspects of the rhythmic language of *The Rite*”. In Cross’s understanding, van den Toorn’s “rhythmic Types I and II” are distinguished by “foreground metric irregularity” and “foreground metric regularity” respectively. Yet I argue that the main difference between the two types hinges on whether one rhythmic layer (Type I) or more (Type II) are superimposed, for van den Toorn makes it clear that the metre in each layer may or may not change:

Occasionally, a shifting meter is applied to a Type II construction, which will in turn reflect the unstable or ‘mobile’ periods of one of the several reiterating fragments.⁶⁶

⁶⁵ Cross, *The Stravinsky Legacy*, pp. 85–86; my emphasis.

⁶⁶ Van den Toorn, *Stravinsky and The Rite of Spring*, p. 100.

The decisive factor is that at least two rhythmic layers in a Type II structure should repeat patterns with periodicities that are incompatible. I am thus intrigued as to whether Type II is not a misnomer, since it can be formed by involving the superimposition of one or more layers of Type I. If Type II can draw on Type I, does it make sense to conceptualise it as something distinct? The question boils down to what criteria are set up to distinguish between the two types, and whether texture is not just as important a criterion as metric regularity or irregularity at the foreground level.

Just as van den Toorn's metre-based "rhythmic Types I and II" do not take into consideration Stravinsky's possible use of an ametric approach to rhythm, Messiaen marginalises metre as a factor in his theory of rhythmic characters. Individual durations are interpreted as rhythmic characters in the accent theme of the *Augurs of Spring*, which contrasts with the interpretation of duration series as rhythmic characters in the outer sections of the *Dance of the Earth* and in the first couplet of the *Sacrificial Dance*. Rhythmic characters as such are typically juxtaposed in the course of which they augment or diminish in duration. They are additive rather than divisive in conception and more tilted towards the ametric than the metric in effect.

Messiaen's theory of rhythmic characters fares well in the *Dance of the Earth*, but it makes little sense when applied to the *Augurs of Spring* and the first couplet of the *Sacrificial Dance*. In each case, Messiaen's use of his signature rhythmic reduction at the expense of metre leads him to argue that duration series are employed. These include 2–6–3–4–5–3 in the *Augurs of Spring*, 2–4–5–3–4–3–5–4–4–2, the lengthiest duration series, in the *Dance of the Earth*, and what may be understood as a vastly extended duration series, comprising only longs and shorts, in the first couplet of the *Sacrificial Dance*. The durations featured are invariably multiples of the shortest duration in use. We detect, therefore, an allusion to the additive approach that has been touched on in *TML*. While this approach can be used to create metric settings, it is valued even more for being able to explore rhythms that are not usually feasible within the metric world. Hence the notion of duration series is more applicable to the first couplet of the *Sacrificial Dance*, in which Messiaen's insightful reading of Greek rhythms matches well the grouping of longs and shorts,

as signified by Stravinsky's beaming of notes. In contrast, the notion of duration series is forcibly applicable only to the *Augurs of Spring* and the *Dance of the Earth*, which are markedly metric in effect.

Messiaen's duration series often recur in Boulez's analysis of *The Rite of Spring* and yet he refutes Messiaen's reading of a 2–6–3–4–5–3 duration series in the accent theme of the *Augurs of Spring*. Stravinsky's notated metre of 2/4 is pivotal to Boulez's partition of the accent theme into bar-long units. Metre is also considered an important factor in Boulez's analysis of the *Dance of the Earth*, in which he demonstrates how the aural metre of 2/4 rather than the notated metre of 3/4 might have informed the rhythmic design of the C–E–G–F[#] block chord. In his analysis of the first couplet of the *Sacrificial Dance*, however, Boulez gives up a metric reading and sides with Messiaen in his opinion that the underlying rhythmic scheme is essentially additive in its basis.

An additive approach is indeed more conducive to the creation of an ametric setting, which is generally defined negatively. Simply put, any setting that is not metric is ametric.⁶⁷ Nevertheless, Stravinsky's rhythmic inventions in *The Rite of Spring* prompt us to rethink the conventional dichotomy between the metric and the ametric. Do they constitute antithetical poles that defy any mediation? Or perhaps a continuum of multiple gradations? Can they overlap to some extent? And can the metric accommodate the ametric and vice versa? In short, it is crucial to review whether *The Rite of Spring* should be granted a uniformly metric hearing as advocated by van den Toorn in view of the fact that an ametric hearing of it adds substantially to our understanding of Stravinsky's rhythmic language. There is certainly a lot more to the metric-ametric dichotomy in *The Rite of Spring* than has been explored by Messiaen, Boulez, or, for this matter, van den Toorn and McGinness.

