

The “Prismes” of *Figures Doubles Prismes*

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The title of Boulez’s orchestral work *Figures Doubles Prismes* (1963/1965-68) underwent many modifications. This essay will describe the changes that took place, focusing on the significance of the term *Prismes*.¹ The first stage of the discussion will trace the title’s evolution and elucidate the work’s underlying concept using information recorded on sketches and in Boulez’s correspondence. The second will describe the ingenious technical approach encapsulated by the term *Prismes*, illustrating its harmonic and perceptual implications and showing how these resonate in multiple ways with the term’s linguistic connotations.

A sketch containing one of the earliest conceptual summaries for this work includes, at the top, the title: *Figures, Doubles, Formants*, with the word *Doubles* underlined twice.² The back of this sketch makes reference to a series of variations for piano and orchestra. Boulez’s letters to Stockhausen confirm his initial intention to work on such a piece.³ This idea was eventually discarded.⁴ As Piencikowski notes, Boulez decides instead to split this initial concept into two different works.⁵ Interestingly, the preliminary title is also essentially split. While *Formants* establish the basic principles for the individual movements of the Third Piano Sonata,⁶ the term *Doubles* is used

1 A complementary perspective appears in Robert Piencikowski, “Figures – Doubles – Prismes,” in *Donaueschinger Musiktage '91*, program (18-20 October 1991), pp. 42-44; and idem, “A score neither begins nor ends; at most it pretends to: Fragmentary Reflections on the Boulezian ‘non finito’,” in *Pierre Boulez Studies*, ed. Edward Campbell and Peter O’Hagan (Cambridge: Cambridge University Press, 2016), pp. 93-107.

2 Mappé H, Dossier 3a, 2 (Pierre Boulez Collection, PSS).

3 Letter from Pierre Boulez to Karlheinz Stockhausen, approximately dated December 1954 (Fonds Karlheinz Stockhausen, PSS).

4 Letter from Pierre Boulez to Karlheinz Stockhausen, postmarked October 1955 (Fonds Karlheinz Stockhausen, PSS). See also Peter O’Hagan, *Pierre Boulez and the Piano: A Study in Style and Technique* (London and New York: Routledge, 2017), p. 186.

5 Robert Piencikowski, “Fragmentary Reflections” (see note 1), p. 107.

6 Program notes to the concert of the Westdeutscher Rundfunk Köln that took place on March 24, 1958. Enclosed in a letter from Pierre Souvchinsky to Igor Stravinsky, dated April 3, 1958 (Igor Stravinsky Collection, PSS). See also Peter O’Hagan, *Pierre Boulez and the Piano* (see note 4), pp. 190-91.

for the first, 1958 version of this orchestral variation set, explicitly conceived as a fragment of a larger piece.⁷

The terms *Doubles* and *Figures* are defined by analogy in the initial concept sketch described above, which contains the words *Exposé et 1^{re} variation*, and aligned underneath (in parenthesis) *Figure et 1^{er} Double*. Thus, *Figures* refers explicitly to the base material (non-thematic) upon which the piece is based, and *Doubles* invokes the concept of variation.⁸ As Boulez stated:

Doubles has two meanings: the first is that of the eighteenth-century word for *variation*, the second is related to the German word *Doppelgänger*, which means a human double, as it is so often described in Romantic literature. Thus, in the process of development, each figure may have its *double*, which is related only to *it* and to no other.⁹

Though the term *Formants* disappears from later sketches for this piece, other elements contained in this sketch continue to inform the orchestral variation piece. Such is the case for the descriptive term *Klangfarben*, as will become clear in the discussion below.¹⁰

Boulez's sketches for this work include numerous diagrams of the instrumental distribution. These can be organized chronologically thanks to the inclusion of arrows and gradual modifications to the instrumental forces. The earlier seating/instrumental sketches feature the title *Doubles*. The reverse side of the diagram marking the transition to the second version of the work proposes the title *Figures, Doubles, Mobiles*, and includes the terms *champs, relief*, immediately below.¹¹ Reflecting trends in the cultural context of the time, the proposed term *mobiles* is fascinating in its connotations. It served as a title for a piece by Pousseur (*Mobile*, 1957-58), with whom Boulez engaged in a lengthy correspondence around this time.¹² Furthermore, the term features prominently in sketches for Boulez's almost concurrent *Structures II* (1956-61).¹³ It refers to the influential work of Alexander Calder.¹⁴ As Boulez noted:

7 Jonathan Goldman, "Listening to *Doubles* in Stereo," in *Pierre Boulez Studies* (see note 1), pp. 246-69, esp. p. 262.

