

VERS UNE ÉCRITURE LIMINALE

Serialism, spectralism and *écriture* in the transitional music of Gérard Grisey

Liam Cagney

In July 1980 Gérard Grisey sent Hugues Dufourt a letter from Berlin, where Grisey was at the time living as a DAAD fellow.¹ Grisey's letter concerned the imminent Darmstadt Summer Courses, at which performances of their music had been programmed and Grisey, Dufourt and Tristan Murail were to give presentations. This would be the first major international presentation of their collective musical aesthetic – it was for Darmstadt 1980, for example, that Murail's classic orchestral work *Gondwana* was commissioned – and, being aware of the importance of first impressions, and considering it important that they present a strong united front, Grisey wrote to Dufourt with two purposes: to get Dufourt's feedback on the text of one of his lectures (a lecture on musical time, which after further development was published as 'Tempus ex machina: A Composer's Reflections on Musical Time')² and to solicit Dufourt's approval of the name Grisey thought they should use to denote their collective musical aesthetic: *liminal music*.

In presenting their music to a German audience, Grisey wrote, the three composers ran the risk of being saddled with some 'derisory adjective' or other.³ 'I propose therefore for Darmstadt the adjective LIMINAL', he writes. '*Liminal* (limen: the threshold, that which concerns the threshold, *taking place on the threshold*) is only used, as far as I know, in psychology. *Liminaire* seems to have the sense of "that which remains ahead"'. Grisey's choice of this term is informed by the fact that, for him, it crystallizes the salient feature shared by his music, that of Dufourt and that of Murail: not a focus on frequency spectra but a focus on acoustical *thresholds*.

The threshold is what joins all of us; it is our common denominator. It can have a dynamic sense (only a retrograde person rests on a threshold!). It implies at least two fields, and it encourages movement. We play with thresholds as others play with series.

In proposing this name, Grisey rejects two other candidates: vectorial (too much like Xenakis) and spectral ('too static, too vague: *Stimmung* and Tibetan music are spectral musics').

Dufourt was quick to respond. Although, due to other work commitments, he would unfortunately not be able to come to Darmstadt, he did have some views on Grisey's theoretical and aesthetic concerns. 'Use the adjective "liminal" if you wish,' Dufourt writes, 'but I am not very warm, for it is too restrictive, too "reductive"'.⁴ Dufourt then makes a remark that, from our standpoint in history, might come as a surprise: 'I've given up on "spectral" since a while back – much too narrow as well. But it doesn't matter; I have more pressing things to talk about.'

This epistolary exchange opens a window onto that transitional moment when the music of a group of young Paris-based composers started to shift towards becoming a wider international institution. That transition was effected in part through the invention of a common identity: not, in the end, *écriture liminale* but spectral music, an act of naming that brought with it, alongside a prescribed set of compositional techniques, an inevitable conceptual homogenization and a partial obscuring of the process by which the movement came to emerge. This initial historical brittleness of a concept that is nowadays so well established in our discourse gives us pause for thought. That the composer who by most accounts invented the current and the composer who named it each considered the concept misleading is certainly worth remarking in charting the history of the movement. For these reasons the correspondence functions here as a means of entering into this chapter's focus: a revised examination of both the formative influences behind the French spectral current and its channelling of those influences into a music that emphasized becoming over being, processes over fixed forms, and thresholds over entities.

The causes for the emergence of French spectral music are various: the early 1960s establishment of an acoustics laboratory at the Université Paris VI with the installation there of France's first sonograph; the development of unprecedentedly accurate psychoacoustic models of audition and of computer sound synthesis (by Jean-Claude Risset and others); a growing dissatisfaction during the 1960s with serialism; the appearance of a group of like-minded young composition students in Messiaen's class around the same time; the Ministry of Culture's funding of new music initiatives, in particular from 1973 onwards of L'Itinéraire, the collective that was spectral music's institutional platform; Grisey and Murail's being Prix de Rome scholars together in 1972–73, during which time they had discussions on acoustics and composition; the 1975 addition to L'Itinéraire's *bureau* of the theoretical and political adeptness of Hugues Dufourt; the need for the group to define itself and its work strongly in the face of threatened funding cuts following the establishment of IRCAM; and so on. Properly elucidating these multiple factors in spectral music's emergence would take a book in itself. This chapter therefore restricts its focus to one of the most important and least studied areas: Grisey's early development of the techniques and concepts that would define his mature compositional framework, the framework that would later be generalized under the name spectral music. To privilege Grisey is not to subscribe to a 'great man' view of history; it is simply to observe historical fact. Grisey's final two works composed whilst a student, *Vagues*, *Chemins*, *le Souffle* and *D'eau et de pierre*, though not always idiomatically characteristic of spectral music, established the route along which spectral music would pass. Moreover, focusing on this early moment in Grisey's development and on these two works has the advantage in this book from a large historiographical perspective of addressing – albeit still in a provisional manner – how spectral music's development was fostered by the post-serial compositional environment and the enduring desire in this period to coin a new, generalizable compositional system. Showing how spectral music arose from a critique and reformulation of this serial aim affords us a fuller picture of the legacy of this post-war modernist current and its continuity down to the present day.

Serialism in France in the late 1960s

Given how often serialism is invoked as a bugbear in accounts of how spectral music arose, what exactly was serialism's status in France in the late 1960s, when Grisey, Murail and Dufourt were composition students? How did Grisey engage with serialism in the process of establishing his mature musical style? A student of Helmut Degen at the Trossingen Conservatoire, Messiaen at the Paris Conservatoire and Dutilleux at the École Normale de Musique,

Grisey arrived in French new music at a choice moment, when, although serialism was still the main reference point for young composers, its status was changing. By the 1960s the generation of 1925 – Boulez, Stockhausen, Barraqué et al. – had each creatively transformed the method in line with their own particular aesthetic aims. In the same period a younger group of composers emerged, the generation of 1935 – Amy, Guézecs, Méfano and others – which, in finding its feet, used the serial method in a less adventurous, more conservative way. Their figurehead was Boulez, who by now was the most influential composer in France. In a 1966 interview with the *New York Review of Books*, Stravinsky was aware enough of this to note: ‘There is a new French school, and a good one, judging by levels of skill. Boulez is the father figure, naturally.’⁵ These young composers had for the most part undertaken Boulez’s composition masterclass in Basel (which ran between 1960 and 1963); there they got a grounding in Boulez’s version of serialism. In Basel Boulez gave his students the same tone row, instructed them in techniques such as isomorphism and chord multiplication, and oversaw their subsequent composition of faintly Boulezian works.⁶ The best of those works were then promoted through Boulez’s *Domaine Musical* concert series. Alongside the publication of two books of Boulez’s writings in 1963 and 1966 (supplementing or supplanting Leibowitz’s earlier guides to the twelve-tone method), this saw serialism in France reach peak visibility in the mid- to late 1960s through Boulez’s influence on younger composers (despite the fact he no longer lived in his native country).⁷

The exact sense of the term serialism, though, was equivocal. In discussing serialism in France at this time, one must distinguish between a more open concept of serialism and a more academic, closed concept of serialism. Jean Boivin highlights how, when it began to be taught at the Paris Conservatoire, serialism became academicized:

It was thus strangely at the moment when composers were beginning to give up on serialism, at least in its ‘hard’ form, that the enclosure of the [Paris] Conservatoire, formerly rather sealed against modernity, showed itself capable of being permeated. In the footsteps of Boulez, whose *Penser la musique aujourd’hui* appeared in 1964 [sic], a new group of students insisted on the incontrovertible character of this mode of thought. Grudgingly, one would think, the *écriture* professors let them say so.⁸

Tristan Murail, who studied at the Conservatoire from 1967 to 1971, recalls a peer pressure among composition students to compose in this authoritatively sanctioned avant-garde idiom.⁹ This was more a question of having a certain kind of superficial atonal idiom than of the means used to compose it (which didn’t have to be serial).¹⁰ One of the few places where Murail adhered to the serial idiom is in certain parts of *Couleur de mer* (1969) for ensemble (in particular the second movement). Murail took leave of this in *Altitude 8000* (1970) for string orchestra, a Ligeti- and Xenakis-influenced work. When it was premiered in January 1971 at a Conservatoire composition concert, a section of the audience booed, disapproving of the work’s occasional overt consonances and moments of unabashed harmonic beauty. This signified for Murail that, although Boulez had traded places with Fauré as the sanctioned compositional model, the underlying corseted academicism remained.¹¹

In contrast to this, a serial composer exploring the more adventurous approach to serialism in this period was Jean-Claude Eloy. After having won prizes at the Conservatoire, where his composition teacher was Milhaud, Eloy was taken under Boulez’s wing (he has left the best account of Boulez’s teachings in Basel).¹² While Boulez gave instruction in his own version of the serial method, Eloy says he was more interested in Boulez’s recent ensemble writing, which

gave unprecedented breadth to static harmonic complexes, notably in the work *Pli selon pli* (1957–62, rev. 1984, 1989):

In listening to *Pli selon pli* I was struck by a phenomenon that was compositionally new in that period. Zones of relative stability frequently seemed to be established for quite long periods, creating these sorts of ‘polarizations’, the sudden discovery of which fascinated me. I had, indeed, become more and more bothered by the permanence and rapidity of information in the earlier serial works. [. . .] This obsession with a dimension that would be capable of organizing the mobile and the immobile, ‘stasism’ and ‘dynamism’, became essential for me.¹³

Eloy’s first successful orchestral work, *Étude III* (1962), while rooted in the serial method Boulez taught in Basel, tentatively moves away from the post-Webernian idiom towards a style occasionally incorporating colouristic blocks of harmony sustained for extended durations; punctual events are framed against that static harmonic backdrop, which functions in the manner of a harmonic pole or auditory frame of reference. Jésus Aguila notes that in taking as his compositional focus simply the types of sonority he wished to hear, Eloy had begun to relegate the serial method to second place in compositional precedence; the ear had begun definitively to dictate to the page.¹⁴ This augured what Grisey, Murail and Dufourt would explore, and that connection is evident in the terms used for Eloy’s music at the time, which faintly pre-echo what would be said of spectral music. Messiaen, for example, in his 1967 book of conversations with Claude Samuel praised Eloy’s music as moving towards a new concept of musical time as facilitated by this exploration of extended static harmonies: ‘We’re witnessing a change in the notion of time, and I believe that one of the composers most sensitive to this change is Jean-Claude Eloy’;¹⁵ this can be compared to Grisey’s oft-repeated remark that spectral music has a temporal origin.¹⁶ In Eloy’s case this would lead in the 1970s to extended sound canvases such as *Kâmakalâ* (1971), *Shânti* (1972–73) and *Fluctuante-immuable* (1977). Certain aspects of *Kâmakalâ* in particular – its slowness, its static elements, and its periodic repetition and variation of audibly distinct sound figures – correspond to elements of Grisey’s style as it developed slightly later. Eloy’s case shows that this adventurous approach to serial thought in the mid-to-late 1960s was bringing about changes to the serial idiom.¹⁷