⁶⁷ It is in this sense comparable to the tonal-atonal pair. In both cases composers turned their back on convention in order to explore novel aesthetic possibilities.

Epilogue

Let us move full circle back to the quotation from *Traité* II with which we began our discussion. Messiaen had suggested that Stravinsky “murdered” melody and harmony in order to clear creative space for the “re-birth” of rhythm. Incidentally, *Stravinsky Remains* ends with a similar remark, though Boulez had chosen to evoke the imagery of a grave rather than a murder, and give credit to Claudin Le Jeune rather than Igor Stravinsky:

Rhythm was brought by them [the ancients] to such a pitch of perfection that they could create marvellous effects with it ... Ever since, this rhythmic technique has been so neglected as to become utterly lost ... There has been nobody to apply a remedy, until Claudin Le Jeune, who was the first to be bold enough to disinter this poor rhythmic technique from the grave where it had lain for so long, and give it equality with harmony.⁶⁸

The notions of death and rebirth that surface in Messiaen’s and Boulez’s comments on the evolution of rhythm in the light of *The Rite* are of course integral to the ballet. “By a strange fate of accident”, Michael Tilson Thomas intriguingly remarks, “the notes in the bass part of the very last note [*sic*] of the piece are, reading from the bottom, D–E–A–D, dead.”⁶⁹ Quite apart from blotting out melody and harmony at selected points of *The Rite of Spring*, Stravinsky might be charged with at least one more murder case. For Debussy’s ballet *Jeux* was virtually killed only a fortnight after its premiere as *The Rite of Spring* came on board and took Paris by storm.⁷⁰ The *succès de scandale* of *The Rite* is of course also a heavy blow to Schoenberg,⁷¹ to whom the number 13 always seemed

⁶⁸ Boulez, *Stravinsky Remains*, pp. 109–110.

⁶⁹ Thomas’s documentary *Stravinsky’s “The Rite of Spring”* ends with this remark. See 2’12” in: <<https://www.youtube.com/watch?v=n9nKrHE-6eI>>, accessed 17 September 2013.

⁷⁰ *Jeux* was premiered on 15 May 1913, also at the Théâtre des Champs-Élysées and under the baton of Pierre Monteux.

⁷¹ The first public performance of *Pierrot Lunaire* (Berlin, 16 October 1912) is arguably also a *succès de scandale*.

to be an ill omen, be it 1913, the year Stravinsky premiered *The Rite of Spring*, figure 13, which marks the onslaught of the *Augurs of Spring*; or 13 July 1951, the day of Schoenberg's own death. Furthermore, Boulez had eclipsed Messiaen's ideas by publishing *Stravinsky Remains* to his own credit, and even Messiaen might have distorted Stravinsky's rhythmic inventions by conceptualising them through the lens of rhythmic characters.

Messiaen and Boulez, despite their many differences in opinions, are singularly united in their keen interest in the rhythmic achievements of *The Rite*, discerning in it a wealth of possibilities that await exploration "forty years on" from the legendary premiere of the ballet. Boulez, then in his late twenties, wrote confidently:

All things considered, I conclude that this work has, in spite of and thanks to its defects, as great a value in the evolution of music as, for example, *Pierrot Lunaire*. For, while one can perpetuate nothing of the tonal method of *The Rite*, which is a mere survival (as is that of *The Wedding*), the rhythmic technique, by contrast, still remains practically unexplored, at least as regards its internal consequences ... It is worth saying that few works in musical history can pride themselves on not having exhausted their potential for innovation forty years on. Here, the innovation is on a single plane, that of rhythm; but even with this limitation, it represents a degree of invention and a quality of discovery that are deeply to be envied.⁷²

Although Boulez did not make clear how the "internal consequences" of Stravinsky's rhythmic technique might be further explored, when we reach the last page of Boulez's extended analysis, it becomes obvious that total serialism is one major concern. Reminiscing nostalgically that "before the simplistic resource of the barline, there was a move to integrate the rhythmic elements of music in a coherent fashion alongside the elements of harmony and counterpoint", Boulez cries out for action:




I suggest the need to release rhythm from that 'spontaneity' which has been generously accorded to it for much too long; release it, that is, from being strictly speaking an expression of polyphony, and advance it to the rank of

⁷² Boulez, *Stravinsky Remains*, p. 107.

principal structural agent by recognizing that it can pre-exist polyphony, with the eventual aim of still more tightly – but how much more subtly – binding together polyphony and rhythm.⁷³





























In a metaphorical sense, Boulez may need to kill Schoenberg (*Schoenberg is Dead*) and elevate Stravinsky somewhat (*Stravinsky Remains*) in order to position himself as the ringleader of total serialism. Messiaen’s major concern, on the other hand, is the diametrically different issue of rhythmic characters. The fact that his analysis of *Turangalila-symphonie* rather than that of *The Rite of Spring* constitutes the main core of the chapter titled “Les personnages rythmiques” is telling. *The Rite* is greatly valued, but after all *Turangalila-symphonie* matters more. Messiaen had evidently endeavoured to show through chapter three of his *Traité* II that the rhythmic techniques he learnt from Stravinsky were developed further and put to very good use in his music. A century has elapsed since the premiere of *The Rite of Spring*, yet our hearings of Stravinsky’s rhythmic innovations remain in flux. Perhaps this will always be so. The rhythmic rebirths as delivered by Messiaen and Boulez have over time become overshadowed by other readings. They are as divergent as they are many, as we continue to feel enticed, almost compelled, to add to this legendary work layers of regenerating meanings.

Appendix: Rhythmic patterns identified by Messiaen and Boulez
in the first couplet

Figure	Metrons	Messiaen	Boulez	
149		5	Bacchius	a5→
		4	Anapeste	b4→
		4	Spondée	c4
				I

⁷³ Ibid., p. 110.

Figure		Metrons	Messiaen	Boulez	
150		3	Iambe	a3→	II
		4	Anapeste	b4→	
		5	Amphimacre	a5	
		4	Spondée	c4	
151		5	Amphimacre	a5	III
		4	Spondée	c4	
		3	Trochée	a3←	
152		3	Iambe	a3→	
		3	Trochée	a3←	
		4	Dactyle	b4←	
153		3	Iambe	a3→	IV
		4	Anapeste	b4→	
		5	Amphimacre	a5	
		4	Spondée	c4	
154		4	Spondée	c4	
		5	Bacchius	a5→	
155		4	Spondée	c4	
		3	Trochée	a3←	
		5	Bacchius	a5→	
156		4	Dactyle	b4←	
		4	Amphibnaque	b4→ (┐┐┐)	
157		4	Dactyle	b4←	I
		5	Antibacchius	a5←	

Figure		Metrons	Messiaen	Boulez	
158		3	Trochée	a3←	II
		5	Antibacchius	a5←	
159		5	Péon III	b2 ()	I
		7	Épitrite II	a3← () b2 () a5→ ()	
160		7	Épitrite IV	b2 () a5← ()	II
161		7			
162		5	Bacchius	a5→	II
		4	Anapeste	b4→	
		3	Iambe	a3→	
		4	Spondée	c4	
163		5	Amphimacre	a5	III
		4	Spondée	c4	
(164)		3	Trochée	a3←	
		3	Iambe	a3→	
		3	Trochée	a3←	
165		5	Bacchius	a5→	
		4	Anapeste	b4→	
166		4	Spondée	c4	
		3	Iambe	a3→	
		5	Péon I	a3← () a3→ ()	

