

# That Elusive "Elementary Atom of Music"

by Brian Kane

"It is self-evident that nothing concerning art is self-evident anymore, not its inner life, not its relation to the world, not even its right to exist."<sup>1</sup> This famous opening sentence of Adorno's is especially applicable to the field with which Adorno was so concerned—new music. Contemporary composers acutely feel the problem of music's right to exist: while relying on the performers, audiences and institutions of new music to bring their music into existence, they also feel the antipathy of the same performers, audiences, and institutions towards "new music" in general. Moreover, different schools of composition spend just as much time criticizing their fellow composers' works as do the critics in the pages of newspapers and magazines.

If we want to see just how bad it has become we need not look further than the pages of the *New Yorker*. In a recent broadside on German music, Alex Ross sets his sights on Germany's current "great man," Helmut Lachenmann. Of course, "there is no denying Lachenmann's virtuosity; he is able to arrange the unlikeliest assortment of sounds—flutes blown at the wrong end, cellos bowed in places other than the strings, papers crinkled, sheet metal banged with rods—into an intermittently gripping narrative...Lachenmann has

repeatedly emphasized the novelty and uncontaminated aspect of his sound worlds."<sup>2</sup> But Ross' critique centers on Lachenmann's use of "uncontaminated" (read, anti-populist) sounds. Ross continues, "The notion that popularity destroys the purity of art is so cherished in German-speaking lands-and, it should be said, on American college campuses-that it takes on the solidity of religious belief." However, the religious zealot is not the only figure that Lachenmann resembles:

"The talk of 'contamination'...is redolent of turn-of-the-century pseudo-scientific textbooks about the invasion of German culture by alien bodies. At the very least, Hitler still casts a mysterious spell over the music scene..." (Ross 70).

According to Ross, the spirit of totalitarianism is alive and well in German new music. Thankfully, that can't happen here in America-except on college campuses, of course! Is it any wonder orchestras are afraid to play new music?

This little anecdote raises a simple question: What went wrong with new music? Tristan Murail, one of France's most famous living composers and, along with Gerard Grisey, the most prominent member of the group known as the Spectralists,<sup>3</sup> tries to answer this question in a recent essay. He diagnoses the problem as such:

Our conception of music is held prisoner by our education. All has been cut into slices, put into categories, classified, limited. There is a conceptual error from the very beginning: the composer does not work with 12 notes, x rhythmic figures, x dynamic markings, all infinitely permutable-he works with sound and timbre. Sound has been confused with its representations...<sup>4</sup>

According to Murail, if new music is to survive, it must return to a simple fact. Like the carpenter who works with wood and nails, or the sculptor who works with chisel and stone, sound and timbre are the basic materials with which the composer fashions his music. If the music of today has lost its audience and even its right to exist, it is because sound and timbre have become confused with our concepts of notes, dynamics and figures. The abstractions we use to comprehend sound and timbre have become their very replacement. Nevertheless, sound and timbre are the eternal sources from which music perpetually emerges, and to which music is compelled to return. For Murail, composers must become reawakened to music's original material if new music is to flourish.

Yet, I feel that we should take Murail's diagnosis with caution. The whole story smacks of myth. *If only we can return to the origin then all will be saved.* However, I do not want to dismiss Murail out of hand because he underscores an important state of affairs. In the attempt to assess the contemporary situation of music, composers are often thrust back onto the question of "musical material." Is the material of music notes and figures, or is it sound and timbre? For Murail, "note and sound are not the same, nor is the note any longer the elementary 'atom' of music" (Murail 158). What is the elementary "atom" of music? What is this smallest, indivisible part, upon which composers should build-up their musical world? Murail has given us one

answer—namely, sound and timbre. In this essay I hope to pursue the question, keeping Murail's suggestion in mind but also investigating other possibilities. I hope to show that Murail's position, and the position held by many other composers of the Spectralist school, is useful for grasping the distinction between notes and sounds. But, I will also try to show that the whole question of what constitutes "the elementary atom of music," or what I am calling the question concerning musical material, can be pushed much further along. By unfolding of the question of musical material I hope to give a constructive critique of the Spectralist position and a counter-example to it in the work of composer Elliott Carter.

When Murail speaks of the "elementary atom of music," it is clear that he is not making an analogy to the atom of quantum physics, with its sub-atomic particles and Heisenbergian uncertainties, but rather to the atom in its classical conception, where it acts as the smallest, indivisible particle from which the world is constructed. However, Murail is not the only musician to have seen an analogy between music and atomism. Elliott Carter, in his *Double Concerto*, constructed a chamber piece inspired by the classical atomic theory of Lucretius' *De rerum natura*. In an interview with Italian musicologist Enzo Restagno, Carter describes how he conceived of the analogy between the musical atom and the classical atom:

The literary idea that turned into a compositional project was taken from *De rerum natura* by Lucretius. Following Lucretius' cosmogony, I conceived the idea of sound atoms falling and forming a musical work. Since the poem ends with a description of the Plague of Athens, I also conceived a dissolution of the music that would correspond to the literary subject. I identified each interval with a given tempo, and I laid out a broad texture that would include all the intervals and their tempi...At a certain point I realized that this idea of intervals repeated at different tempi could coincide with the image of the forming of the universe as described by Lucretius.<sup>5</sup>