This was also, of course, the case with Boulez’s 1960s music. It is no accident that works such as *Pli selon pli*, *Figures*, *Doubles*, *Prismes* (1963–64, rev. 1968) and *Cummings ist der Dichter* (1970, rev. 1986) at times can sound similar to works by Grisey and Murail. By the early 1960s Boulez was giving more scope to harmonic beauty (of a highly complex type) and admitting that the initial post-war serialist project had been overly dogmatic and naïve: that it had privileged an image of ‘what might seem to be a perfect “technological” rationality but was in fact a monumental absurdity’.¹⁸ In his Darmstadt lectures from this time Boulez frequently takes aim at technicism, the reduction of the musical work to a nuts-and-bolts abstraction; against this tendency, like Schoenberg before him, Boulez promoted *thought* and *idea* as categories of primary import in analysis and artistic creation. He considered that ‘juggling with numbers surely reveals a lack of confidence, an impotence and a lack of imagination’; that the instant of imagination comes, rather, from ‘an indestructible kernel of darkness’ (a phrase adapted from André Breton’s ‘infracassable noyau de nuit’); and that ‘[a]ll reflections on musical technique must be based on sound and duration, the composer’s raw material’.¹⁹ Such should be the aims of the contemporary composer engaging serialism in a creative, properly artistic way, he suggested. An important, scattered nexus within *Relevés d’apprenti* charts Boulez’s reflections over

the period from *Le marteau sans maître* ('Recherches maintenant') to *Pli selon pli* ('Tendances de la musique récente'). In these essays, while still referring to Webern as the 'threshold' whose music passes onto 'a new mode of musical being',²⁰ Boulez had begun to give greater emphasis to sound complexes,²¹ to chordal sound blocks whose internal organization is modelled on resonance (after Varèse, the 1954 premiere of whose *Déserts* in Paris seems to have influenced Boulez as well as Dutilleux),²² to the sequential generation of chords of variable density one from another,²³ to the notion of *l'objet sonore* – recently coined by Abraham Moles and adopted by Pierre Schaeffer – and the pivotal importance for its identity of its specific surrounding context,²⁴ and, in general, to the priority of perception over abstraction. The application of these ideas is clear in the acoustical character of *Le marteau* (particularly the last movement, 'Bel édifice et les pressentiments'), *Poésie pour pouvoir* (1958, since withdrawn), and the *Improvisations sur Mallarmé* (later incorporated into *Pli selon pli*).²⁵ Following a performance of the latter on BBC television sometime in 1964, asked how audiences should understand his musical language, Boulez replied, 'Just forget all about explanations and just hear'; and a couple of years later, when, again on the BBC, discussing *Éclat*, Boulez gave a similar insight on his aesthetic:

When I am hearing a combination of tones which sounds good I can just let the sound die, and I can appreciate the sound until the last moment. One is not in a hurry to hear the music, but one can just wait his own pleasure [sic].²⁶

These empirical views are far from the rationalism with which Boulez is often stereotyped, and are similar to remarks made around the same time by Murail.²⁷ They further suggest how elements of Grisey's style would develop through Grisey's engagement with Boulez's music and writings.

Boulez's analytic attitude encouraged composition students not simply to ape but to re-interpret creatively compositional approaches past, including his own.²⁸ It was through analysing a composition as closely as possible that a composer realized the 'NECESSITY' – or otherwise – of the decisions made therein and of the techniques the composer had used.²⁹ This is how Boulez himself had approached Schoenberg,³⁰ and though he may have been ambivalent about it, this is how he expected his students to approach him, not as epigones but as creative artists: the composer as seer, scouring the past's bloody entrails and envisioning therein the future.³¹ While Boulez knew by this stage that the utopian ideal of serialism as a general compositional language was untenable, he nonetheless considered that the next stage of music could only be an outgrowth of serialism (Messiaen held a similar view).³² To some extent Grisey bore out that intuition. If the motivating ethos of Boulezian serialism was the bracketing out from composition of everything that was unnecessary, and the derivation of one's compositional framework from the internal nature of sound itself, Grisey simply applied this principle more deeply than Boulez himself. In this regard, as someone adhering to certain elements of Boulez's music while doing away with those that he deemed superfluous, Grisey was faithful to Boulez as teacher through being unfaithful to Boulez as compositional model.³³

In his early journal Grisey had characterized serial music critically as *bavardage*, a too-voluble chatter in which little was said. It was too intellectual, and the serial musician too much a savant, not enough a poet.³⁴ This did not preclude Grisey, as a student of Messiaen's, composing several works in the serial idiom and engaging closely with serial thought (as well as the aleatorism that was modish at that time in France). He read books by Leibowitz, Boulez and Stockhausen in detail, studied serially composed scores, analysed works such as Stockhausen's *Kreuzspiel* (1951) and *Zeitmaße* (1955–56) and, following this, in the manner typical of an apprentice composer seeking to keep up with the main composers of the day, emulated the music in question.³⁵ In

short, Grisey as a student was a serial composer, and a talented one. Works such as *Charme* (1969) for clarinet solo, *Mégalithes* (1969) for fifteen brass, and *Perichoresis* (1969–70) for twelve players, by and large idiomatically serial, are accomplished works. But whilst these works are broadly ‘serial’ in sound, they also at times exhibit a drive to attain a different expressive register. In this respect three characteristics stand out as significant for Grisey’s preliminary efforts towards his mature style: 1) the use of *personnages sonores*, audibly distinct musical archetypes, particularly the case in *Charme* and a principle that would significantly inform the conception of Grisey’s first stylistically mature work, *D’eau et de pierre* (1972), as will be seen; 2) an increasing prominence given to sustained sonorities and to resonance chords (in evidence, for example, at the end of *Perichoresis*); and 3) in keeping with his spiritual ideals, a view of the musical artwork as something existing essentially beyond language, something transcendental, which the categories of representational thought cannot capture. Each of these characteristics prioritizes perceptibility over the intellectual rationale in which contemporary art music was often swathed.

In an interview in later years, Grisey summed up his earlier attitude to serial thought:

[F]or a number of my contemporaries the blackness and complexity of a score is as determinant for their judgment as the ear. This is what I call the perverse effect of written composition [*l’écriture*]. My generation was brutally confronted with this dilemma: should we continue along the path of extreme combinatorial complexity of our elders or rather search for more comprehensibility and transparency? The taste for combinatorial games and abstraction, alongside a certain intellectual elitism, had very naturally brought the 1950s towards perversion: ‘the map for the territory’. In music nothing prevents a composer from multiplying structures on to infinity, for one can always accumulate; all that’s needed is a bit of patience. What will make us stop? Nothing, unless the listener rightly feels ridiculous at the ‘fourth retrograde inversion of a fragment of the series multiplied by itself’. From the 1970s, my obsession was: what do I actually perceive out of all that? What remains out of that complexity? I always had this desire to imagine what I called ‘the skin of time’, this immediate zone of contact between the listener and the music, in searching for an extreme limpidity. My ideal is that the complexity of structures does not serve to detract from audibility, but to underlie an event that is simple in appearance.³⁶

As has been seen, in 1960s France Grisey was not alone in this. After Boulez had begun to put more emphasis on harmonic lustre, some younger composers like Eloy followed suit. This was in line with Boulez’s own observations on how composition evolves:

I am convinced that however perceptive the composer, he cannot imagine the consequences, immediate or ultimate, of what he has written, and that his perception is not necessarily more accurate than that of the analyst (as I see him). Certain procedures, results and types of invention will become obsolete or else will remain completely personal, even though the composer may consider them fundamental when he discovered them; observations which later turn out to be of great consequence may have seemed to him negligible or of secondary importance. It is very wrong to confuse the value of a work, or its immediate novelty, with its possible powers of fertilisation.³⁷

These comments certainly apply to Boulez’s own *Pli selon pli*. Grisey’s effort towards developing a distinctive style – a complex method that would produce an apparently simple surface, music that would be ‘intellectual without that intellectualism being apparent’ – began nascently to

develop during the 1969–70 academic year, as he made a concerted effort to expand his technical abilities and broaden his musical knowledge.

Boulez, Xenakis, Messiaen and Marie, and their influence on nascent spectralism

In May 1969 Boulez brought the BBC Symphony Orchestra to Paris for the second French performance of *Pli selon pli*. Maurice Fleuret's review of the concert in *Le Nouvel Observateur* indicates the impression the work made on many. Describing *Pli selon pli* as a decisive move beyond 'post-Weberian rarefaction', Fleuret wrote:

Nothing is gratuitous: not the durations, not the attacks, not the volumes, not the dynamics, not the timbres. All participate in the perfect, fragile equilibrium that the work succeeds in maintaining for more than an hour on the clock. [...] It is as if sound, in being forced to discover the hard heart of its substance, opened up a universe truer and more vibrant than the real.³⁸

Whether Grisey attended this performance of *Pli selon pli* or was influenced by it indirectly (through discussion in Messiaen's composition class and/or the concert's broadcast on French radio), it seems to have spurred him towards exploring resonance chords and other germinal features of spectral music in more detail; for around this time Grisey bought the score of Boulez's *Don* (1960–62, revised 1989) for soprano and orchestra, the opening movement of *Pli selon pli*.³⁹ Grisey's copy of *Don* has been preserved and bears witness to his study and analysis of the work, an analysis conducted not in terms of the composition's discreet serial process but in terms of its surface resonant sonorities and the interactions between the subdivisions of the ensemble: just the type of creative analysis that Boulez as teacher prescribed. At different passages on pages 10, 18 and 19 of the score Grisey notes: 'Klangfarbenmelodie issuing from the resonance of a melody'. These sections (which include the opening line sung by the soprano) feature blocks of colour that bleed across the ensemble in reaction to the 'pressure' of a melodic line. On page 2 of the score, where the ensemble is divided into three groups, Grisey notes some of the characteristics of how the groups interact: 'The high and low groups imitate the principal instrument of the central group (attack and resonances)'. In other words, a sub-ensemble of players produce a complex sonority – a type of harmony-timbre – in imitation of, and in reaction to, a strike on one of the resonant instruments of the central group. Grisey would adapt this principle of micro/macro simulation in the closing section of his next major work, *Vagues, Chemins, le Souffle*, and with further development it would eventually lead to the famous opening of *Partiels*, in which an ensemble plays a synthetic chord modelled on a low trombone note. Grisey also analysed this attack-and-resonance pattern in *Domaines* (1961–68) for clarinet and ensemble.⁴⁰

Another impetus for development at this time was Grisey's studies in electroacoustics and applied maths. Having decided to complement his composition classes with Messiaen with studies elsewhere, Grisey enrolled at the Schola Cantorum for a year-long course in 'radiophonic production, sound engineering, applied acoustics, and the analysis of experimental music' run by the composer Jean-Étienne Marie (1917–89), probably his first introduction to the physics of sound and electronic composition. Although Grisey never mentioned his studies with Marie in later interviews, Marie's approach and ideas are likely to have had a crucial impact on him at the time. For instance, he studied the different types of sound wave (sine, saw-tooth, square), signal processing effects (such as filtering), ring modulation (RM), reverb, tape loops and tape delay, the multi-oscillator synthesizer, frequency modulation (FM) and amplitude modulation (AM). This overview

of studio techniques set the ground for a future instrumental music using several of them as models; in *D'eau et de pierre*, for instance, Grisey conceives changes to the work's spectral chord in terms of formants and filtering. When Grisey gave his first presentation on his mature music, at Darmstadt in 1978, he notably referred to the new current in France of which he was a part as one based on the application to instrumental composition of ideas and techniques from the electronic music studio.⁴¹

During this time, Grisey also made a concerted effort to improve his mathematical knowledge and abilities, covering, for example, mathematical sequences and series, arithmetical and geometrical progressions of rhythmic values (and the distinction between their respective representations as curves on X–Y axis graphs), logarithms, exponentials and the application of the golden section to durations. In this, too, Marie's classes were instrumental: in one of them, for instance, Marie had demonstrated how he had used Pascal's Triangle in his recent composition *Tlaloc* (1967), the opening section of which, a progressively densifying orchestral texture, is a clear antecedent of Grisey's own process forms.⁴² This training doubtless encouraged Grisey towards the later (sometimes onerous) calculation of tables of frequency spectra and resultant tone harmonies, as for instance in his *Jour, contre jour* or *Tempus ex machina*, the sketches for which illustrate the high degree of mathematical calculation in Grisey's mature method.⁴³

After Boulez, Xenakis was the second most prominent composer in France at this time, providing another example of the significance of mathematics for advanced composition at the time. Grisey became interested in Xenakis's music around the time of the October 1968 festival Journées de Musique Contemporaine de Paris, at which many of the Greek composer's works were performed.⁴⁴ A specific concept of Xenakis's that Grisey adopted was that of the *métabole* or sound 'metabolism', a key factor in planning some of the process-based aspects of *Vagues*, *Chemin, le Souffle* and *D'eau et de pierre*.⁴⁵

Finally, during the same period, Grisey also started reading up on acoustics and perception, particularly gestalt theory, purchasing brief introductions to these topics in the iconic *Que sais-je?* series. The gestaltist distinction between synthetic and analytic attitudes appears to be behind Grisey's later description of his music as *synthetic* as opposed to the *analytic* music of serialism.⁴⁶ Arguably even more crucial for the development of spectralism was the concept of *figure* in gestalt theory. In works such as *Charme* Grisey was already using a modified version of Messiaen's *personnages sonores*, and a renewed effort to compose perceptually distinct auditory figures would underpin the composition of his first idiomatically spectral work, *D'eau et de pierre*.

