

**Perception of Time and Reflection in Music:
Alfred North Whitehead and
Elliott Carter's *String Quartet No. 2***

Regarding Elliott Carter's compositional output, scholars have commented on and analyzed influences attributed to philosophy, literature, film, and dance. Most notable among these include Jonathan Bernard's 1995 article, *Elliott Carter and the Modern Meaning of Time*. In various interviews, lectures, and essays, Carter himself discusses at some length how these subjects have been influential on his thinking, and have thus contributed to his approach in solving musical problems (the kernel of inspiration in his compositions) in various interviews, lectures, and essays. His main ideas and developments throughout the past seventy years include all-interval chords, polyformal compositions, metric modulation, polyrhythmic activity. The String Quartets of Elliott Carter serve as a compendium of creative devices, influential elements, and inspired innovation. Although his main interests were always in the field of music, while at Harvard University in the 1930s, Elliott Carter studied literature, Greek, mathematics and philosophy. (As he stated, this was in part a reaction to the mainly conservative track of the music department there.) He commented that he "was greatly affected by the reigning philosophies of the period," including Irving Babbitt and, more importantly, there was Alfred North Whitehead and his 'Philosophy of Organism,' which "made a deep impression."¹ The content of many of Carter's lectures and essays over the past 50 years attest to the fact that these subjects have been life-long interests. Although it is fair to say that Carter does not make a literal comparison between his String Quartets and the philosophical ideas of Alfred North Whitehead, I believe that it is instructive to do so. I will present an overview of the philosophical theory of one of the philosophers who most influenced Carter, Alfred North Whitehead, and show how this philosophical theory can be used as a guide to *String Quartet No. 2*.

The branch of philosophy under consideration is metaphysics or 'speculative philosophy,' which traditionally consists of two components. The first is ontology, which "attempts to identify the nature, the essential properties, and the relations of any thing that is." The second is cosmology, which concerns "the fundamental relationships, interactions, and processes within the totality of being (or the cosmos)."² The goal of any successful theory of metaphysics, then, is to reconcile the two branches with each other in a formula that enables us to understand *things* as separate, distinct entities and the binding relationships that exist between them.³ One of the initial hurdles to understanding the concepts contained in this philosophy is coming to terms with the manner in which Whitehead uses language. "Whitehead was convinced that ordinary language contained within it hidden assumption about the nature of reality that were misleading and incorrect for the purposes of accurate metaphysical analysis."⁴ As a result, his writing is filled terminology unique unto itself and will be defined as it is encountered in this discussion.

Whitehead's background consisted of scientific reasoning and thought in the area of mathematics and logic. In fact, nearly all of Whitehead's work before arriving at Harvard, where he accepted a professorship in 1924 at the age of sixty-three, "concerned mathematics, symbolic logic, and mathematical physics," collaborating with Bertrand Russell on *Principia Mathematica*, published 1910–1913.⁵ Whitehead's subsequent ventures into general philosophy may be more readily understood with this background knowledge. In his later thought, which is the topic of the present discussion, Whitehead discusses "insights achieved and expressed in art, literature, religion, the humanities, and ordinary common sense" in his search for a metaphysical philosophy of existence and being – only in this way will any comprehensive theory "result in a view of reality that is faithful to the complexity and diversity of our actual experience."⁶

This philosophy, termed the 'Philosophy of Organism,' was developed mainly in the 1920s and 1930s. Whitehead's seminal work in this domain is *Process and Reality*, published in 1929. 'Philosophy of Organism' consists of a theory based in the process and experience of existence – hence, reality. Whitehead's philosophy rests on the belief that the key to finding rigorous explana-

tions for reality must be discovered in our own subjective experience. This must be so, for if it could not be found in ourselves, then the reasoning is that it would not be applicable to all things and, hence, not universally true.⁷ I believe it is the idea of a universal outlook with a foundation resting on the common experience of all things that caught Carter's interest.

Actual Entities

The 'Philosophy of Organism' is a complex association of sequential states of being where we are constantly either increasing or decreasing concrescence with other "actual entities." Immediately we see that a few terms need to be defined. Concrescence is a word derived from the Latin *concrecere*, which means to grow together, collect or be formed. In biology it signifies "a growing together of parts originally separate."⁸ 'Actual entities' (or 'actual occasions') "are the final real things of which the world is made up... The final facts are, all alike, actual entities: and these actual entities are drops of experience, complex and interdependent."⁹