The connection between the music and the philosophy of atomism deserves some unpacking. In the Epicurean physics, the cosmos is ontologically constituted by two givens: atoms, and the void through which atoms move. Epicurean atomism borrows its ontology from Democritus, whose atomic system is conventionally thought to have synthesized Parmenidean permanence and Heraclitean flux: the atoms are the indestructible, permanent entities, whose various combinations, collisions, and motions engender the flux of continual impermanence and change. In Carter's analogy, "interval" is aligned with "atom," and "tempo" is aligned with the "atomic motion." Intervals are "atomic" in the sense that they have a clear identity and can be combined with one another to produce, chords, harmonic fields, spectra, melodies, and so forth. A musical ear learns to identify intervals as clearly graspable sonic entities. Tempo, although harder for a listener to identify in absolute quantitative or metronomic terms, is understood in relation to other tempi as being faster or slower. One of the dangers that Carter faces in trying to align and co-

ordinate interval and tempo is utter monotony. If all the intervals in a piece of music are rigidly pre-determined by a tempo, how can a composer generate enough harmonic variety and contrast to keep the piece musically compelling? This musical problem has a counterpart in classical atomism: if all the atoms are falling through the void in the same direction and at the same rate, how could they meet and give rise to our world? Carter's musical solution is analogous to the classical atomic solution.

The idea of Lucretius that is most strongly reflected [in the *Double Concerto*] is that of the falling atoms. If their fall were perfectly vertical, however, they would never meet, and could never give rise to reality. Lucretius, as we know, gets around that problem by introducing the idea of *clinamen*<sup>6</sup> - that is, a deviation from the vertical axis that allows the atoms to meet. The progressive deceleration of the metronome markings...is the equivalent of the *clinamen*, because this is the only way in which the intervals/atoms can escape from a vertical fall which would never give rise to any shape. (Carter 64)

By setting up a proportional scale of tempi, different intervals move at different rates. This creates a grid that is constantly realigning intervals into new combinations, and thus produces constant harmonic change and juxtaposition.

The chart reproduced as Figure 1 shows the connection between tempo and interval in the *Double Concerto*: ten tempi are organized proportionally as a series of gradations from 35 to 17.5 beats per minute. Each interval is assigned a tempo and an instrumental group. The basic drama of the piece is a conflict between the solo activities of either

the harpsichord or the piano, each supported by a group of instruments. The convergence of the "atoms" is found in the huge collision that ends the exordium at mm. 45 and 46. Here the two instrumental groups arrive at co-incident "downbeats" separated by one measure. This collision is reproduced in schematic form in Figure 2. Programmatically, the music before the crash represents the atoms chaotically traveling through the void, while everything afterwards represents the accretions and collisions that give rise to our constantly changing world. The world of the *Double Concerto* is comprised of the traditional parts that make up the classical three-movement concerto: an allegro, and adagio, a presto, plus two cadenzas.

Although our starting point was "sound atoms falling" through the void we have suddenly arrived at the traditional categories and conventions of the concerto. Instead of designing a work to investigate these "elementary atoms of music" as such, Carter's compositional interest is in building up these atoms into a representation. Much like the beginning of Haydn's *Die Schöpfung*, the exordium of the *Double Concerto* does not give us chaos, rather *die Darstellung des Chaos*. However, as Murail pointed out, the whole problem of new music is based on the simple premise that "sound has been confused with its representations." And many critics of Carter would agree. The density and complexity of Carter's construction makes the apprehension and differentiation of his "sound atoms" impossible. No one

can hear the association of tempi and interval in the *Double Concerto*. And thus, it is doomed to failure because the "sound atom" is never perceptually isolated. The sound atom is subsumed by representation.

If Carter's attempt to associate the "elementary atom of music" with the physical atom fails because of its imperceptibility within the listening experience, then perhaps we can get a clearer sense of this "elementary atom" by asking ourselves—what precisely constitutes musical listening? This question occupies the attention of philosopher Roger Scruton in his recent book *The Aesthetics of Music*.

Scruton structures the listening experience on the opposition between the *acoustic* and the *akousmatic*. The term *acoustic* describes a type of causal listening, namely, a listening which is interested in identifying the real physical source of some given sound. The term *akousmatic*,<sup>7</sup> in its narrow sense, describes a situation where the causes behind the production of sound are invisible to the listener. In its wider sense it describes a type of listening uninterested in physical causes because it is invested in hearing sounds as "sonic entities" and "pure events." An example may clarify this distinction: we listen *acoustically* when, as alarmed parents, we hear the cry of a baby, but we listen *akousmatically* when we hear this same cry aesthetically as an intriguing sonic phenomenon,

detached from its pressing connotations. The application of the *acoustic/akousmatic* distinction to the world of electronic music or radio is apparent, but Scruton uses the term to distinguish the *world of music* from the *world of everyday sounds*.

When we hear music, three things occur: there is a vibration in the air; by virtue of which we perceive a sound, which is a "secondary object", heard as a pure event; and in this sound we hear an organization that is not reducible to any properties of the vibration that causes it. *Hearing sounds* involves the exercise of the ear: it displays an acoustic capacity, and all that we hear when we hear sounds are the secondary properties of sound events. Animals also hear these properties, and respond to sounds and to the information contained in sounds. But to *hear music* we need capacities that only rational beings have. *We must be able to hear an order that contains no information about the physical world, which stands apart from the ordinary workings of cause and effect, and which is irreducible to any physical organization.*<sup>8</sup>

By separating physical causes from audible impression, Scruton is also distinguishing *sounds* from *tones*: sounds, when heard as akousmatic events, become tones.<sup>9</sup> This transformation is constitutive for the experience of the specifically musical—it is music's necessary condition. Unless one is hearing sounds as tones, one is not really hearing "music." In other words, when we hear a melody we are not hearing just a mere sequence of sounds. The fact that we understand the sequence as a melody with a particular contour and rhythm shows that we are listening in a musical way. Hence, we are not interested in the melody's mere "physical organization," but rather its specifically musical aspects. The mainspring behind the transformation is

a shift of attentiveness away from the causal domain towards the domain of "pure events." In music's temporal world, pure events are juxtaposed and placed in succession.