Although Jean-Étienne Marie is typically regarded as a comparatively minor figure, it is clear that his interest in mathematics, acoustics, electroacoustics and perception provided a vital impulse for the genesis of spectralism.

Nascent spectralism: *Vagues, Chemins, le Souffle* (1970–72)

In the summer of 1970, shortly after finishing his studies with Marie, Grisey began work on an ambitious composition for two orchestras and amplified solo clarinet incorporating many of the currents in vogue at the time – aleatorism, spatialization, post-serialism, a dash of music theatre, some mixed electroacoustics. He worked on it for a year and a half and, through Messiaen, secured a high-profile premiere for the work at the 1972 Festival International d'Art Contemporain de Royan.⁴⁷ Typically for a student composer, the work that eventually emerged, *Vagues, Chemins, le Souffle*, tries to do too many things at once, and the over-elaborate score – two conductors, players distributed all around the hall, coordinated spatial movements of sound and unwieldy aleatory elements – may well have played a part in the Orchestre Philharmonique de l'ORTF going on strike and the concert being cancelled.⁴⁸ But despite its failure, and despite its being for the most part uncharacteristic of Grisey's mature style, *Vagues, Chemins, le Souffle* marks the tentative introduction

of certain key elements he would carry forward and subsequently develop: 1) schematic precompositional planning by way of the acoustical parameters; 2) the composition of auditory processes; 3) the sequential repetition and variation of an audibly distinct sound figure; 4) chords modelled on harmonic spectra; and 5) the composition of a 'timbral mirror', whereby an ensemble chord is conceived as a macroscopic simulation of a microscopic instrumental tone. I treat each of these now in turn in charting the elements of Grisey's nascent spectral style in *Vagues, Chemins, le Souffle*.

Schematic precompositional planning by way of the acoustical parameters

In mid-to-late 1970, when he was beginning work on his as yet untitled orchestral composition, Grisey took technical notes on composing on the basis of what is 'directly perceptible'.⁴⁹ One way such perceptibility could occur was when a sound parameter was pushed to its limit, such that it was transformed into a different parameter and required an equivalent conceptual reformulation. The 'harmonic hypertrophy' of Wagner and Debussy, for example, eventually led to dissolution in the notion of colour and timbre (as in Schoenberg's *Farben*), while the rhythmic hypertrophy of the post-war music of Boulez and others led to dissolution into the notion of rhythmic density (as Xenakis was the first to observe).⁵⁰ In this way traditional concepts came to be revised in light of acoustical evidence and replaced by more appropriate ones: musical concepts were reformulated to be brought closer to perception. Grisey later called one of the chief starting points of his music the wish to find greater adequation between concept and percept, and it is not difficult to see how Grisey adhered to this principle in leading the colouristic harmonic complexes of Boulez towards spectral organization. In *Vagues, Chemins, le Souffle* this line of thought manifests itself in the thorough schematization of the composition. In planning the work, Grisey charted the concurrent activity at any given time of the various parameters of the orchestral sound: for example, rhythm, rhythmic density, density of instrumental timbre, space, dynamic of intensities, pitches, and general dynamic curve. Following this planning and calculation, Grisey would then write the notes in the score. Though at this point the method was not refined, it laid the ground for his mature approach. The focus on the statistical character of the ensemble sound shows the influence of Xenakis and Marie.

The composition of auditory processes

As previously mentioned, *Vagues, Chemins, le Souffle* features a spatialized orchestra, and its main models in this regard were Xenakis's *Terretektorh* and Marie's Concerto 'Milieu Divin' (named after a book by Pierre Teilhard de Chardin). *Terretektorh* was premiered at the Royan Festival in 1966, and like Grisey's composition it features the orchestra distributed around the hall among the audience. This orchestral layout in *Vagues, Chemins, le Souffle* allows the composition of processes of sound movement: 'numerous forms of sound shifting (continuous-discontinuous, at even speed, accelerating or decelerating) as well as the superimposing of different speeds and the variability of spatial density (in other words, the breadth of the sonic layer being shifted).'⁵¹ One of Grisey's aims in this way was to create a hypnotic effect on the audience; to this end he considered calling the work *Tianse* before opting for its eventual tripartite title (which reflects its tripartite structure).⁵² Grisey's score also makes liberal use of mass string glissandos, whose trajectory he mapped out using the same orange A3 graph paper favoured by Xenakis. Grisey's plotting of vectors passing through registral space over time, in combination with his plotting of the speed and trajectory of each sound movement throughout the three-dimensional space of the hall, evinces a desire towards a totally 'comprehensive' composition of sound experience. These

spatial ideas are at once of historical interest in illustrating an aspect of the milieu of French new music at this time (a time when Xenakis's music was becoming more and more popular) and of theoretical interest with regard to Grisey's oeuvre. They are the source in Grisey's music of the composition of process, perhaps the salient attribute of his mature 1970s style. Baillet states the matter succinctly: 'In Grisey's music processes of transformation are omnipresent, constituting the foundation of his compositional methods. These processes are easily perceptible, systematic and quasi-mechanical in character, single-handedly outlining the formal architecture of the work.'⁵³ While Grisey would for the most part subsequently abandon sound spatialization, with occasional exceptions, such as *Tempus ex machina* (1979), he would retain the approach of composing musical processes. This continuity is underlined by comments Grisey makes about Xenakis's music in his unpublished 1972 lecture 'Music and Space':

Seen under a microscope, certain sections of Xenakis's works tend towards conjuration; or if one prefers, they try to hypnotize the listener. Taking off from a precise material, they generate a totally other material in a few seconds. This metamorphosis is very progressive, without any rupture; if one abandons oneself to its play, it is sometimes very difficult to become aware of it. [...] This is an instance of the method of continual transformation.⁵⁴

In his 1978 lecture 'The Becoming of Sound', Grisey goes so far as to state that such continuous transformation is *the* core principle of his music: 'The different processes of mutation of one sound into another sound or of a group of sounds into another group constitutes the very base of my compositional method – the primary idea, the germ of all composition.'⁵⁵

The sequential repetition and variation of an audibly distinct sound figure

The form of *Vagues, Chemins, le Souffle* is ternary. The aforementioned microscopic/macroscopic simulation – a precursor of spectralism's technique of instrumental synthesis – is found in the relation between the work's beginning and ending. The first movement opens with the solo amplified clarinet playing a series of long, swelling notes, the 'Waves' of the title, which gradually become more dissonant and noisier over successive iterations; the last movement, 'Breath', ends with a series of antiphonal, swelling chords sounding over and back across the hall on winds, brass and percussion, as the strings play glissandos that move in waves across the two orchestral sections. In this way the ending is conceived as an orchestral simulation of the solo clarinet beginning. The closing antiphonal swelling chords alternately sound two major third dyads: a C and an E followed by a G_b and a B_b, the overlap of which creates a chord that in tonal harmony might be classified as an inverted French sixth chord or a dominant seventh with a flattened fifth. The chord is thus analogous to the chord that ends *Dérives* (a chord, in that work, modelled on the harmonic spectrum); and that characteristic of the *Dérives* chord that Féron calls 'prismatic revelry' – a sensuous lounging within a spectrally rich harmony – is also applicable to 'Le Souffle'.⁵⁶ Grisey's programme note states: 'The third movement, "Breath", is a sort of timbral mirror of the first [movement], being likewise made up of swaying motion; this time, waves of breath.'⁵⁷ Grisey's sketches show that his idea for this gradual evolution of a synthetic sound is a 'metabolism of timbre'. Although the word *métabole* also served (in the plural) as the title of one of Dutilleux's orchestral works, Grisey was here using the term in the sense that Xenakis employed it (albeit doing so in a looser way), to denote the process of mutation of a parametrically defined sound complex.

Chords modelled on harmonic spectra and the composition of a 'timbral mirror'

These final two germinal spectralist features return us to the influence of *Pli selon pli*. Resonance chords feature midway through Grisey's second movement, 'Chemins' (Paths), and at the opening of the third movement, 'Le Souffle'. The sketches show that in 'Le Souffle' the chords are conceived as imitating the internal structure of the clarinet intonations at the opening of the piece, and Grisey writes 'spectre harmonique' beside the initial sketch for the chords.⁵⁸ Grisey's study around this time of resonance chords in Boulez's *Don* seems to have inspired the idea. Example 17.1 shows an extract from the opening of 'Le Souffle': the first of a series of

Example 17.1 Opening of 'Le Souffle' from Gérard Grisey, *Vagues, Chemins, le Souffle*, featuring a resonance chord

© 1974 Copyright Gérard Billaudot Editeur SA, Paris. Reproduced by kind permission of the publisher

ensemble chords which sound as if resonating from a brief attack on a percussion instrument. In the given chord the attack comes from a tubular bell and the ensemble comprises the strings of one orchestral unit. The idea is the same as the opening bars of *Don*. Grisey's borrowing from Boulez is even clearer when one compares the respective opening chords of *Don* and *Dérives* (1973–74) for orchestra and amplified ensemble. The opening ideas are identical: a *tutti* strike at the top of the dynamic range, followed by a resonant chord; but whereas in *Don* the resonant chord dies out within seconds, in *Dérives* it is extended for several minutes. In this way we see how Grisey fashioned core elements of his style through creatively modifying elements of Boulez's music.⁵⁹ That lineage would later be obscured in the consistent theoretical antithesis of serialism and spectralism.

Towards the 'absolute sound': *D'eau et de pierre* (1972)

D'eau et de pierre is Grisey's first idiomatically spectral work. Where *Vagues*, *Chemins*, *le Souffle* drew in part on elements from Boulez and Xenakis, *D'eau et de pierre* augmented this with elements drawn from Stockhausen. *D'eau et de pierre* came about after Royan's departing artistic director Claude Samuel offered Grisey another commission for an ensemble work to be premiered in late 1972 at Samuel's new festival, the Rencontres Internationales de Musique Contemporaine Metz. The commission arrived around the same time as Grisey won the Prix de Rome and was readying to attend for the first time the Darmstadt Summer Courses. By the time of the premiere Grisey had moved to Rome as a Prix de Rome scholar. There, newly inspired to study acoustics, he read treatises by Emile Leipp and Fritz Winckel and discussed his ideas with Murail. This period would produce *Périodes*, the first work composed in his *Les espaces acoustiques* cycle.

Compared to Grisey's previous works, *D'eau et de pierre* is radically stripped down. Like *Charme* it is based on the interrelation of two antithetical, audibly distinct musical *personnages*, here two instrumental groups. The first group plays a static, synthetic chord modelled (in a rudimentary way) on the harmonic spectrum with 'coloration' high above the chord in the form of string harmonics modelled on resultant tones (see Example 17.2). The second, antithetical group appears at intervals playing sporadic, aggressive rhythms that 'disturb' the static surface of the first group (like the surface of a pool disturbed by a projectile stone).⁶⁰ As the work progresses, each aggression by the second group disturbs the first group more and more, making the chord more and more inharmonic, until in a chaotic middle section the two groups fuse in a squall of sound. Eventually the calm, static chord of the outset returns. The work thus has a ternary form, and it lasts around twenty minutes in performance. Here we find several formal features characteristic of spectral music: a well-defined auditory figure based on the harmonic spectrum; a process of gradual deviation by which a given sound figure changes in appearance; a dualistic conception whereby one sound figure influences another sound figure; and a ternary form, starting here from relative harmonic simplicity, moving into harmonic complexity, then returning once again to harmonic simplicity. Needless to say, when the Ensemble Européen de Musique Contemporaine, conducted by Michel Tabachnik, premiered *D'eau et de pierre* on 26 November 1972 at Metz's Théâtre Municipal, nobody, least of all Grisey, considered it as the beginning of a new current in composition – but so it proved to be.