8 See also Robert Piencikowski, "Figures – Doubles – Prismes" (see note 1).

9 From the program notes to the US première with the Cleveland Symphony on March 11, 1965; quoted in Jonathan Goldman, "Listening to *Doubles* in Stereo" (see note 7), p. 255.

10 See also Pascal Decroupet, "Moments Doubles, Figurés en Prisme," in *Pierre Boulez: Techniques d'écriture et enjeux esthétiques*, ed. Jean-Louis Leleu and Pascal Decroupet (Geneva: Contrechamps, 2006), pp. 133-57; and Jonathan Goldman, "Listening to *Doubles* in Stereo" (see note 7).

11 Mapped H, Dossier 3a, 3 (Pierre Boulez Collection, PSS).

12 Some methods of pitch generation in *Doubles* are drawn from Pousseur (see Pascal Decroupet, "Moments Doubles, Figurés en Prisme," see note 10, p. 144, n. 15).

13 Mapped D, Dossier 2a, 1 (Pierre Boulez Collection, PSS).

14 References to Calder's work appear in a letter from Pierre Souvchinsky to Igor Stravinsky, dated April 1, 1958 (Igor Stravinsky Collection, PSS). Piencikowski notes that the term *Mobile* appears in Boulez's interactions with Michel Butor; Robert Piencikowski, "Boulez selon Mallarmé selon Butor," in *Mallarmé et la musique, la musique et Mallarmé*:

Je travaille intensément sur tout cela en ce moment de façon à trouver une forme structurellement aléatoire, se combinant avec de formes fixes [...] Je me souviens encore fortement d'une image dans un film de Calder (Museum of Modern Art) où à un moment donné les mobiles étaient éclairés seulement en lumière noire, et on voyait par moments la structure du mobile uniquement par les éclats colorés. On voyait le mobile par des reflets instantanés; dans une autre séquence, on voyait les mobiles "fixes" pendant quelque seconde, c'est à dire leur mouvement devenait une sorte de suite de "fixations."¹⁵

Ultimately replaced in the title of this work, the term *mobiles* remains crucial to its underlying conception. While in Pousseur's *Mobile* and Boulez's *Structures II* the fixed/mobile dichotomy applies to the large-scale interaction of materials in an open work, in *Doubles* it is applied in the harmonic realm, with fascinating repercussions.¹⁶ The term appears in the sketches for *Doubles* as a counterpart to the term *fixe*, in describing the registral organization of the piece.¹⁷ It refers to a specific technique that encompasses the concepts of *Klangfarben*, *hétérophonie*,¹⁸ *champs*, and *relief*, which resonate with the term *Prismes* in a way that invokes the work of Paul Klee as well as Calder, as I will discuss in the conclusion.

Boulez explains the term *Prismes* as follows: "*Prismes* occur when the *figures* (or their *doubles*) refract themselves one through the other. And in this case, one figure becomes the prism, and the other is refracted through it. By this process is obtained the maximum of complexity, and the effect will be akin to the kaleidoscope."¹⁹ The following examples describe the associated harmonic technique.²⁰

Example 1 presents a reductive sketch of a passage (at Rehearsal No. 8) governed by a fixed registral disposition of *Accord F*, one of the *figures* for this piece (shown on the top two staves of the example). Throughout this section, surface events present chromatic collections of varying cardinality (presented as chords on the sketch), derived from the saturation of gaps formed by registrally contiguous pitch classes in *Accord F* and their inversions. This technique, which would appear to eradicate the harmonic quality of the generating entity, has important repercussions because of the way

L'Écriture, l'orchestre, la scène, la voix, ed. Antoine Bonnet and Pierre-Henry Frangne (Rennes: Presses universitaires de Rennes, 2016), pp. 167-76, esp. p. 169.