Attentiveness to the relations perceived within and between pure events comprises meaningful musical listening. Anyone who has listened to (or rather, participated in) a performance Cage's 4'33" has experienced this shift in attentiveness. When approached with akousmatic ears, the unintended sounds in the hall become musical—one perceives connections, similarities, dissimilarities, rhythms and textures. The *mélange* of rustling and coughing becomes filled with rhythms and tones. One becomes aware of the subtle shifting density of the sounds we normally call background noise. The background becomes the foreground and we hear it musically. Thus, even in the face of the music of chance, an attentive shift will reveal an unknown aspectivity, unintended similarities and relationships—the unveiling of a world of figuration. As Cage has shown over and over again, all musical hearing is *hearing-as*. Thus, any experience of music will necessarily import metaphors into the aural experience. In musical listening all *sounds* become *tones*, and all *tones* are metaphorical.

As Scruton argues, "our experience of music involves an elaborate system of metaphors - metaphors of space, movement, and animation" (Scruton 80). We are being metaphorical when we describe a melody as *rising* or *falling*, as *reaching a climax*, as *moving up* or *down* in *tonal space*;

we are also being metaphorical when we describe a tempo as *lively, brisk, slow but not dragging*; when we describe a minor key as *tragic*, a modulation as *distant*, or a cadence as *deceptive*. But are all the dimensions and parameters of music capable of being metaphorically comprehended? Is that all there is to the experience of listening to music?

As much as Scruton would like this to be the case, there is one parameter of music that he cannot account for: timbre.<sup>10</sup>

If we are to describe timbre itself...we find ourselves baffled. Either we identify the timbre through its physical cause (the sound of the clarinet), or we have recourse to metaphor. (Consider, for example, the extraordinary sound of the E major chord that announces the triumph of Brünnhilde's pleas to Wotan...How can we capture this in words, except as something like a sudden golden blaze?) (Scruton 77)

We are in a dilemma: if we account for timbre through its physical cause, we break the law of the akousmatic reduction and find ourselves outside the territory of the specifically musical. Yet, the unconvincing descriptive phrase, "the sudden golden blaze," is unlike the other musical metaphors that Scruton holds so dear. Metaphors of animation and movement, which are constitutive for the experience of the specifically musical, are precisely those metaphors that have become literal for us. Melodies move up and down, no scare quotes necessary. But not timbre because, "In describing the timbre of a tone we are not situating it in the musical space; nor are we identifying anything that is essential to it as a musical individual" (Scruton 77). Here

Scruton's metaphysics come to the fore; timbre is a non-essential metaphor. While some metaphors such as movement, animation and even "musical space" are necessary for the experience of the specifically musical, others like the "golden blaze" of the brass are circumscribed and rejected. But, as deconstruction has tried to teach us, it is impossible to determine which metaphors are essential and which are inessential in the construction of meaning.<sup>11</sup>

Scruton's failure to successfully account for timbre shakes our confidence in the ability of metaphoric comprehension to be an adequate translation of continuous sensory perception. The gap between perception and comprehension is due to the very plenitude of sensory perception; no amount of comprehension will ever be able to adequately capture and represent sensation in all of its lived texture. Timbre, in all of its vibrancy, cannot be reduced to its descriptions or schematizations. In other words, the texture of experience is not reducible to its structure.

So what are we to make of this gap? Perhaps, it could become the site for a musical-compositional project: a music fixed on timbre could potentially be a music able to redeem that very thing which remains outside the world of hearing-as; a music which saves harmonic spectra from the stranglehold of metaphor; a music that is no longer invested in the representation of structure, but rather in the sheer vibrancy of texture; an anti-metaphorical music; a music

that liberates what musical convention, history and education have repressed. *A specter is haunting European music—the specter of spectra.*

This is what Spectralism tries to achieve. Philippe Hurel, a composer and theorist of the Spectral school, states this goal clearly. "In effect, it is no longer the gesture of the artist in the studio which...serves as a model, but rather the sonorous phenomenon itself."<sup>12</sup> Gestures must be rejected because they take on meaning only within a field of signification; as things-in-themselves they are meaningless, useless. Gestures are signs. Hence, the close relation between music notation and gesture; notation is "only a symbol that gives a more or less precise indication to the performer of what gesture he should make and what result he should try to produce" (Murail 158). If musical discourse has traditionally been constructed by the juxtaposition and sequencing of gesture upon gesture, then gesture must be rejected in favor of the "sonorous phenomena itself" which now becomes the "model of musically exploitable structure" (Hurel 262). The Spectralist project is interested in unfolding this sonorous phenomenon over time, creating a composition that holds fast to its "elementary atom of music" while, unlike Carter, resisting the tendency to fall back into gesture, signification, or representation.

Naturally, all music has been interested in sound, but Spectralism tries to maintain sound at the very threshold

before its transformation into representation. *Sound has been confused with its representations.* Hence, according to Hurel, the composer must decide between two alternatives:

1) the choice of material which the composer subjects to multiple transformations, rhythmic and intervallic work, all of which ineluctably implies a polyphonic and motivic writing. In this case timbre appears as a secondary parameter and the work proceeds in the traditional manner, even if the orchestration is highly refined...2) the choice of acoustic models and processes connected to perception. (Hurel 264)

Two points are worthy of note. First, the difference between the two options depends on the choice of material. Here the question concerning musical material comes to the fore. In the first case, "sonorous phenomena" are immediately subsumed by motivic development, variation, rhythmic transformation and the like. The sonorous phenomenon gives up its identity to participate in "transformation." While in the second case, it is precisely the uniqueness of the "sonorous phenomenon" that is preserved. It stubbornly holds onto its identity against the onslaught of "transformation." Secondly, all "sonorous phenomena" have the possibility of being transformed; all sounds can become figures. Traditionally, this figural possibility has captured the interest of composers. The movement back and forth between "sonorous phenomenon" and "transformation" is always implicit in musical material. The opening of Beethoven's Ninth Symphony and the *Tenebroso* of Berg's *Lyric Suite* are two moments in the vast history of Western music where the scale suddenly veers away from

transformations and figures towards sheer sonorous phenomena; musical meaningfulness is dissipated when it becomes sheer sound.<sup>13</sup> Sound is the starting point for motivic transformation, and motivic transformation can always be reduced back to sound.