D'eau et de pierre's compositional process shows how Grisey came to hit upon this new style. His initial sketches in spring 1972 were for a work for clarinet and tape, the tape part of which comprised pre-recorded clarinet tracks made at the studio of the Conservatoire in Pantin; with the Metz commission Grisey transposed his ideas to an ensemble format. The earliest sketches show that Grisey's dualistic conception (which, again, followed the earlier example of *Charme*)

D'EAU ET DE PIERRE


Gérard GRISEY

un tres long silence

The score is divided into three systems, each starting with a measure number (35, 35, 35). The first system shows a long silence with some dynamics like *ppp sempre* and accents. The second system shows a long silence with some dynamics like *ppp sempre* and accents. The third system shows a long silence with some dynamics like *ppp sempre* and accents.

Example 17.2 First page of the score of Gérard Grisey, *D'eau et de pierre*, showing the first, 'calm' musical group. The piece is an exercise in reduction, a striking lack of events, other than shifting harmonic colour, is in evidence here

was as much guided by a conception of ontological sound types as by their actual acoustical make-up. Before deciding to model the first instrumental group on a harmonic spectrum, Grisey simply had the idea for what he termed – in a faintly metaphysical fashion – an ‘absolute sound’:

- 1 Take off from the principle of an absolute sound without any event, which directs itself a little 
- [...]
- 4 Think the progressive separation [*éloignement*] of an absolute sound in one or several parameters simultaneously
- 5 The sections are determined by the action on one or more given parameters and by the degree of separation from the absolute sound⁶¹

Grisey elsewhere in the sketches refers to the proposed absolute sound as a ‘coloured silence’ (a term taken from Stockhausen). These notions of silence and of an acoustical absolute evince the search for something purer and more essential than the stereotype of serial *bavardage*.⁶²

This notion of silence, although arcane, is instructive here. A music of silence would be one whose constitution is unavailable to linguistic representation. Although it is never explicitly developed, the concept of silence appears throughout Grisey’s *Écrits*. The idea has spiritual, metaphysical roots, related to his theological leanings. Some notes Grisey took in Siena upon viewing an Annunciation painting by Lorenzetti are instructive with regard to the notion of silence embodied in his initial concept for *D’eau et de pierre*. Grisey describes the ‘[m]arvellous distance between two figures [*personnages*]. [...] The empty space [*vide*], the silence, separating and attracting two forms, seemingly made to be directly interlinked and blended.’ Grisey’s note ends by invoking ‘Silence as a droplet of the great Silence of the Love of God fallen in the middle of the “work”’.⁶³ Silence here describes the invisible relation between the painting’s two figures or *personnages*, and Grisey considers that he should look for a musical correspondence: ‘Silence would not be conceived there as a *caesura* or as *arsis* and *thesis* [that is, as having a straightforward metrical function] but as the tearing-apart imposed upon two objects each dependent upon the other and as if magnetic.’ This describes accurately enough the nature of the relation between *D’eau et de pierre*’s two figures: two distinct figures with a quasi-magnetic relation that is in itself imperceptible. In this sense, the use of an extended spectral harmony in the piece stems from an initial desire to explore the progressive deviation of an acoustical absolute, the correlate of which was coloured silence.

Once Grisey received Samuel’s commission for an ensemble work, he modified his plans. Again he thoroughly schematized the ensemble sound, creating tables that chart the concurrent action over time of the different parameters of the collective sound. This time, though, there is a crucial addition: the application to that collective sound state of the notion of ‘the degree of change’. Grisey’s use of the degree of change as a means of progressively modifying his sound complex came following a guest lecture given by Stockhausen to Messiaen’s composition class during the 1971–72 academic year. In a later interview Grisey underlined the impression Stockhausen’s presentation made on him:

What is happening when I inscribe on the paper a timbre or chord? I had to go back to zero, make a sort of *tabula rasa* of all my knowledge. When one questions oneself on the foundations of perception, one very quickly arrives at the phenomenon that Stockhausen called the degree of change, which originates in Information Theory. Stockhausen had spoken about it at length when he came to Messiaen’s class to analyse

Carré. He said: 'when I have written one chord, then another, I wonder what has changed between the two.' In other words, what is important is not that the chord be constituted by such and such an interval but that it engenders the degree of change.⁶⁴

In Grisey's mature spectral music the use of the degree of change in formal terms corresponds to the use of the harmonic spectrum to determine acoustical material. The harmonic spectrum and the degree of change each adhere optimally to the principle of perceptibility: that one's compositional concept be clearly perceptible to the listener.⁶⁵ The degree of change allows the temporal animation of the harmonic spectrum. This compositional framework is the basis for a music based on difference, transience and the liminal (the three epithets Grisey initially favoured over spectral).⁶⁶ Through the use of the degree of change a figure constituted through a fragment of the harmonic spectrum alters, deviates, changes and does so imperceptibly. Having decided on the presentation of a perceptually distinct absolute sound, Grisey achieves the gradual alteration of that sound through a controlled variation of the acoustical parameters that are used, in a post-serial manner, to define that sound. Some parameters remain unchanged whilst others alter. Alongside the presentation of a static auditory surface modelled on the harmonic spectrum, it is the technique of measuring degrees of change that gives *D'eau et de pierre* the distinctive auditory quality of Grisey's mature ensemble music; the technique would be used in a similar way, for example, to compose the gradual deviation of the famous opening chord of *Partiels*.⁶⁷

In *Vagues, Chemins, le Souffle* Grisey's use of resonance chords stems from Boulez, but harmonicity was always something Grisey was drawn to. Grisey's first prominent use of harmonic centricity is in *Perichoresis*, which contains a section featuring repeated minor triads and which ends on a long, static perfect fifth. This openness to consonance is expanded in *Vagues, Chemins, le Souffle* into an ending based on a prolonged consonant chord. Given this past engagement with harmonicity, and given that Grisey had recently used resonance chords in *Vagues, Chemins, le Souffle*, it is not entirely surprising that in his next composition Grisey would be open to exploring harmonicity in much more detail through the use of the harmonic spectrum to embody his absolute sound. Moreover, by mid-1972, consonance and harmonicity had begun to feature more frequently in art music, particularly evident in the *musique répétitive* of Riley, Reich and Glass that was beginning to be heard in France.⁶⁸ On the level of concrete influence, however, Grisey's use of an extended spectral chord in *D'eau et de pierre* was influenced by either one or two specific sources to which he was exposed in the summer of 1972: La Monte Young's drone music and Stockhausen's *Stimmung*.

Given the many shared characteristics of minimal and spectral music, it is unsurprising that they might have shared sources. In late May 1972 – around the time Grisey was considering how to embody his concept of an absolute sound – La Monte Young had the first presentation of his music in Paris. The programme for Young's 1972 Paris Sound and Light concert, given with his regular collaborator Marian Zazeela, featured tape recordings of The Theatre of Eternal Music's mid-1960s overtone-based drone music and of Young and Zazeela's more recent music featuring singing over synthesizer drones.⁶⁹ Whether or not Grisey attended this Sound and Light concert, given the size of the Paris new music scene he was surely aware of it; in the *Nouvel Observateur* the event had prominent billing, for example, a photograph of Young appearing with the words 'the most esoteric of contemporary music's sorcerers'. A special issue of the magazine *Chroniques de l'art vivant* was also published to coincide with the visit. Featuring discussions of Young's aesthetics, it described the complex mathematical basis of Young's ostensibly simple music, in which the combination of extended durations and a flux of acoustic identity is based on close attention to and manipulation of the mechanics of human auditory perception.⁷⁰ Certain of Young's Fluxus compositions were reproduced – including the famous *Composition 1960*

No. 7, a graphic of a perfect fifth with the instruction 'to be held for a long time' – as well as a fragment of Young's 'Lecture 1960', the final lines of which discuss the notion of 'entering into the interior of sound', a phrase that would subsequently be adopted by the young *courant spectral* composers.⁷¹ The magazine also featured an interview with John Cage, who stated that Young's music had 'changed the way I hear' and which dwelt on the discreet complexity under this music's surface simplicity. One of Grisey's main harmonic techniques – used for the first time in *D'eau et de pierre* – is the modelling of ensemble harmonies on sum and difference tones. Such resultant-tone harmonies characterize the 'coloration' of the static spectral chord in *D'eau et de pierre*. It is thus notable that, in the long interview between Caux and Young published in the May 1972 issue of *Chroniques de l'art vivant*, Young talks in detail about the sum and difference tone principle and its systematic exploration in his music.⁷² The harmonic system that proceeds from Young's use of sum and difference tones is close to that discussed by Grisey in his unpublished Darmstadt lecture 'Ombre du son' (1980), which focuses on the systematic exploitation of such harmonies in ensemble composition. While Grisey was introduced to resultant tones during his studies with Marie, that he should first apply the idea just after Young's visit is certainly suggestive and possibly telling.

A definite influence on *D'eau et de pierre* is Stockhausen's *Stimmung* (a work itself, of course, inspired by Young).⁷³ In June 1972 Grisey attended the Darmstadt Summer Courses. There, as well as attending seminars by Xenakis and Ligeti – and, notably, a concert of Romanian music⁷⁴ – Grisey attended Stockhausen's seminars. Stockhausen's analytic focuses that year were *Mantra* (1972) and *Stimmung*. *Mantra* left Grisey decidedly unimpressed. Beside the details he copied from Stockhausen on the expansion, contraction and repetition of the thirteen original forms of the mantra – procedures similar to orthodox serialism – Grisey wrote: 'Voir relation réalité < – > œuvre'.⁷⁵ Here, in four words and a symbol, the young composer delivers pithy judgement on what he considers Stockhausen's overly abstract compositional apparatus, symptomatic of those problems with serialism he was trying to resolve. It is tempting to read this little note as the moment Grisey decisively crossed a personal Rubicon from the post-serial approach to his distinctive mature spectral compositional framework.

Grisey was much more taken with *Stimmung*. He, Boudreau and Vivier lay on the floor during the evening performance by the Collegium Vocale Köln and they subsequently almost got kicked off the Darmstadt tram for doing an impromptu rendition each day when travelling.⁷⁶ Grisey's notes from Stockhausen's *Stimmung* seminar illustrate how certain elements of Grisey's subsequent compositional practice derive from this *Stimmung* analysis. A first element is Grisey's use, from *Dérives* on, of the intervallic proportions of the harmonic spectrum to determine at once both a work's harmonic content and its durational proportions:⁷⁷ in *Stimmung*, as Grisey notes, the small portion of the harmonic spectrum used by Stockhausen determines both the relation between the sung pitches and the relations between tempos. A second element is a more fundamental tenet of Grisey's mature music: the view that the harmonic series and periodicity are the same principle applied to different domains. A third element is the notion of a work as auto-engendering itself, which Baillet correctly notes as one of the basic attributes of Grisey's style.⁷⁸ For Grisey the latter will create, from *D'eau et de pierre* on, a style in which sound is always in flux, in which, as he writes in his *Modulations* programme notes, 'all is movement'; a music of dynamism and radical transience.⁷⁹ This auto-engendering of form from material is also something achieved by Chowning's FM Synthesis (to spectacular effect in Chowning's work *Stria*). It should be noted that this was already one of the underlying formal aims for the projected clarinet and tape piece sketched in the spring (albeit expressed in different terms), and so the influence came not only from *Stimmung* (Figure 17.1).

2. 3. 4. 5. 7. 9 : même rapport 1) entre les tempi* qu'entre les harm.
2) entre le nombres [. . .]
d'unités d'un certain tempo ""

[. . .]

* tempi = battements périodiques = hauteurs = harmoniques

Élargissement des domaines compositionnelles par accel. ou rall. des matériaux, dont le résultat sera un timbre nouveau. L'oeuvre s'engendre elle-même par condensation.

2. 3. 4. 5. 7. 9 : same relationship 1) between the tempos* as between the harm[onics]
2) between the numbers [. . .]
of units of a certain tempo ""

[. . .]

* tempos = periodic beats = pitches = harmonics

Broadening the range of compositional possibilities by means of the accel. [speeding up] or rall. [slowing down] of materials, the result of which will be a new timbre. The work engenders itself by means of compression.