15 Letter from Pierre Boulez to Karlheinz Stockhausen, dated September 27, 1957 (Fonds Karlheinz Stockhausen, PSS); quoted in Robert Piencikowski, "Fragmentary Reflections" (see note 1), p. 101.

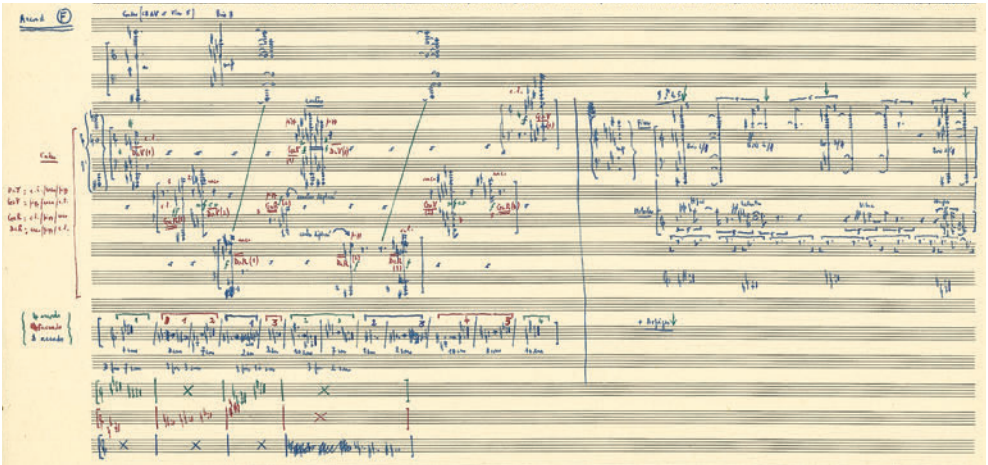
16 Boulez (*Penser la musique aujourd'hui*, Geneva: Gonthier, 1964, pp. 123-33) discusses the application of this concept to different parameters.

17 *Mappe H*, Dossier 3a, 4 (Pierre Boulez Collection, PSS).

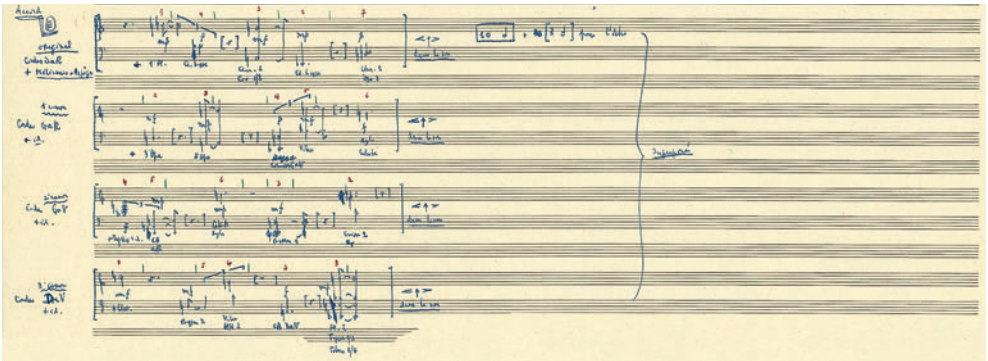
18 *Mappe H*, Dossier 3b, 2 (Pierre Boulez Collection, PSS).

19 From the program notes to the US première with the Cleveland Symphony on March 11, 1965; quoted in Jonathan Goldman, "Listening to *Doubles* in Stereo" (see note 7), p. 255.

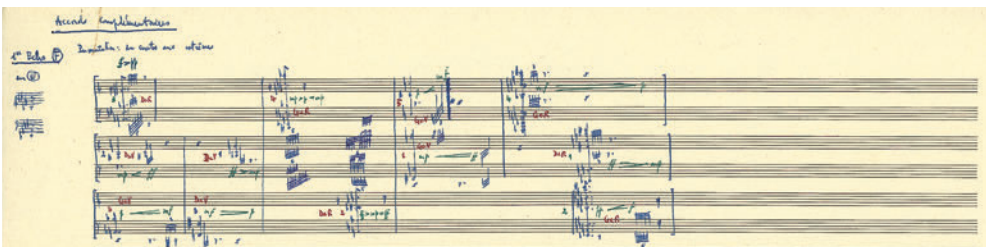
20 Derived from the sketches, this discussion builds on Allen Edwards, "Boulez's 'Doubles' and 'Figures Doubles Primes': A Preliminary Study," in *Tempo*, 185 (1993), pp. 6-17; and Pascal Decroupet, "Moments Doubles, Figurés en Prisme" (see note 10), pp. 143-52.