If this is still vague, we may be able to find some clarity by looking at how another discipline, literary criticism, negotiates the "transformation" of the signifier, from "sonorous phenomenon" into a meaningful sign. In the final essay of *Allegories of Reading*, entitled "Excuses", Paul de Man reads a passage from Rousseau's *Confessions* to expose the subtle complexities involved in the movement of signification. The passage from Rousseau recounts a shameful episode from his youth, which de Man summarizes nicely:

"While employed as a servant in an aristocratic Turin household, Rousseau has stolen a "pink and silver colored ribbon." When the theft is discovered, he accuses a young maidservant of having given him the ribbon, the implication being that she was trying to seduce him."<sup>14</sup>

Rousseau gives two excuses for the false accusation. First, because of his desire for the young maidservant, "I accused Marion of having done what I wanted to do and of having given me the ribbon because it was my intention to give it to her." (de Man 284) A complicated web of intersubjective desires creates a system of substitutions at work in this excuse. The first substitution is simple: the ribbon is a substitute for Rousseau's desire for Marion; he intended to give it to Marion, as a symbol of his feelings for her. The second substitution is more complex and depends on

reciprocity, which is the very condition of love for Rousseau. If Rousseau was willing to steal the ribbon for Marion, then reciprocally, "Marion has to be willing to substitute for Rousseau in performing this act." (de Man 284). As de Man notes, "We have at least two levels of substitution (or displacement) taking place: the ribbon substituting for a desire which is itself a desire for substitution. Both are governed by the same desire for specular symmetry...Specular figures of this kind are metaphors and it should be noted that...the introduction of the figural dimension in the text occurs first by ways of metaphor." (de Man 284). Borrowing from de Man, I would like to use the term "figuration" to correspond to this complicated phenomenon of the production of textual meaning, whether by substitution or other means.

But this is not the end of the confession. Rousseau has another excuse ready to account for his actions; but rather than mutually support each other, these two excuses actually produce a contradiction. The second excuse states that, "She [Marion] was present to my mind, I excused myself on the first thing that offered itself." (de Man 288) Here, the word "Marion" is spoken like a slip of the tongue, unconsciously. While the first excuse was causal (I accused Marion because I desired her), the second excuse is contingent (I accuse Marion because she was the first thing that offered itself). The first excuse was Rousseau's confession of his conscious intention, while the second

excuse is his confession of his unconscious utterance. As de Man describes it, "Marion just happened to be the first thing that came to mind; any other name, any other word, any other sound or noise could have done just as well and Marion's entry into the discourse is a mere effect of chance. She is a free signifier..." (de Man 288) De Man's chain of descriptive terms (name-word-sound-noise) nicely captures the movement from the strict specificity of the proper name towards the noisy generality of the free signifier. By the end of this movement, the signifier "Marion" has become utterly formal, like an algebraic variable. *Any other noise or sound would have done just as well.* "Marion" has become pure sound and, according to the logic of Rousseau's second excuse, any other sound could have been substituted in its place. The sound "Marion" has been drained of all intentionality. Thus, in contrast to the term "figuration", I would like to use the term "formalization" to correspond to the reduction of textual meaning to sheer noise.

One last point. Rousseau's excuses are confessed after the fact, in order to clear up "the discrepancy...between the "sentiment intérieur" that accompanied (or prompted?) the act and the act itself." (de Man 280) But which "sentiment" are we to believe? When Rousseau says "Marion" are we to understand this utterance in its figural sense, as articulating a web of libidinal substitutions; or are we to understand it in its formal sense, as a contingent lump of

intentionless sonic material? What's more, how can we be certain that either of these excuses *truly* describe Rousseau's interior sentiments? We are forced to take Rousseau's *word* for it. And that begs the entire question of the figurative and formal dimensions of signification.

So how can this possibly help us talk about music? I will try to show the utility of discussing musical material in terms of figuration and formalization in one very specific example: Gérard Grisey's *Partiels*. I have chosen this piece because of its exemplary status; *Partiels* is a model of the Spectralist aesthetic.<sup>15</sup> At the very opening of the score, the trombone (doubled by the contrabasses) plays a low E, and soon the rest of the orchestra is playing pitches also present in the harmonic spectrum of this note. Up through the tenth partial, all the pitches that we would ordinarily find in a dominant ninth chord are present (with a seventh that is slightly too flat): E, B, G-sharp, D, and F-sharp. Of course, to call it a dominant ninth chord implies that we are hearing this "sonic entity" as a potential participant in a tonal harmonic system, where dominant ninth chords have fairly specific functions. Or, to say it another way, labeling this chord as a "dominant ninth" implies that we have transformed the "sonic phenomenon," the formalization, into figuration. Once figured, this dominant ninth has a potential harmonic meaning; maybe it is the E dominant ninth chord that opens Franck's *Sonata for Violin and Piano*, awaiting its

resolution to an A major triad. Regardless, this chord has the potential to become figural, and this possibility *must be foreclosed* by Spectralism. Hurel describes the famous opening chord of *Partiels* in exactly this manner.