Figure 17.1 Reproduction of a section of Gérard Grisey's notes on Karlheinz Stockhausen's *Stimmung*, in which the composer links periodicity and the harmonic spectrum, as he would in his own works from *Dérives* onwards, and links form and material via the idea of auto-engenderment, pinpointing some of the relations between *Stimmung* and Grisey's mature style

Reproduced by kind permission of the Paul Sacher Foundation, Basel, Switzerland

From the 1960s Grisey had been seeking a musical style that would be more perceptually based, and *Stimmung* became a point of reference for him in this regard. The terms in which he speaks of *Stimmung* in his Darmstadt lecture 'Tempus ex machina' show the role it played for him in validating the use of relatively simple, perceptually immediate periodic rhythms: '*Stimmung* for six vocalists by Stockhausen (1969) shows us that only some elementary, even primary rhythms give us the very clear possibility of perceiving the tempo of these rhythms.'⁸⁰ This was an intuition Grisey had already had since 1970, as his journal shows.⁸¹ *Stimmung*'s perceptibility, encompassing harmony and rhythm alike, suggested a whole 'other approach' to composition, as Grisey would say in a 1974 radio interview: '*Stimmung* [. . .] leads us to listen to the interior of sound.'⁸² Nevertheless, as seen at the outset of this chapter, in his 1980 epistolary exchange with Dufourt Grisey was at pains to distinguish his own dynamic 'liminal music' from the static 'spectral music' of *Stimmung*.

Conclusion: style and *écriture*

This is a natural endpoint for our study of the beginnings of Grisey's spectral style. From the preceding it should be clear why Grisey, in the letter quoted at the start of this chapter, might have sought alternatives to an epithet that risked reducing his music to the construction of

harmonies on the basis of spectral analysis. Grisey's style developed through his concertedly directing the post-serial framework towards perceptibility of material, transience of motion and dynamism of form. These three attributes equate, respectively, to statistically defined spectral harmonies, the degree of change as measure of moment-to-moment temporal evolution and process-focused formal structures. The twin poles, or regulative principles, in this system are harmonic and periodicity.⁸³ These focuses express a prioritizing of perception over the objectivist approach Grisey associated with serialism and which, from the time of his early journal entries, he wished to move away from. But if Grisey criticized how the epithet *spectral* reduced fluidity to fixity, that tension was inherent in his project from the start, by its very terms.

In the theoretical explanations of spectral music from Grisey, Dufourt or Murail, a consistent element is how they present their compositional attitude in contradistinction to that of serial music. As late as 1998, in his final theoretical article, this was the pattern Grisey followed:

No musicians were waiting for spectral music to use or to highlight the use of sonic spectra, just as none waited for dodecaphonic techniques in order to compose chromatic music: but just as the series is not a question of chromaticism, spectral music is not a question of sonic color. [. . .] [I]n serial music, the interplay of permutations becomes an obstacle to memory, it forbids radical renewal along with all the types of surprises, excesses and deviations that tonal music offers to its listeners. In short, serial music neutralizes the parameter of pitch; this involuntary neutralization, however, allows the concentration and emergence of new techniques which have become necessary to avoid monotony. Take, for example, the heterophonies of varying harmonic and temporal densities, the choices of instrumentation and the combinations of timbres, the explosion of registers, or the games of adding and removing ornamentation.⁸⁴

On a straightforward level this passage is about defining how spectral music took leave from serial music. But on closer examination it is apparent that, even while seemingly distancing his music here from serialism, Grisey consistently uses serialism as a frame of reference. This is because in a deeper historical way each partakes of the same project. That project is the elaboration of a new musical language or system of organization the principles of which are derived from the internal substance and behavioural properties of sound. For spectral music as for serial music, it is not only a matter of creating fresh musical material but of establishing a well-defined, self-consistent, acoustically derived mode of organization from which that material derives. Inasmuch as it is conceptually based, that mode of organization is as much a metaphysical system as a set of compositional techniques and guidelines. It is for this reason that Dufourt sees fit to call spectral music 'an epistemological revolution'.

The above passage from Grisey reads like any number of passages from *Boulez on Music Today* or any number of articles from the pages of *die Reihe*. In each case we find the search for rigorous first principles and a consistent conceptual framework. Viewed through the lens of artistic modernism, and the emergence of numerous movements and -isms in the early twentieth century, serialism and spectralism might be regarded as representing two types of constructivism. In one sense this is the case. Spectral music developed more or less directly by way of the serial project (as Dufourt recognized), but as a critique and reformulation of that project.⁸⁵ Accordingly, since the early 1980s numerous subsequent composers have, in more or less inventive ways, adopted and applied the basic techniques of Grisey and Murail. To the post-serial generation, mentioned earlier, of Amy, Eloy and Méfano corresponds the post-spectral generation of Saariaho, Dalbavie, Hurel, Leroux and Hervé. Though in the early phases any connection with common-practice tonality was downplayed, in recent years Murail has been more open in

suggesting how spectral music's system – which Murail occasionally terms 'frequential harmony' – is a contemporary replacement for the old diatonic system:

[Frequential harmony] is harmony which is based on frequency and not on pitches – that's what it means. But that makes a big difference; because pitch is organized along discrete scales, while frequencies are continuous. So [now] there is an infinity of different combinations; whereas if you take the chromatic scale, the combinations are many but limited, and that was maybe the big crisis in music in the past decades. People have gone around all of the possibilities with chromatic scales. Lots of people now move on to noises; but it's a way of ignoring the issue. [. . .] It has been like that even from the 50s, I would say. You still have pitches and harmony in serial music, whether you like it or not, and of course Messiaen has lots of beautiful harmonies, but these harmonies are not functional. And that's the big difference [with our music]. I think in the beginning, especially in the 80s, when we were discovering the possibilities of spectral combinations and of frequential harmony [. . .] I thought the basis of my music came mostly from these new and maybe extraordinary new sounds. But in fact I don't think that's true. [. . .] The organization of the musical discourse in time is probably the most important thing, and I'm working more consciously with this now.⁸⁶

Murail's recent exploration of tonal forms and of tropes from the symphonic tradition suggests a view of spectral music as a constructivism that has arrived at the natural end of its initial utopic aim, replenishing the Western classical tradition in a sort of *Aufhebung*.

This constructivist version of spectral music is a limited one. By contrast, Grisey's notion of *écriture liminale* suggests a more obscure view of how we might conceive spectral music as a music-compositional framework derived from a metaphysical system. Inasmuch as the spectral framework is based on certain fundamental principles of auditory perception, it is irreducible to whatever local material is selected to instantiate those principles. Grisey refers to the harmonic spectrum, for example, when he uses it not as a basic unit of construction but rather as the most probable phenomenon: as that which can be used as an auditory reference regulating the music's diverse manifestations and flows. In principle this implies that any material whatsoever, from white noise to sine wave, from a pre-recorded vocal sample to the sound of a raindrop, could function in much the same way depending on the work-specific parameters set by the composer. Within this compositional framework, more primary than stereotypical 'spectral' sounds are force-based processes: deviation, distending, tearing, manipulation, becoming. In the first section of *Modulations* 'the material does not exist in itself',⁸⁷ Grisey writes, but only as defined by the immanent trajectory of the dual process driving the music's evolution and form (moving from inharmonic to harmonic sounds and from aperiodic to periodic events). This 'open' version of spectralism is also found in *Tempus ex machina* (1979) for six percussionists, the score of which features no pitched instruments. 'This music forces itself to make time palpable in the "impersonal" form of durations', Grisey writes, using Bergsonian terms. 'Finally, it is sounds and their own materials which generate, through projections or inductions, new musical forms.'⁸⁸ This anonymous, pre-personal vision of *écriture liminale* – a music of thresholds rather than things – resonates with Grisey's earlier search for a music that would be beyond language, adhering to something obscurer, more essential. It also contrasts with any simple constructivism.

This chapter took off from Grisey's concern as expressed in his 1980 letter to Dufourt that the name spectral music would encourage a way of thinking about this music that would be overly preoccupied with the technique of designing complex harmonic models through spectral analysis. The scholarly reception of spectral music has to an extent borne out this concern.

Analytically, spectral music has tended to be discussed in a ‘static’, objectivist manner, with a predominant focus on pitch/frequency aggregates and the bracketing out of the perceptual dimensions of dynamism and transience that were, for Grisey, at the core of his music. It is notable in this regard that a musical aesthetic that grew out of the wish that, in composition, one not confuse the map and the territory – a confusion Grisey and his colleagues squared at serialism – has given rise to an unprecedented exercise in acoustical mapping: the calculation of precise grid references affixing forests of harmonic complexes, mountain ranges of rhythmical configurations and lakes of formal schemata. This has occurred despite Grisey’s insistence that transience and liminality are more fundamental to his style than spectra, and Dufourt’s characterizing Grisey’s music in this regard as paradigmatic of Baudelaire’s concept of modernity.⁸⁹

The two views of spectral music just outlined – as constructivist compositional tool-kit and as regulative metaphysical system – are bound together in one key term: *écriture*. *Écriture* is a French musical term with no direct English translation. Though in one sense it can simply mean the practice of notating music, it also signifies the compositional logic that inheres within that notation, guiding the composer’s pen. French Conservatoire training in tonal *écriture* entails learning the principles of harmony and voice-leading and techniques of strict counterpoint such as fugue and canon. In a like manner, through the system of *écriture liminale* he developed, Grisey could know what material to write down and how to develop it.

Allow me to insist on this: herein it is very much the case of a real compositional logic [*écriture*] rather than simply of an amalgamation of new materials. Unfortunately, that aspect still escapes those for whom writing [*écriture*] is read more than it is heard.⁹⁰

Écriture encapsulates the inevitable tension in Grisey’s compositional outlook between fluidity and fixity, between a music of transience and difference and a discourse of structure and identity. Writing always entails fixity. What we might begin to consider is a different approach to reading: reading musical sound not in terms of appearance but in terms of appearing, not in terms of a language, discourse or grammar but in terms of an originary inscription – Derrida’s *archi-écriture* in the domain of musical sound.

Notes

- 1 The research for this chapter was in part funded by the Paul Sacher Foundation, the Society for Musicology in Ireland and the City University of London. I gratefully acknowledge here the generous assistance of each. Much of the material in this article is covered in more detail in my doctoral thesis: Liam Cagney, ‘Synthesis and Deviation: New Perspectives on the Emergence of the French *courant spectral*, 1969–74’ (PhD thesis, City University of London, 2015).
- 2 Gérard Grisey, ‘Tempus ex machina: A Composer’s Reflections on Musical Time’, *Contemporary Music Review* 2, no. 1 (1987), 239–75. The original 1980 version of this paper is published as ‘[Réflexions sur le temps]’ in Gérard Grisey, *Écrits, ou l’invention de la musique spectrale*, ed. Guy Lelong and Anne-Marie Réby (Paris: L’Harmattan, 2008), 39–44. The other lecture Grisey gave at Darmstadt in 1980, ‘L’ombre du son’, focused on Grisey’s technique of resultant tone harmonies and remains unpublished, though the lecture notes are preserved in the Gérard Grisey Collection at the Paul Sacher Foundation (henceforth GGC PSF). All documents from the Gérard Grisey Collection are quoted with the kind permission of the Paul Sacher Foundation.
- 3 The letter is published as Gérard Grisey, ‘Lettre à Hugues Dufourt’, in *Écrits*, 281–82. All translations in this article are my own unless otherwise stated. Grisey may have had in mind here the reception he received two years earlier at Darmstadt when he gave a presentation on his music: judging by the audio recording the audience was not particularly receptive, and when at one point the young Frenchman gave examples of influences on his music a wave of laughter broke out in the audience. This presentation was subsequently published as Gérard Grisey, ‘Zur Entstehung des Klanges’,