References

- Barraqué, Jean: *Rythme et développement*, in: *Polyphonie* 9–10 (1954), pp. 47–73.
- Bernard, Jonathan W.: “*Le Sacre*”, *Analyzed*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidy Zimmermann, London 2013, pp. 284–305.
- Boivin, Jean: *La Classe de Messiaen*, Paris 1995.
- Boivin, Jean: *Musical Analysis According to Messiaen: A Critical View of a Most Original Approach*, in: *Olivier Messiaen: Music, Art, Literature*, ed. by Christopher Dingle and Nigel Simeone, Aldershot 2007, pp. 137–157.
- Boulez, Pierre: *Proposals*, in: id., *Stocktakings from an Apprenticeship*, trans. Stephen Walsh, Oxford 1991, pp. 47–54.
- Boulez, Pierre: *Propositions*, in: *Polyphonie* 2 (1948), pp. 65–72.
- Boulez, Pierre: *Schönberg est mort*, in: *Relevés d'apprenti*, ed. by Paule Thévenin, Paris 1966, pp. 265–272 [originally published in: *The Score*, 1952].
- Boulez, Pierre: *Schoenberg is Dead*, in: id., *Stocktakings from an Apprenticeship*, trans. Stephen Walsh, Oxford 1991, pp. 209–214.
- Boulez, Pierre: *Stravinsky demeure*, in: *Musique russe*, vol. 1, ed. by Pierre Souvtchinsky, Paris 1953, pp. 151–224.
- Boulez, Pierre: *Stravinsky Remains*, in: id., *Stocktakings from an Apprenticeship*, trans. Stephen Walsh, Oxford 1991, pp. 55–110.
- Code, David: *The Synthesis of Rhythms: Form, Ideology, and the “Augurs of Spring”*, in: *The Journal of Musicology* 24 (2007), pp. 112–166.
- Cross, Jonathan: *Rewriting “The Rite of Spring”: Creative Responses to “Le Sacre du printemps”*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidy Zimmermann, London 2013, pp. 198–218.
- Cross, Jonathan: *The Stravinsky Legacy*, Cambridge 1998.
- Jaubert, Jeanne: *Some Ideas about Meter in the Fourth Tableau of Stravinsky’s “Les Noces”, or Stravinsky, Nijinska, and Particle Physics*, in: *The Musical Quarterly* 83 (1999), pp. 205–226.
- McDonald, Matthew: “*Jeux de Nombres*”: *Automated Rhythm in “The Rite of Spring”*, in: *Journal of the American Musicological Society* 63 (2010), pp. 499–551.
- Messiaen, Olivier: *Le rythme chez Igor Stravinsky*, in: *Revue musicale* 191 (1939), pp. 91–92.
- Messiaen, Olivier: *Technique de mon langage musical*, Paris 1944.

- Messiaen, Olivier: *The Technique of My Musical Language*, trans. John Satterfield, Paris 1956.
- Messiaen, Olivier: *Traité de rythme, de couleur et d'ornithologie*, vol. 2, Paris 1995.
- Meyer, Andreas: *Disrupted Structures: Rhythm, Melody, Harmony*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidy Zimmermann, London 2013, pp. 102–129.
- Nichols, Roger: *Stravinsky*, Milton Keynes 1978.
- Piencikowski, Robert: *Boulez's "Rite"*, in: *Avatar of Modernity: The Rite of Spring Reconsidered*, ed. by Hermann Danuser and Heidy Zimmermann, London 2013, pp. 306–315.
- Samuel, Claude: *Music and Color: Conversations with Claude Samuel*, trans. E. Thomas Glasow, Portland 1994.
- Stravinsky, Igor and Robert Craft: *Expositions and Developments*, London 1981.
- Stravinsky, Vera and Robert Craft: *Stravinsky: In Pictures and Documents*, New York 1987.
- Strinz, Werner: *Der Meister und sein Sacre. Olivier Messiaens und Pierre Boulez' Analysen des "Sacre du printemps"*, in: *Traité de rythme, de couleur et d'ornithologie – Textauswahl in deutscher Übersetzung*, vol. 2, ed. by Wolfgang Rathert, Karl Anton Rickenbacher and Herbert Schneider, trans. Anne Liebe and Oliver Vogel with Herbert Schneider, Hildesheim 2012, pp. 309–317.
- Taruskin, Richard: *Stravinsky and the Russian Traditions: A Biography of the Works through Mavra*, Oxford 1996.
- Van den Toorn, Pieter C.: *The Music of Igor Stravinsky*, New Haven 1983.
- Van den Toorn, Pieter C.: *Stravinsky and The Rite of Spring: The Beginnings of a Musical Language*, Oxford 1987.
- Van den Toorn, Pieter C.: *Stravinsky Re-barred*, in: *Music Analysis* 7 (1988), pp. 165–195.
- Van den Toorn, Pieter C. and John McGinness: *Stravinsky and the Russian Period: Sound and Legacy of a Musical Idiom*, Cambridge 2012.

Video

- Thomas, Michael Tilson: *Stravinsky's "The Rite of Spring"*, <<https://www.youtube.com/watch?v=n9nKrHE-6eI>>, accessed 17 September 2013.