To hear it as a chord type seems to me to reveal a *perversion of the ear*, a hearing that would be tonal: the superposition of a fundamental and its harmonics does not sound like a dominant ninth chord, if one understands that it is never connoted by the musical context. (Hurel 263)

The chord cannot connote anything because connotation is itself the problem for Spectralism. Moreover, the need to foreclose upon the possibility of connotation, upon all figuration, strikes me as obsessive: "sonorous phenomena" are one-sidedly valued as the *ne plus ultra* of composition.

What supports the one-sidedness is science. The timbral structure of sounds can be scientifically analyzed, decomposed into its spectrum of sinewaves and transcribed as a sonogram with the aid of a computer. In addition, each partial in the spectrum can be tracked over the course of the sound's existence. The brief life and death of a sound then becomes the model for temporal form in general. As Jérôme Baillet argues in a recent monograph on Grisey, all other methods of working with time become arbitrary in the face this empirical fact:

Now it is obvious that the majority of music composed in the 50's and 60's cultivated arbitrariness to an extreme degree. Perhaps never has music been so generally negligent of the necessity of temporal progression as in that era which one witnesses in the concepts of "open forms", the "all-over musical", the Moment-form or, more globally, the assimilation of musical form to spatial projection.<sup>16</sup>

This claim prescribes that all compositional work must come from the sound itself. To avoid arbitrariness everything must remain as close as possible to the presumed origin. Harmony must come from the timbral spectrum; form must come from the attack and decay of its partials. Objective and formalized, sound itself becomes the fetishized idol around which the Spectralists construct their myth.

Scruton's account of the listening experience revealed the gap between metaphorical comprehension and sensory perception. Yet, the problem with Scruton's account is its inability to deal with musical phenomena, like timbre, which resist metaphor. We can fault Scruton for taking the side of figuration over formalization but we can also fault the Spectralists for doing just the opposite. As the commentary concerning *Partiels* shows, the Spectralist conception values formalization at the expense of figuration.

However, what both Scruton and the Spectralists share is the inability to recognize the indissoluble connection between figuration and formalization. If we have correctly learned our lesson from Rousseau (via de Man), the contradictory excuses of Scruton and Hurel are much more intimately connected than either would like to believe. This should lead us to a new point-of-view: a musical aesthetic must deal with the interactions of formalization and figuration, or be doomed to continually discounting its other. I call this the "tropological" point-of-view.

Tropology investigates the manner in which forms become figures, or to put it less abstractly, the manner in which sounds are transformed into tones and tones are reduced to sounds. In other words, tropology is the field in which the materiality and phenomenality of the sign are seen in their interaction; thus, it reveals the construction and the reduction of meaning.

If we approach Carter from our earlier perspective, where "sound" and "representation" were adversaries, then a work like the *Double Concerto* is bound to be a failure. But looking at the same work from a tropological point of view, where the goal of the work is to reveal the construction and reduction of meaning, the music takes on a new relevance. In Carter's systematic compositional practices four broad domains bear the brunt of this tropological project: 1) *dramatis personae*, 2) harmony, 3) polyrhythm, and 4) form.

1) ***Dramatis Personae***: Carter's musical discourse is structured by the juxtaposition, co-operation and interpenetration of instrumentalists, or instrumental groups, acting as *dramatis personae*. An exemplary piece is the 2<sup>nd</sup> *String Quartet*, where each instrumentalist is characterized through its style of performance: virtuoso agility, affective lamentation, dutiful time-keeping and expressive rubato.<sup>17</sup> The simultaneity of distinct musical personalities is absolutely fundamental and should be the point of departure for any analysis of Carter's music.

This feature can also be interpreted in light of the construction and reduction of meaning in a tropological world. The characters have a dual significance: on the one hand, they are clearly arbitrarily assigned, they are personifications, and hence tropes, which the listener understands as such. Yet they also remain consistent through the entire dramaturgy of the piece. The *dramatis personae* are at no point revealed to be *mere constructions*: they appear as constructions *a priori*. In this sense they share much with the role of conventions in the Classical period. The rhetorical dramaturgy of Mozart relies on the close juxtaposition and substitution of conventions rapidly undercutting one another. For example, take the exposition of Mozart's F Major Sonata, K. 332:<sup>18</sup> in a span of just over seventy bars, Mozart includes a four measure phrase in a simple vocal style answered by its parody in a learned contrapuntal setting; ten measures of hunt calls; a *Sturm und Drang* transition to the dominant, emphasizing arpeggiated sixteenth-note figures and augmented-sixth chords after the mannered style of C. P. E. Bach; and finally a symmetrical minuet tune, interrupted by more *Sturm und Drang*, to close the exposition. As musicologist Wendy Allanbrook says, "Mozart makes palpable the human drama...by imitating various human gestures along its arch" (Allanbrook 8). I would argue that this could also serve as a description of Carter's own dramaturgical practice.<sup>19</sup> The juxtapositions of conventions in the late Mozart force the

listener to ask, "What could possibly be holding all this rhetoric together?" and Carter goes further by articulating both the rhetoric and its contingent basis.