- Darmstädter Beiträge zur Neuen Musik 17 (1978), 73–79, and is reproduced as ‘Devenir du son’, in Grisey, *Écrits*, 27–33.
- 4 Hugues Dufourt, Letter to Gérard Grisey, 9 July 1980, GGC PSF (original in French).
 - 5 ‘I have heard some striking scores by new French composers: Guézec’s *Architectures colorés*, Eloy’s *Équivalences*, and Gilbert Amy’s double-orchestra *Antiphonies*. There is a new French school, and a good one, judging by levels of skill. Boulez is the father figure, naturally, though he steers clear of the question of Dada.’ Igor Stravinsky, ‘Stravinsky on the Musical Scene and Other Matters’, in *New York Review of Books*, 12 May 1966. Pierre Souvtchinsky was unequivocal as to Boulez’s intentions: ‘What Boulez has done is to make a school, build a base. It remains intact as a kind of academicism. It is a system he follows but passes around. Still, the school stays.’ Quoted in Joan Peyser, *Pierre Boulez: Composer, Conductor, Enigma* (London: Macmillan, 1976), 149.
 - 6 See Jean-Claude Eloy, ‘Dix ans après, qu’en reste-t’il?’ (1974), *Textuerre*, nos. 17–18 (1979), III–XXXVI.
 - 7 The first monograph published on dodecaphony in French was René Leibowitz, *Introduction à la musique de douze sons* (Paris: Éditions de l’Arche, 1949).
 - 8 Jean Boivin, *La classe de Messiaen* (Paris: Christian Bourgois, 1995), 164. Among Grisey’s documents is an exercise instructing the student to compose a piece using a given twelve-tone series, likely from his Paris Conservatoire *écriture* classes. GGC PSF.
 - 9 ‘Around 1967–68 at the Conservatoire, the serial atmosphere prevailed. [. . .] The academic mindset finally took over serial music. [. . .] It amounted to a sort of peer pressure from students on other students.’ Tristan Murail, quoted in Boivin, *La classe de Messiaen*, 164.
 - 10 In a 1987 programme note for a performance of his piece *Couleur de mer*, Murail wrote: ‘If in a certain period composers felt the need for a theory, a set of more or less arbitrary rules to free themselves from the domain of tonal music and the compositional habits coming out of that music, for the musicians of my generation, on the other hand, the “serial” language (rightly or wrongly, I use that word to describe a whole style with numerous elements that was the dominant style of the 1950s and 1960s, and for which the “series” was only one of its aspects) was something quite natural, our mother tongue in a way. Our difficulty was having the courage and force to escape from it and to invent a language that truly corresponded to our expressive needs.’ Tristan Murail, programme note for *Couleur de mer* at concert by l’Ensemble Musiques Nouvelle, Bordeaux, 2 March 1987, quoted in Thierry Alla, *Tristan Murail: La couleur sonore, métaphore pour la composition* (Paris: Michel de Maule, 2008), 56.
 - 11 Boivin, *La classe de Messiaen*, 164. Murail stuck to this view consistently: ‘Fauré had been replaced by Boulez, but the academic spirit remained intact.’ Quoted in Eric Dahan, ‘Tristan Murail, maître spectral à Marseille’, in *Liberation*, 22 May 2002, http://next.liberation.fr/culture/2002/05/22/tristan-murail-maitre-spectral-a-marseille_404345 (accessed 4 May 2017).
 - 12 Eloy, ‘Dix ans après, qu’en reste-t’il?’ On the background to Boulez’s time in Basel, see Robert Pienickowski, ‘Une expérience pédagogique: Les Cours supérieurs de composition à la Musik-Akademie de Bâle au début des années soixante’, in “Entre Denges et Denezey . . .”: *La musique du XXe siècle en Suisse, manuscrits et documents*, ed. Ulrich Mosch and Matthias Kassel (Basel and Geneva: Contrechamps and Paul Sacher Foundation, 2001).
 - 13 Eloy, ‘Dix ans après, qu’en reste-t’il?’ 11–12.
 - 14 Jésus Aguila, *Le Domaine Musical: Pierre Boulez et vingt ans de création musicale* (Paris: Fayard, 1992), 296–97.
 - 15 ‘In recent times we’ve moved into great spans of long durations which extend beyond not only classical rhythms but even Greek metre, the *deçi-tâlas* of India and irrational values. We are witnessing a change in the notion of time and I believe that one of the composers for whom this change is most perceptible is Jean-Claude Eloy. Beyond the refinement of timbre and the quality of “heterophony”, I discern in Jean-Claude Eloy’s music a concept of time that is absolutely at the spearhead of the avant-garde.’ Olivier Messiaen, quoted in Claude Samuel, *Conversations with Oliver Messiaen*, trans. Félix Aprahamian (London: Stainer & Bell, 1976), 48, translation modified. A review of Eloy’s *Polychromies* (1964, since withdrawn by the composer), although negative, gives some descriptive remarks which call to mind Grisey’s initial mature works: ‘*Polychromies* [sic] by J.-C. Eloy is a study of sonorities in two parts, wherein the parts played by atmospheric effects is capital. The work comprises long sustained instrumental notes, with variations of colours, sorts of vast changeable sonorous spans on which diverse and refined concretions come to be deposited, originating in the percussion. The effect is perhaps not new, and this continuity in slowness, quite current in this genre of research, fatally ends up bringing about a certain monotony.’ Jean Durbin, *La Croix*, 7 January 1965; online on the personal website of Jérôme Joy, <http://joy.nujus.net/w/index.php?page=DOCELOY> (accessed 7 May 2017).

- 16 'For me, spectral music has a temporal origin. It was necessary at a particular moment in our history to give form to the exploration of an extremely dilated time and to allow the finest degree of control for the transition from one sound to the next.' Gérard Grisey, 'Did You Say Spectral?' trans. Joshua Fineberg, *Contemporary Music Review* 19, no. 3 (2000), 1.
- 17 In another text from around this time, similarly instructive with regard to the transition from serialism, Messiaen discusses how the sense of the term serial has changed. Quoted in 'Enquête d'André Boucourechliev', *Preuves*, no. 179 (January 1966); repr. 'Douze, chiffre puéril et périmé', in *Olivier Messiaen, le livre du centenaire*, ed. Anik Lesure-Devriès and Claude Samuel (Lyon: Symétrie, 2008), 57.
- 18 Pierre Boulez, 'Putting the Phantoms to Flight', in *Orientalisms*, ed. Jean-Jacques Nattiez and trans. Martin Cooper (Cambridge, MA: Harvard University Press, 1986), 66.
- 19 *Ibid.*, 73. Boulez considered Leibowitz such a number-juggler ('imprisoned by academic techniques [...] he could see no further than the numbers in a tone row') and in general held such academic composition in low regard; quoted in Peyser, *Pierre Boulez*, 39 and 44.
- 20 Pierre Boulez, 'Incipit', in *Stocktakings from an Apprenticeship*, ed. Paule Thévenin and trans. Stephen Walsh (Oxford: Clarendon Press, 1991), 215.
- 21 Pierre Boulez, 'Possibly. . .', in *ibid.*, 135.
- 22 Pierre Boulez, ' . . . Near and Far', in *ibid.*, 152.
- 23 *Ibid.*, 153.
- 24 Pierre Boulez, 'Corruption in the Censers', in *ibid.*, 21.
- 25 Cf. Robert Pienckowski, 'Introduction', in *ibid.*, xiii–xxix.
- 26 Both quotations from 'Episode 2: But Is It Music? 1945–1989', *In Their Own Words: 20th Century Composers*, 21 March 2014 (BBC Four, 2014), television broadcast.
- 27 When advising an audience on how they should listen to *Couleur de mer*, the young Murail said '[o]ne shouldn't try to "understand" the music of today, since it isn't charged with a "message", even one of intellectual pretension'. Instead he stressed the great freedom of the composer in his sound-associations and 'the necessity for the listener [...] to receive the work in a "state of abandon", without reference to the framework of previous centuries, the best recipe for welcoming it as an "ear to the world" surrounding us'. [Unsigned], 'Répétition publique et débat autour de "Couleur de mer" de Tristan Murail', *Havre presse*, 14 May 1969.
- 28 '[A]nalysis is only of interest when it is active, and it can only be fruitful in terms of its deductions and consequences for the future. [...] Certain procedures, results and types of invention will become obsolete or else will remain completely personal, even though the composer may have considered them fundamental when he discovered them; observations which later turn out to be of great consequence may have seemed to him negligible or of secondary importance. It is very wrong to confuse the value of a work, or its immediate novelty, with its possible powers of fertilisation.' Pierre Boulez, *Boulez on Music Today*, trans. Susan Bradshaw and Richard Rodney Bennett (London: Faber and Faber, 1971), 16–18. See also Eloy, 'Dix ans après', XI. Boulez's view of history is as that of Nietzsche as stated in the essay 'On the Use and Abuse of History for Life': 'We want to serve history only to the extent that history serves life: for it is possible to value the study of history to such a degree that life becomes stunted and degenerate'; Friedrich Nietzsche, 'On the Use and Abuse of History for Life', in *Untimely Meditations*, ed. Daniel Breazeale and trans. R. J. Hollingdale (Cambridge: Cambridge University Press, 1997), 59.
- 29 For an overview of Boulez's concept of necessity see 'Second Stage of the Dialectic: *Necessity*', in David Walters, 'The Aesthetics of Pierre Boulez' (PhD diss., University of Durham, 2003), 160–98. Walters examines how '[i]n order to overcome the inherited material, Boulez proposes that the composer must challenge all concepts', relating this to Descartes' method of doubt.
- 30 That is, by adopting Schoenberg's twelve-tone method while ignoring Schoenberg's inherited tonal forms. 'Schoenberg saw the series as a lowest common denominator which would guarantee the semantic unity of the work, but that the linguistic components generated by this means are organised according to a pre-existent, non-serial, rhetoric.' See Pierre Boulez, 'Schoenberg Is Dead', in *Stocktakings from an Apprenticeship*, 213.
- 31 A large part of Webern's importance lies in his stripping away all extraneous, inherited discursive elements: along with Debussy, 'he reacts violently against all inherited rhetoric, and aims instead to rehabilitate the power of sound' (Boulez, 'Incipit', 215).
- 32 See Boulez, 'Putting the Phantoms to Flight', 78–79. For a discussion of the relation between Boulez's writings on music and the generality of otherwise of their compositional application, see Jonathan Goldman, *The Musical Language of Pierre Boulez* (Cambridge: Cambridge University Press, 2011), 54–56.