Example 1: Pierre Boulez, *Figures Doubles Prismes* (1963/1965-68), sketch for *Accord F* (Mappe H, Dossier 3b, 2a; Pierre Boulez Collection, PSS).



Example 2: Pierre Boulez, *Figures Doubles Prismes* (1963/1965-68), sketch for *Accord E* (Mappe H, Dossier 3b, 2a; Pierre Boulez Collection, PSS).



Example 3: Pierre Boulez, *Figures Doubles Prismes* (1963/1965-68), sketch for *Echo F dans E* (Mappe H, Dossier 3b, 2a; Pierre Boulez Collection, PSS).

that the chords are filtered through their placement in registral space. Any time a chord contains one of the pitch classes of *Accord F*, these notes are registally fixed. All other notes are mobile. This means that most chords

are bounded by the same upper/lower pitches, which are frozen in registral space. Pitch-space common tones create continuity, while other members of the chords change. Through the whole passage, the notes of *Accord F* are sustained, as shown on the top two staves. The result is a series of prismatic changes as *Accord F* is slowly transformed and prolonged on the middle-ground level.

In the following passage, described as a *canon d'intensités* (*Example 2*, Rehearsal No. 9), a fixed pitch-space distribution of *Accord E* is sustained (*pianissimo*) and subjected to timbral transformations through gradual pulsations to louder dynamic ranges, following the durational scheme outlined in the example. Emerging from this at Rehearsal No. 10, *Echo F dans E* (*Example 3*) best exemplifies Boulez's description of the term *Prismes*.²¹ The chords in the *Echo* present a "permutation: de centre aux extrêmes" of the chords from *Accord F*. Color-coded integers in *Example 3* refer to chords at the bottom of *Example 1*. However, these chords are re-filtered through the registral positions of *Accord E* (shown on the left margin of the sketch). Because the passage follows *Accord E*, the effect is that of a prismatic transformation of an underlying middle-ground entity.

Although the harmonic qualities of the base material in this piece are often neutralized at a local level, for example, through pervasive use of chromatic saturation techniques,²² focusing on common-tone relationships throughout this piece (including significant portions of the *Assez Vif* sections)²³ permits the conceptualization of a slow harmonic rhythm, based on shifting colors and the gradual distortion of a middle-ground harmonic entity. Invoking the key terms *mobile*, *relief*, and *hétérophonie*, Boulez relates this type of approach to ideas on perspective inspired by Paul Klee:

À l'origine, l'hétérophonie est définie comme une superposition de deux ou plusieurs aspects différents de la même ligne mélodique [...] Si l'on étend cette notion à un ensemble de lignes, c'est-à-dire à une polyphonie, on peut superposer différents images – perspectives – du même matériau, grâce à divers groupes instrumentaux. Cela donne une approche acoustique changeante du même phénomène, qui est l'équivalent de ce que Klee décrit comme la variation des perspectives.²⁴

The coloristic dispersion and shifts of perspective created by the filtering of material in the above examples directly invoke the geometric and physical connotations of the term *Prismes*.

21 Pierre Boulez, *Par volonté et par hasard: Entretiens avec Célestin Deliège* (Paris: Seuil, 1975), pp. 134-35.

22 Pascal Decroupet, "Moments Doubles, Figurés en Prisme" (see note 10), p. 153.

23 A claim in which I diverge from Decroupet.

24 Pierre Boulez, *Le Pays fertile: Paul Klee*, ed. Paule Thévenin (Paris: Gallimard, 1989), esp. pp. 53-75, quotation p. 75; see also Edward Campbell, *Boulez, Music and Philosophy* (Cambridge: Cambridge University Press, 2010), pp. 211-13.