2) **Harmony:** As a substitute for tonality, Carter has developed his own system for handling pitch. As a way of giving flesh to the *dramatis personae*, intervals are partitioned and divided between instruments or groups of instruments. Intervallic consistency is Carter's primary way of giving melodic coherence to his characters. This practice finds its strict realization in the 2<sup>nd</sup> *String Quartet* and the *Double Concerto* (works written simultaneously in the late 50's) and continues up through his most recent music. In the former each instrumentalist is differentiated through an intervallic language—a differentiation necessary due to the timbral uniformity of the string quartet. The arbitrariness of partitioning intervals is wholly apparent but, in the later music, Carter artificially "derives" his intervallic partitioning. In *Enchanted Preludes*, the intervals are derived from an all triad hexachord, which when combined with its inversion, yields an all interval 12-note chord (see Figure 3). As the piece unfolds, the harmonic language becomes more specific; namely, the piece moves from 12-note chords to 6-note chords to particular intervals. But from the pre-compositional point of view, the process moves in the opposite direction. The 6- and 12-note chords are retrospectively chosen to justify Carter's intervallic decisions. Carter harmony is "pre-established"

rather than based on spectra. In opposition to Spectralism's obsessive attachment to an empirical and verifiable series of overtones, Carter's harmony appears wholly arbitrary. Yet, this works to his advantage because, in Carter's compositional world, pitch is secured to dramaturgical ends.

3) **Polyrhythm:** Carter's structural polyrhythms act as the objective scaffold upon which the *dramatis personae* act out their gestures. Typically, Carter picks a pair of contrasting rhythms which will meet at the beginning and end of the work. For examples, in *Night Fantasies* (1980) for solo piano, the two rhythms pulse at 8.75 and 10.8 beats per minute. At the third measure of the work the two rhythms begin. During the course of the piece every single pulse of these two rhythms is articulated until they reach their final meeting point, exactly 20 minutes later, at the final bar of the work. At moments of extreme formalization, the rhythmic scaffolding itself takes center stage. (See the piano cadenza at measures 567 ff. in the *Double Concerto* or the continual return of the material marked *tranquilo* in *Night Fantasies*.) At other moments the polyrhythms are buried underneath the musical figurations. But between the two co-incidences at the beginning and the end, every moment in the piece is structured according to a unique relationship in the polyrhythm.

Polyrhythm also leads towards structural ambivalence: one trajectory of rhythmic action can never have more than local prominence. Gestures are continually being undercut

by the disjunction of other trajectories. Polyrhythm has a dialectical function: it organizes and co-ordinates one trajectory at the expense of another. Hence, their coordination and co-incidence act as significant formal makers within the pieces.

4) **Form:** Characteristically, the structural polyrhythms that organize the rhythmic world do not have a co-incidence at the first note of the score. There is always a brief exordium and peroration which stand, in a certain sense, outside the musical discourse proper. These framing mechanisms, first used in the *Double Concerto*, are programmatically modeled on the collision of the atoms from Lucretius, as discussed earlier.<sup>20</sup> They create a dualism in Carter's works: outside the frame, a realm of atomic materiality that is non-discursive and distinct from the dramaturgy proper and, within the frame, a realm of discursiveness, dramaturgy, action, convention, and identity (see Figure 4a and 4b).<sup>21</sup> The frame removes the necessity for an internal, dramaturgical deconstruction of musical material, because it articulates the ontological status of the dramaturgy *qua* metaphor.

And this is the crux. Where Scruton and Murail become fixated on a single dimension of musical tropology, such as "sonorous phenomenon" or "tone", Carter explores the tropological world in its entirety. As Rousseau's utterance

"Marion" exemplifies, it matters little where we start in the process of figuration, any formalized beginning will do. Unlike the spectral analyses of Murail and Grisey, Carter's starting point is always contingent—a subjectively chosen partitioning of intervals and a grid of polyrhythms. But at the same time, Carter's figuration works consistently and faithfully upon its formal, contingent foundation. Thus, an essential aspect of the tropological world is captured; tropology, which is concerned with the construction and reduction of meaning, is both consistent and contingent. In distinction to some eternal, transcendent essence, which could guarantee and secure meaning, tropology argues that our formalizations are contingent impressions, apprehended in sensation, upon which meaningful worlds are faithfully constructed. Carter's works, by including the full range of tropological possibilities, draw a parallel between the musical world and the meaningful world we inhabit. This is possible because tropology, as a theory of meaning, describes the structure, or "architecture," shared by both worlds.

If our investigation began with the attempt to discover that elusive "elementary atom of music," we must now conclude that this "atom" is inextricably tied to the constructions we base upon it. In opposition to Murail, new music need not spend its energies trying to outsmart and annihilate education, culture, history, or whatever is currently being demonized. The point of new music is to

capture the "architecture" of meaning. And as our physical world changes materially, through technology, politics, culture, and education, we imagine our meaningful world to change itself accordingly. Thus, a music which forces reflection upon the manner in which we construct meaning, a music which imitates and embodies the variability and flux of the world, could be a powerful tool for seeing our world from a perspective other than that given by television, magazines, films, advertising, radio and other forms of mass mediation. This may also help to explain the recoil that many people feel in the face of new music: in a world like ours, which appears increasingly dark and transitory, new music may be fulfilling its task too well.

**Figure 1. Co-ordination of tempi, intervals and groups in the Double Concerto.**

Metronomic Speeds	Piano	Harpsichord
35	Major 3rd	
31 1/2	Perfect 5th	
29 1/6		Tritone
28		Perfect 4th
25	Major 2nd	
24 1/2		Minor 2nd
21 7/8	Major 7th	
21	Major 6th	
19 4/9		Minor 3rd
17 1/2		Minor 7th

**Figure 2. The co-incident downbeats that end the exordium of the Double Concerto. The bottom group of tempi collide at measure 45, while the top group collide one measure later.**