- 33 'I shall never tire of saying that personality starts with a robust critical perspicacity that forms part of the gift itself. Any vision of history actually implies, from the first moment of choice, a sharpness of perception in judging "the moment", and that perception is not explainable in exclusively logical terms. It is all part of the faculty which makes the poet a "seer", as Rimbaud used to insist so energetically. It is the gift that enables him to clarify what appears to be a confused situation, to discern the lines of force in any given epoch, to take an overall view, to grasp the totality of a situation, to have an intuitive hold on the present and to apprehend its structure on a cosmic scale – that is what is demanded of any candidate who aspires to the title of "seer". [. . .] When I speak of clarifying the present situation, it is not simplifications of this kind that I have in mind, but a prevision of what the future will show to have been merely seminal and what will have proved truly lasting.' (Boulez, 'Putting the Phantoms to Flight', 68–69.) This attitude is as that of Nietzsche's Zarathustra: 'One repays a teacher badly if one always remains only a pupil.' This can also be considered an example of Harold Bloom's theory of creative misreading.
- 34 Gérard Grisey, journal entry for 1 March 1964, 'Pages de journal: Journal d'adolescence, 1961–1966', in *Écrits*, 312.
- 35 The *Zeitmaße* analysis is twenty-seven pages long and comprehensive of all of *Zeitmaße*'s serial aspects, with numerous tables of numerals, series, durations, rhythms and inserts (GGC PSF). It is unclear when Grisey did these analyses; the simpler *Kreuzspiel* analysis might date from Trossingen.
- 36 Gérard Grisey, 'Les dérives sonores de Gérard Grisey: Un entretien avec Guy Lelong', in *Écrits*, 235–42 (235–36). One of Grisey's regular themes in discussing his music was that it was a music in which compositional complexity is used to produce an ostensibly simple surface; see, for example, Grisey, 'Le simple et le complexe', in '[Réflexions sur le temps]', in *Écrits*, 40–41.
- 37 Pierre Boulez, *Boulez on Music Today*, trans. Susan Bradshaw and Richard Rodney Bennett (London: Faber and Faber, 1971), 18.
- 38 Maurice Fleuret, review of *Pli selon pli*, Théâtre National de Chaillot, BBC SO/Boulez, *Le Nouvel Observateur*, 19 May 1969; repr. in Maurice Fleuret, *Chroniques pour la musique d'aujourd'hui* (Le Mas de Vert: Éditions Bernard Coutaz, 1992), 61–64.
- 39 All references to Grisey's copy of Pierre Boulez, *Don* (London: Universal Edition, 1967), GGC PSF.
- 40 Jonathan Goldman writes as follows about the role of resonance in Boulez's music: 'The fundamental dichotomy which obtains in Boulez's work [. . .] opposes pulsation to resonance. [. . .] Boulez famously distinguished between "smooth" and "striated" time. An alternation between a pulsed, rhythmic conception of musical discourse and another, in which musical time is undifferentiated and continuous, remains the key to Boulez's sound world. Smooth time amounts to spinning out a sound's resonance in all its unpredictability, from its initial attack through its resonance and ultimate decay. Striated time, on the other hand, is the succession of accents that create sharp, audible discontinuities in the musical fabric. [. . .] Part of Boulez's fascination with these resonating instruments surely lies in a desire to let these instruments "sound" without any human intervention. [. . .] This fascination with resonance is a constant in Boulez's oeuvre, and contains within itself the seeds of aleatoric composition: [. . .] In the moments in which he lets these instruments resonate, the listener can suspend structural or analytical listening, and abandon himself to hearing the sounds produced without human intervention, in an aesthetic experience not unlike the universe of John Cage. This "sono-centrism" is a constant counterpoint in Boulez to his preoccupation with global organization.' Goldman, *The Musical Language of Pierre Boulez*, 12–13.
- 41 In his 1978 Darmstadt lecture this was how Grisey characterized the common movement of which he was part: 'It seems to me that at the moment the inverse is happening of what was being described a few years ago as a proliferation of styles. We are present at the formation, if not of a group with a label, at least of very fruitful exchanges between composers. [. . .] We have in common the same mistrust of abstraction, the same attention to immediate perception, and a similar research of apparent simplicity as the ultimate stage of a complexity that is internal and hidden; and often an identical material, which is the application to the instrumental domain of the experience of the electronic studio and acoustical research.' Grisey, 'Devenir du son', 342–43 (edited out of the original published essay).
- 42 GGC PSF.
- 43 For two indicative accounts of Grisey's working method in this respect see Jérôme Baillet, 'Tempus ex machina', in *Gérard Grisey: Fondements d'une écriture* (Paris: L'Itinéraire and L'Harmattan, 2000), 167–76, and François-Xavier Féron, 'Gérard Grisey: Première section de *Partiels* (1975)', *Genesis*, no. 31 (2010), <http://genesis.revues.org/352> (accessed 4 May 2017).
- 44 Xenakis also visited Messiaen's composition class around this time, as Murail recalls: 'I remember seeing and speaking with [Iannis] Xenakis in Messiaen's class. Xenakis had brought some of his big orchestra

- pieces – *Metastaseis*, *Pithoprakta* – and he explained them. I was quite impressed by his approach, which was very different from what you were taught at the conservatories.’ Tristan Murail, ‘Lecture at Ostrava Days Festival (excerpt)’, http://www.ocnmh.cz/days2003_lectures_murail.htm (accessed 1 January 2015).
- 45 *Metabolae* are discussed in Iannis Xenakis, *Formalized Music: Thought and Mathematics in Composition*, ed. and trans. Sharon Kanach (Stuyvesant, NY: Pendragon Press, 1992), 190–94.
- 46 ‘After a long night of the analytic, we are now directed towards a synthetic mode of composition’; Gérard Grisey, ‘Vers une écriture synthétique: Entretien à propos de *Dérives* (1974)’, in *Écrits*, 224.
- 47 The festival director Claude Samuel asked Messiaen for suggestions for that year’s festival, the theme of which was ‘The Young Generation’; one of Messiaen’s suggestions was Grisey’s ‘very extraordinary’ work, which could be performed at Royan ‘in the same hall where Xenakis’s *Terretektorh* was performed’. Oliver Messiaen, Letter to Claude Samuel, 19 June 1971, in Claude Samuel, *Permanences d’Olivier Messiaen: Dialogues et commentaires* (Arles: Actes Sud, 1999), 156–58.
- 48 One of the conductors, Michel Tabachnik, in an interview conducted at Royan and published shortly afterwards, criticizes orchestral aleatory music: ‘Experience proves that aleatory music is not viable. Stockhausen, who was one of its pioneers, these days writes down all of his works. Because what’s possible with a little group of players working together, able to create among themselves, no longer is when you pass to ninety musicians.’ Quoted in Edith Walter, ‘Trois jeunes chefs rencontrés à Royan’, in *Harmonie*, no. 76, 18 April 1972. In the same issue Walter says it had been hoped Grisey would be ‘the new musician revealed by Royan 1972’. Fleuret discusses the ORTF strike in Maurice Fleuret, ‘Musiques du large: À Royan, une nouvelle génération de compositeurs prend le vent en toute liberté’, *Le Nouvel Observateur*, no. 386, 1–9 April 1972.
- 49 Grisey, journal entry for 17 June 1970, ‘Pages de journal’, in *Écrits*, 315.
- 50 Iannis Xenakis, ‘La crise de la musique sérielle’, *Gravesaner Blätter* 1 (1955), 2–4; quoted in Xenakis, *Formalized Music*, 8.
- 51 Gérard Grisey, programme note, *Vagues, Chemins, le Souffle*, March 1972, *Neuvième festival d’art contemporain de Royan*, 1972 programme booklet. On the relation between spatialization and sound movement in Xenakis’s spatialized works see the chapter ‘Spatial Sound Movement in the Instrumental Music of Iannis Xenakis’, in Maria Anna Harley, ‘Space and Spatialization in Contemporary Music: History and Analysis, Ideas and Implementations’ (PhD diss., McGill University, Montreal, 1994), 279–300. The tripartite title is also reminiscent of Boulez’s *Figures, Doubles, Prismes* (1963–64, rev. 1968), an allusion Robert Pienkowski considers deliberate (private conversation with the author).
- 52 GGC PSF Jonathan Harvey, reviewing the premiere (the first discussion of Grisey’s music in English), described the effect of Grisey’s spatial shifting of sound as creating ‘a sensation of musical dizziness with string glissandos turning round a false axis as if in a distorting mirror, the wind instruments taking off from the glissandos’ point of arrival with their own material’; Jonathan Harvey, ‘The ISCM Festival’, *Musical Times* 117 (1976), 33. Harvey and Grisey first met on this occasion (GGC PSF).
- 53 Jérôme Baillet, ‘Des transformations continues aux processus de transformation’, in *Iannis Xenakis, Gérard Grisey: La métaphore lumineuse*, ed. Makis Solomos (Paris: L’Harmattan, 2003), 237–44; also published on Baillet’s personal website, https://jeromebaillet.files.wordpress.com/2011/10/baillet_transformations.pdf (accessed 4 May 2017). See also Jérôme Baillet, ‘Processus et forme’, in *Gérard Grisey: Fondements d’une écriture*, 65–74.
- 54 Grisey, *Musique et espace* (manuscript GGC PSF, original in French).
- 55 Grisey, ‘Devenir du son’, 27.
- 56 François-Xavier Féron, ‘The Emergence of Spectra in Gérard Grisey’s Compositional Process: From *Dérives* (1973–74) to *Les espaces acoustiques* (1974–85)’, *Contemporary Music Review* 30, no. 5 (2011), 354–56.
- 57 Grisey, programme note, *Vagues, Chemins, le Souffle*, Théâtre de la Ville, Festival d’Automne, Paris, October 1975.
- 58 See Liam Cagney, ‘On *Vagues, Chemins, le Souffle* (1970–72) and the Early Use of Resonance Chords in Grisey’s Oeuvre’, *Mitteilungen der Paul Sacher Stiftung* 28 (2015), 49–54.
- 59 As a student Grisey also studied *Domaines* and the Third Piano Sonata, and his orchestral work’s tripartite title would have brought to mind Boulez’s recent *Figures, Doubles, Prismes* (see note 51 above). It is also worth noting that Grisey’s next work, *D’eau et de pierre*, was programmed at the Domaine Musical in January 1973, and that he was one of the first French composers commissioned by Ensemble InterContemporain, a commission resulting in *Modulations* (1976–77).
- 60 Ligeti and Cerha had both explored this type of form before. Grisey’s formal conception is similar to that described in György Ligeti, ‘States, Events, Transformations’, trans. Jonathan W. Bernard, *Perspectives of New*

- Music* 31, no. 1 (1993), 164–71: ‘The musical form that is built from the ideas and principles mentioned here originates in a continuous reciprocal relationship between states and events. The states are broken up by suddenly emerging events and are transformed under their influence [. . .]. Because the degree of state alteration is approximately proportional to the attack strength of events, the impression is created of a causal relationship between event and state alteration.’ The original publications of this essay are György Ligeti, ‘Zustände, Ereignisse, Wandlungen: Bemerkungen zu meinem Orchesterstück *Apparitions*’, *Bilder und Blätter* 11 (1960), 50–57, and György Ligeti, ‘Zustände, Ereignisse, Wandlungen’, *Melos* 34 (1967), 165–69.
- 61 GGC PSF (folder *D’eau et de pierre*, original in French).
- 62 In a journal entry Grisey states what he thought should be his key precepts as a composer: to ‘make the synthesis between the cerebral and the emotional’; to avoid ‘useless vociferation [*bavardage*] and especially [. . .] dryness’; to ‘remain natural above all’; to ‘aim for the precision and brightness of Ravel’; and – most presciently for his future style – to create music that would be ‘intellectual without that intellectualism being apparent’. Grisey, journal entry for 17 March 1966, ‘Pages de journal: Journal d’adolescence, 1961–1966’, 312. Grisey’s sketches from this time show that he still used serial procedures in determining pitch content; in *D’eau et de pierre* he experimented with vertical mirror arrangements of intervals (GGC PSF).
- 63 Grisey, journal entry for 18 December 1970, ‘Pages de journal: Fragments 1967–1974’, in *Écrits*, 316.
- 64 Quoted in Danielle Cohen-Levinas, ‘Gérard Grisey: Du spectralisme formalisé au spectralisme historique’, in *Vingt-cinq ans de création musicale contemporaine: L’Itinéraire en temps réel* (Paris: L’Itinéraire and L’Harmattan, 1998), 53. A lecture delivered by Stockhausen around the same time as this at the ICA in London and recorded as a video gives an idea of what Grisey heard Stockhausen say in Messiaen’s class: ‘the degree of change is a quality that can be composed as well as the characteristics of the music that is actually changing. I can compose with a series of degrees of change, or we can call them degrees of renewal. Then I can start with any musical material and follow the pattern of change, and see where it leads, from zero change to a defined maximum.’ Quoted in ‘Stockhausen Edition no. 7 (Momente)’, <http://www.sonoloco.com/rev/stockhausen/07.html> (accessed 4 May 2017). Grisey refers to Stockhausen’s use of the degree of change in ‘Tempus ex machina: A Composer’s Reflections on Musical Time’, 258.
- 65 Grisey underlined the importance for him of finding the optimal correspondence between concept and perception: ‘The second statement of the spectral movement – especially at the beginning – was to try to find a better equation between concept and percept – between the concept of the score and the perception the audience might have of it.’ See also the introductory remarks in Gérard Grisey, ‘La musique: le devenir des sons’ (1982), in *Écrits*, 45.
- 66 Grisey introduces these epithets in ‘La musique: le devenir des sons’, a 1982 Darmstadt lecture that is structured around the three categories.
- 67 On Grisey’s use of the degree of change in *Partiels*, see François-Xavier Féron, ‘Gérard Grisey: première section de *Partiels* (1975)’.
- 68 Some idea of the growth in interest in this new American music in the early 1970s is given in the fact that when Cathy D’Arcy, head of Shandar Records, organized a concert of Steve Reich’s music in 1971 in Cannes, three hundred people came, whereas when Reich performed at a festival in the south of France in 1973, the audience numbered three thousand. ‘Ode to Gravity: Shandar Records’, *Other Minds Audio Archive*, 23 May 1973, https://archive.org/details/OTG_1973_05_23 (accessed 4 May 2017).
- 69 See Marian Zazeela, ‘Light Performances – *Ornamental Lightyears Tracery*’, <http://www.melafoundation.org/liteperf.htm> (accessed 4 May 2017). The programme was likely similar or identical to the presentation at Rhode Island School of Design a few months earlier, which featured an excerpt from *Map of 49’s Dream The Two Systems of Eleven Sets Of Galactic Intervals Ornamental Lightyears Tracery*, a Drift Study and recordings of The Theatre of Eternal Music among other items.
- 70 Daniel Caux, ‘La Monte Young: Créer des états psychologiques précis’, *Chroniques de l’art vivant* 30 (May 1972), 27–30.
- 71 La Monte Young, ‘Lecture 1960’, in *Chroniques de l’art vivant*, no. 30 (May 1972), 25. In the context of spectralism, the phrase is used, for example, in an essay in L’Itinéraire’s 1976 season programme guide, *Les nouvelles dimensions de la pensée musicale*, and in a couple of Murail’s programme notes.
- 72 Caux, ‘La Monte Young’, 28.
- 73 See Keith Potter, *Four Musical Minimalists* (Cambridge: Cambridge University Press, 2002), 89. On Stockhausen’s borrowings from Young see Peter Niklas Wilson, ‘Stockhausen, der Epigone? Karlheinz Stockhausen und die amerikanische Avantgarde’, *Neue Zeitschrift für Musik* 149, no. 5 (1988), 6–11.
- 74 A performance of Octavian Nemescu’s *Concentric* (1969) is of particular interest, since, along with Corneliu Cezar, Nemescu is one of the founders of the spectral current in Romanian music, which