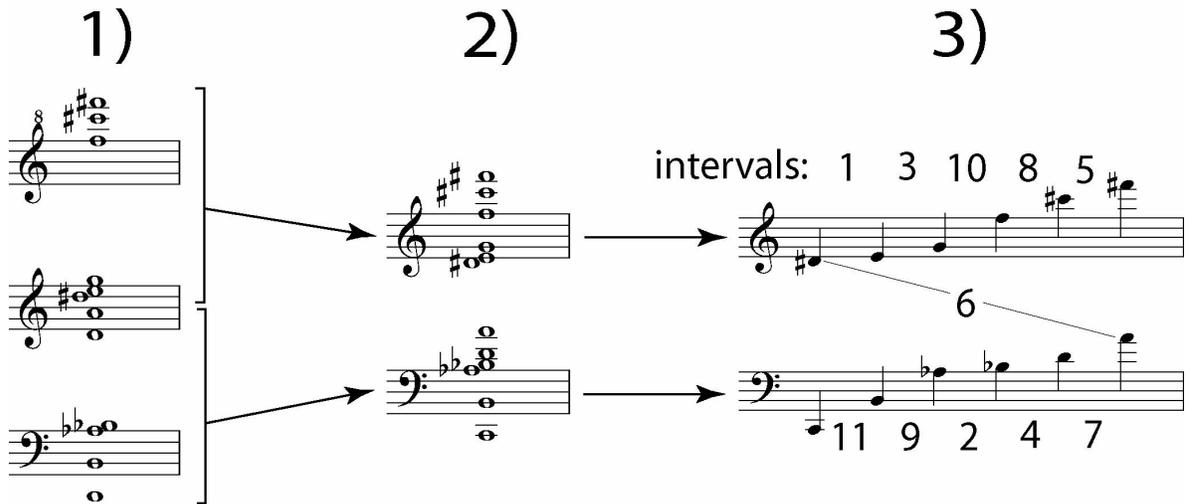
The image displays a musical score for measures 44, 45, and 46. It is divided into two main sections, each with its own set of staves and a common time signature.

**Top Section:** This section consists of five staves. The time signature is 3/4. The measures are numbered 35, 31.5, 28, 24.5, 21, and 17.5. Measure 45 features two triplet markings (indicated by a bracket with the number 3) over the first two staves.

**Bottom Section:** This section consists of four staves. The time signature is 1/6. The measures are numbered 29, 25, 21, 19, and 17.5. Measure 45 features five quintuplet markings (indicated by a bracket with the number 5) over the first two staves.

Diagonal lines connect the downbeats of the two sections across measures 44, 45, and 46, illustrating the collision of tempi. In the top section, the downbeats are aligned with the first staff of the bottom section. In the bottom section, the downbeats are aligned with the first staff of the top section.

**Figure 3. Three step derivation of intervals in *Enchanted Preludes*. From 1) an all-interval 12-note chord (i.e., all 11 chromatic intervals are stacked vertically to form a chord that contains all 12 chromatic notes) Carter derives 2) the all-interval hexachord (i.e., a six-note chord that contains all 12 possible three note chords as subsets) and 3) partitions the full set of chromatic intervals to either flute or cello. This “naturalistic” derivation is retrospectively arranged to arrive at step three.**



**Figure 4a. Articulation of the dualistic frame in Elliott Carter's *Triple Duo*. Before the structural polyrhythm begins, the instruments perform their characteristic gestures in an atomized fashion. The collision marking the beginning of the structural polyrhythm begins the dramaturgy proper.**

Allegro (♩ = 100)  
Quasi improvvisando

Flute

B<sup>b</sup> Clarinet (transposed)

Percussion

Piano

Violin

Cello

beginning of structural polyrhythm

1

Fl.

B<sup>b</sup> Cl.

Perc.

Pno.

Vln.

Vcl.

**Figure 4b. The drama reaches its final culmination in a collision marking the arrival point of the structural polyrhythm. After this moment, the music disintegrates into a scattering of atoms.**

Fl.  
B♭ Cl.  
Perc.  
Pno.  
Vln.  
Vcl.

arrival of structural polyrhythm

Fl.  
B♭ Cl.  
Perc.  
Pno.  
Vln.  
Vcl.

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<sup>1</sup> Theodor Adorno, *Aesthetic Theory*, trans. Robert Hullot-Kentor (Minneapolis: Minnesota University Press, 1997), 1.

<sup>2</sup> Alex Ross, "Ghost Sonata", *The New Yorker* 24 Mar. 2003: 70.

<sup>3</sup> The group known as the Spectralists or L'Itinéraire, is loosely comprised of composers such as Huguhe Dufourt, Gérard Grisey, Tristan Murail, Michaël Levinas, Roger Tessier, Phillippe Hurel and others. They have had a great impact on the world of new music in the last 25 years. By focusing their attention on harmonic spectra they have created a style of composition that is in sharp distinction to the European modernism in fashion in the 50's and 60's. Their influence has grown beyond the French border and can now be seen in the work of composers internationally. For an excellent overview and documentary history see Danielle Cohen-Levinas, ed., *Vingt-cinq ans de création musicale contemporaine. L'Itinéraire en temps réel* (Paris: L'Harmattan Inc., 1998).

<sup>4</sup> Tristan Murail, "Spectra and Pixies," tr. Tod Machover, *Contemporary Music Review* 1 (1984): 158.

<sup>5</sup> *Elliott Carter: In Conversation with Enzo Restagno for Settembre Musica 1989*, tr. Katherine Silberblatt Wolfthal (Brooklyn: Institute for Studies in American Music, 1989), 63.

<sup>6</sup> A fundamental doctrine in Epicurean physics, *clinamen* describes the belief that atoms "swerve" ever so slightly away from their pre-determined course at some indeterminate time and place. The consequences of this physical principle are inflected ethically in Epicureanism. The *clinamen* is the physical basis for free will. For more commentary on the *clinamen* see A. A. Long and D. N. Sedley, *The Hellenistic Philosophers*, vol. 1 (Cambridge: Cambridge University Press, 1987), 104-112; *Hellenistic Philosophy: Introductory Readings*, trans. Brad Inwood and L. P. Gerson (Indianapolis: Hackett, 1988); Lucretius, *On the Nature of the Universe*, trans. Ronald Latham (London: Penguin, 1951), 66-68.

<sup>7</sup> The French electronic musician, inventor of *musique concrète*, and theorist Pierre Schaeffer first introduced the term akousmatic into modern musical parlance. Historically, the *akousmatikoi* were the silent disciples of Pythagoras, who are reputed to have listened to the master lecture from behind a screen, so as not to pay attention to the man uttering the words, but rather the words themselves. The consequences of the acoustic/akousmatic distinction form the theoretical groundwork for Schaeffer's classic work: Pierre Schaeffer, *Traité des objets musicaux* (Paris: Éditions de Seuil: 1966), 91 ff.

<sup>8</sup> Roger Scruton, *The Aesthetics of Music* (Oxford: Oxford University Press, 1997), 39.

<sup>9</sup> The argument parallels Wollheim's discussion of seeing-as and the "twofold thesis". To quickly summarize this thesis,

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when looking at paintings our attention is unequally divided between two aspects - seeing the painting as marks on a canvas, and seeing the painting as an image or as a representation. See Richard Wollheim, *Art and its Objects* (Cambridge: Cambridge University Press, 1980), 213 ff.

<sup>10</sup> Timbre is a notoriously difficult term to clearly define. It is often synonymously described as "tone-color". The Grove Dictionary defines it as, "a term describing the tonal quality of a sound; a clarinet and an oboe sounding the same note are said to produce different 'timbres'." But this is still a negative definition: timbre is the remainder left over when pitch, dynamic and duration are neutralized. The psycho-acoustic perception of timbre is due to the presence and relative strength of the multiple overtones (comprising the "spectrum") inherent in any sound. These overtones or partials vary in strength and presence over the brief life of a sound. This spectrum perceptually "fuses" together into a global entity that is grasped by the ear all-at-once. Much of the research in psycho-acoustics has been concerned with the perception, analysis, and the reproduction of timbre through synthesis. Interestingly enough, *timbre*, is itself a metaphor that comes from the French word for stamp—each sound being stamped with its own unique fingerprint. However, both the negative definition and psycho-acoustic analysis of timbre cannot account for its uniqueness and plenitude.

<sup>11</sup> Scruton's sophistic dismissal of Derrida (as the representative of all deconstruction) is telling: "There are those who...argue with Derrida that language is fundamentally metaphorical, and that every literal use is founded on a metaphor that undermines it. But life is too short to mount the full refutation of such a view, which if true, must also be false, since at least one thing would be literally true." Scruton, 91.

<sup>12</sup> Phillippe Hurel, "Le phénomène sonore, un modèle pour la composition", *Le timbre, métaphore pour la composition*, ed. Jean-Baptiste Barrière (Paris: I. R. C. A. M., 1991), 262.

<sup>13</sup> In the former, Beethoven makes the "tones", the initial motive of the descending 5<sup>th</sup>, emerge from out of "sounds"; in the latter, Berg halts the movement of motivic figuration and exposes his material as schematic, deathly "sound"—a raw, un-figured tone-row. See Beethoven's *Symphony No. 9*, movement I, mm. 1-14; Alban Berg, *Lyrische Suite*, movement V, mm. 51-120,.

<sup>14</sup> Quoted in Paul de Man, *Allegories of Reading* (New Haven: Yale University Press, 1979), 279.

<sup>15</sup> Wilson, Peter Niklaus, "Vers une ecologie des sons", tr. Martin Kaltenecker, *Entretiens* 8 (Paris: 1989), 57.

<sup>16</sup> Baillet, Jérôme, *Gérard Grisey, Fondements d'une écriture* (Paris: L'Harmattan, 2000), 39. Baillet's book is the standard text for the analysis and explication of both Grisey's aesthetic theory and compositional work.

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<sup>17</sup> *Dramatis personae* are also visible in solo works, such as *Riconoscenza per Goffredo Petrassi*. In this short piece for solo violin distinct musical personalities are juxtaposed, sequenced and layered in rapid succession, transposing the simultaneous dramatic characters typical of Carter's chamber works into the register of a single instrument. Although Carter's string quartets are the *locus classicus* for this style of thinking, it is visible in every work since the *Sonata for Violoncello and Piano* (1948).

<sup>18</sup> I owe this insight to Wye Jamison Allanbrook, *Rhythmic Gesture in Mozart* (Chicago: University of Chicago Press, 1983), 6 ff.

<sup>19</sup> To quote Carter: "If you really want to know, I always make secret reference to Mozart." *Elliott Carter: In Conversation*, 66. One key to tracing the juxtaposition of characters is through the Italian labels Carter ascribes to them, i.e. *scorrevole*, *furioso*, *leggerissimo*, *tranquilo*, *andante espressivo*, etc.

<sup>20</sup> This framing mechanism is a constant feature of Carter's works. For a few examples from his recent output see, *Esprit Rude/Esprit Doux*, *Asko Concerto*, *Enchanted Preludes*, *What Next?*, *90+*, *Night Fantasies*, et al.

<sup>21</sup> Even in Carter's most recent work this schema still holds. A fantastic example is found his monodrama *What Next?* (1999). Here the "collision of the atoms" is made *literal* as a terrible car crash. The plot of the opera follows a small set of characters as they wander around in a quasi-amnesiac daze, trying to remember what they were doing and where they were going. Just like in Lucretius, the collision articulates a moment of catastrophic change that subsequently sets the drama into motion.