developed prior to and independently of the spectral current in France. *Concentric* is scored for ensemble (clarinet, violin, viola, cello, piano) and tape. It opens with a recording of a resonant gong strike, immediately followed by the entry in the tape part of a pedal drone of harmonic overtones entering and disappearing over a continuous fundamental. When I asked Nemescu if much discussion took place at Darmstadt after this concert of the new strand of music emanating from Romania, he answered in the affirmative. 'On the same occasion Stockhausen presented and extensively commented his piece "Stimmung"'. This is a work raised around a major seventh and ninth chord, which can be seen as spectral music, too. Many comments were made on the resemblance but mainly on the differences between the 2 works. It seemed like a new aesthetic direction appeared: the recovery, from a different position, of something long forgotten (the consonance). Octavian Nemescu, email to the author, 22 June 2014. Some remarks on Nemescu's spectralism are found in Thomas Beimel, 'Suche nach dem Einklang: Octavian Nemescus "Stundenbuch"', *MusikTexte*, no. 141 (2014), 55–58.

- 75 All references to Grisey's 1972 Darmstadt notes, GGC PSF.
 76 Walter Boudreau, email to the author, 5 July 2013.
 77 For a description of Grisey's method in this regard see Féron, 'The Emergence of Spectra'.
 78 Discussed by Baillet in 'La musique comme auto-engendrement', in *Fondements d'une écriture*, 43–45.
 79 Gérard Grisey, 'Écrits sur ses oeuvres: *Modulations*', in *Écrits*, 138–39.
 80 Grisey, 'Tempus ex machina', 242. Eloy also uses simple, periodic rhythms in *Kámakalá*.
 81 'Concerning form: Never construct a form solely on abstract rhythmical structures, but also on directly perceptible sonorous impacts (rhythm, intensity, timbre etc.)'. Gérard Grisey, journal entry for 17 June 1970, 'Pages de journal: Fragments 1967–1974', 315.
 82 Gérard Grisey, 'Vers une écriture synthétique', in *Écrits*, 224. Again, this phrase is almost identical to that used by La Monte Young about his own music, as quoted earlier.
 83 A clear account of how Grisey developed these principles in his oeuvre is Jérôme Baillet's *Fondements d'une écriture*.
 84 Grisey, 'Did You Say Spectral?' 1. In the same passage Grisey alludes negatively to Xenakis's concept of in-time and outside-time, again showing the legacy of this late 1960s/early 1970s apprenticeship for his mature musical thought.
 85 'Spectral music has its basis in a theory of functional fields and an aesthetic of unstable forms. It marks, on the path traced out by serialism, a progression towards immanence and transparency.' Hugues Dufourt, 'Musique spectrale', in *Musique, pouvoir, écriture* (Paris: Christian Bourgois, 1991), 338.
 86 Tristan Murail, in conversation with the author, Salzburg, 15 January 2014.
 87 Gérard Grisey, 'Écrits sur les œuvres: *Modulations*', in *Écrits*, 138–39.
 88 Grisey, 'Did You Say Spectral?' 2.
 89 '[Grisey's] subjectivism was the basis for his [music's] capturing those fleeting, ephemeral, transient phenomena that constitute the basis of the modern outlook.' Hugues Dufourt, *La musique spectrale: une révolution épistémologique* (Paris: Delatour, 2014), 23.
 90 Gérard Grisey, 'Structuration des timbres dans la musique instrumentale', in *Écrits*, 90; italics added.

Bibliography

- Aguila, Jésus. *Le Domaine Musical: Pierre Boulez et vingt ans de création musicale*. Paris: Fayard, 1992.
 Alla, Thierry. *Tristan Murail: La couleur sonore, métaphore pour la composition*. Paris: Michel de Maule, 2008.
 Baillet, Jérôme. *Gérard Grisey: Fondements d'une écriture*. Paris: L'Itinéraire and L'Harmattan, 2000.
 ———. 'Des transformations continues aux processus de transformation'. In *Iannis Xenakis, Gérard Grisey: La métaphore lumineuse*, edited by Makis Solomos, 237–44. Paris: L'Harmattan, 2003.
 Beimel, Thomas. 'Suche nach dem Einklang: Octavian Nemescus "Stundenbuch"'. *MusikTexte*, no. 141 (2014): 55–58.
 Boivin, Jean. *La classe de Messiaen*. Paris: Christian Bourgois, 1995.
 Boulez, Pierre. *Boulez on Music Today*. Translated by Susan Bradshaw and Richard Rodney Bennett. London: Faber and Faber, 1971.
 ———. *Orientations*. Edited by Jean-Jacques Nattiez. Translated by Martin Cooper. Cambridge, MA: Harvard University Press, 1986.
 ———. *Stocktakings from an Apprenticeship*. Edited by Paule Thévenin. Translated by Stephen Walsh. Oxford: Clarendon Press, 1991.
 Cagney, Liam. 'Synthesis and Deviation: New Perspectives on the Emergence of the French *courant spectral*, 1969–74'. PhD thesis, City University, London, 2015.

- . ‘On *Vagues, Chemins, le Souffle* (1970–72) and the Early Use of Resonance Chords in Grisey’s Oeuvre’. *Mitteilungen der Paul Sacher Stiftung* 28 (2015): 49–54.
- Caux, Daniel. ‘La Monte Young: Créer des états psychologiques précis’. *Chroniques de l’art vivant* 30 (May 1972): 27–30.
- Cohen-Levinas, Danielle. ‘Gérard Grisey: Du spectralisme formalisé au spectralisme historisé’. In *Vingt-cinq ans de création musicale contemporaine: L’Itinéraire en temps réel*, edited by Danielle Cohen-Levinas, 51–66. Paris: L’Itinéraire and L’Harmattan, 1998.
- Dufourt, Hugues. ‘Musique spectrale’. In *Musique, pouvoir, écriture*, 335–40. Paris: Christian Bourgois, 1991.
- . *La musique spectrale: une révolution épistémologique*. Paris: Delatour, 2014.
- Eloy, Jean-Claude. ‘Dix ans après, qu’en reste-t-il?’ (1974). In *Textuerre*, nos. 17–18 (1979): III–XXXVI.
- Féron, François-Xavier. ‘Gérard Grisey: Première section de *Partiels* (1975)’. In *Genesis*, no. 31 (2010). <http://genesis.revues.org/352> (accessed 4 May 2017).
- . ‘The Emergence of Spectra in Gérard Grisey’s Compositional Process: From *Dérives* (1973–74) to *Les espaces acoustiques* (1974–85)’. *Contemporary Music Review* 30, no. 5 (2011): 343–75.
- Fleuret, Maurice. ‘Musiques du large: À Royan, une nouvelle génération de compositeurs prend le vent en toute liberté’. *Le Nouvel Observateur*, no. 386, 1–9 April 1972.
- . *Chroniques pour la musique d’aujourd’hui*. Le Mas de Vert: Éditions Bernard Coutaz, 1992.
- Goldman, Jonathan. *The Musical Language of Pierre Boulez*. Cambridge: Cambridge University Press, 2011.
- Grisey, Gérard. ‘Zur Entstehung des Klanges’. *Darmstädter Beiträge zur Neuen Musik* 17 (1978): 73–79. Original French version, ‘Devenir du son’. In Grisey, *Écrits*, 27–33.
- . ‘Tempus ex machina: A Composer’s Reflections on Musical Time’. *Contemporary Music Review* 2, no. 1 (1987): 239–75. Original French version, ‘[Réflexions sur le temps]’. In Grisey, *Écrits*, 39–44.
- . ‘Did You Say Spectral?’ translated by Joshua Fineberg. *Contemporary Music Review* 19, no. 3 (2000): 1–3.
- . *Écrits, ou l’invention de la musique spectrale*. Edited by Guy Lelong and Anne-Marie Réby. Paris: L’Harmattan, 2008.
- Harley, Maria Anna. ‘Space and Spatialization in Contemporary Music: History and Analysis, Ideas and Implementations’. PhD diss., McGill University, Montreal, 1994.
- Harvey, Jonathan. ‘The ISCM Festival’. *Musical Times* 117 (1976): 33.
- Leibowitz, René. *Introduction à la musique de douze sons*. Paris: Éditions de l’Arche, 1949.
- Lesure-Devriès, Anik, and Claude Samuel, eds. *Olivier Messiaen, le livre du centenaire*. Lyon: Symétrie, 2008.
- Ligeti, György. ‘States, Events, Transformations’, translated by Jonathan W. Bernard. *Perspectives of New Music* 31, no. 1 (1993): 164–71. Originally published as ‘Zustände, Ereignisse, Wandlungen: Bemerkungen zu meinem Orchesterstück *Apparitions*’. *Bilder und Blätter* 11 (1960): 50–57. Also as ‘Zustände, Ereignisse, Wandlungen’. *Melos* 34, no. 5 (1967): 165–69.
- Murail, Tristan. ‘Lecture at Ostrava Days Festival (Excerpt)’. http://www.ocnmh.cz/days2003_lectures_murail.htm (accessed 1 January 2015).
- Nietzsche, Friedrich. ‘On the Use and Abuse of History for Life’. In *Untimely Meditations*, edited by Daniel Breazeale and translated by R. J. Hollingdale, 57–123. Cambridge: Cambridge University Press, 1997.
- Peyser, Joan. *Pierre Boulez: Composer, Conductor, Enigma*. London: Macmillan, 1976.
- Piencikowski, Robert. ‘Une expérience pédagogique: Les Cours supérieurs de composition à la Musik-Akademie de Bâle au début des années soixante’. In “*Entre Denges et Denezey . . .*”: *La musique du XXe siècle en Suisse, manuscrits et documents*, edited by Ulrich Mosch and Matthias Kassel. Basel and Geneva: Contrechamps and Paul Sacher Foundation, 2001.
- Potter, Keith. *Four Musical Minimalists*. Cambridge: Cambridge University Press, 2002.
- Samuel, Claude. *Conversations with Olivier Messiaen*. Translated by Félix Aprahamian. London: Stainer & Bell, 1976.
- . *Permanences d’Olivier Messiaen: Dialogues et commentaires*. Arles: Actes Sud, 1999.
- Stravinsky, Igor. ‘Stravinsky on the Musical Scene and Other Matters’. *New York Review of Books*, 12 May 1966.
- Walters, David. ‘The Aesthetics of Pierre Boulez’. PhD diss., University of Durham, 2003.
- Wilson, Peter Niklas. ‘Stockhausen, der Epigone? Karlheinz Stockhausen und die amerikanische Avantgarde’. *Neue Zeitschrift für Musik* 149, no. 5 (1988): 6–11.
- Xenakis, Iannis. *Formalized Music: Thought and Mathematics in Composition*. Edited and translated by Sharon Kanach. Stuyvesant, NY: Pendragon Press, 1992.
- Young, La Monte. ‘Lecture 1960’. *Chroniques de l’art vivant*, no. 30 (May 1972): 25.