Hosinski clarifies this topic by describing "actual entities" as a "moment of experience." All "actual entities" exist in the world equally, with greater or lesser importance to other "actual entities" and include within themselves relationships with past and future experiences. "This single moment is complex, because it bears within it relationships to all the moments that occurred before it and to all the moments that occurred after it in that person's life. It does not exist in isolation, but in relation to other moments."¹⁰ These 'moments' exist as reality through their alignment sequentially. They "stretch from birth to death and if we cut or slice through this life, we will encounter a single actual entity, a single 'moment' of experience." A single moment of experience, therefore, must have some "thickness" or duration and this is what we call the present. "The passage of time measures the transition from actual entity to actual entity," or successive instants.¹¹

In *String Quartet No. 2*, Carter develops the idea of "character-patterns" or "character-continuities" which are "associations of intervals, metronomic speeds, polyrhythms and rhythmic characters used to dramatize the musical personalities of instruments or instrumental groups and to make clear the stratification of texture."¹² David Schiff, in his book, *The Music of Elliott Carter*, lists these character patterns for each instrument of the Second Quartet.¹³ (See Figure 1.)

Figure 1. Chart of character patterns as revealed in Carter's *String Quartet No. 2*.

Reprinted from David Schiff, *The Music of Elliott Carter*.

2nd ed. Ithaca, NY: Cornell Univ. Press, 1998.

<i>Instrument</i>	<i>Intervals</i>	<i>Rhythmic type</i>	<i>Expressive character</i>
Violin I	m3, P5, M9, M10	free	bravura
Violin II	M3, M6, M7	pulse	laconic
Viola	aug4, m7, m9	<i>rubato</i>	<i>espressivo</i>
Cello	P4, m6, m10	<i>accel.-ritard.</i>	impetuous

The four parts are designed as "archetypical" musicians. Carter is quoted as stating the following: "The first violin is a virtuoso, interested mainly in showing off, the viola is a bit too-consistently doleful, the cello self-indulgently romantic; the second violin [the only part not to have its own cadenza] like a composer tries to create order among its narcissistic neighbours."¹⁴ This can be seen at the beginning of the Quartet as the individual instruments begin to reveal their character patterns.

Overall, the work is organized into four movements separated by cadenzas for viola, cello, and violin I, respectively. An introduction and conclusion frame these sections. The parts do not share material until the fourth movement. The Introduction does, in fact, introduce the characters to the audience. The first movement, *Allegro fantastico*, then begins in m. 35 with a virtuosic display by the first violin. (See Figure 2.)

Prehension

How do "actual entities" coalesce? The manner in which sensations and perceptions (defined as the actual entity) coalesce into an experience is what Whitehead calls a "prehension."

The word "prehension" is derived from the Latin *prehendere*, which means to seize or grasp. He uses this term on the basis of the following logic: As we experience something, we are constantly perceiving and incorporating new data along the continuum of our very recent past to construct our present awareness. This is the constant becoming of what we call *now*. In this moment I am using the knowledge learned about this topic in the past to communicate an idea. This is now your present as well. There is, then, concrescence of experiential existence through this prehension.

Rashvihary Das elaborates on the concept of prehension. He revisits a comparison between Whitehead's views on prehensions as the central object of existence with Newton's belief that physical objects exist separately from the objective perception of time. "For Newton, absolute durations of time and absolute places were actual things. They were real by themselves."¹⁵ As Newton has fixity of space and order of events, Whitehead has 'actual entities' in various states of existence (or perception), since "actual entities" do not experience all data at the same rate. If we are defined by what weprehend, and our prehensions are experienced individually, no one else on the planet (and nothing else) is having exactly the same experience at the same time. (There would be a great deal of similarity at times, but the fact remains that no experience is identical to another experience.) Our reactions in response to what we have prehended then inform our decisions in the current moment, leading us to have new, different, and continually distinct experiences of growing closer and further away from other entities. My existence as a writer, for example, does not make sense or have validity without your existence as a reader.

The Quartet's second movement exemplifies this growing closer and further away as a process of understanding oneself while incorporating aspects of the reality of other entities. This movement showcases the second violin in the role of time-keeper/peace-maker, showcasing the second violin's specific rhythmic character pattern. (See Figure 4.)

Figure 4. Elliott Carter's *String Quartet No. 2*, movement II, Violin II solo.

Note the use of characteristic intervals in all parts as well. There is little semblance of agreement within or between the parts until measure 215, where there is brief agreement, lasting through measure 226. (See Figure 5.) In m. 243 the cadenza for cello begins. However, here too we find that the cadenza is not a true cadenza in that the other players are not tacit nor does the part as written show off the virtuosic capabilities of the instrument throughout this section. Rather, the dynamic marking here is, for the most part, *piano* and it is almost as if the musical sentences are incomplete as well. (See Figure 6.)

Figure 5. Similarity in dynamics, use of double stops, and note values in Violin I, Viola, and Cello parts. *String Quartet No. 2*, movement II.

215

pizz. *p* *arco* *mf* *pizz.* *fp*

mf *pizz. f* *f* *f* *ff* *ff*

mp-pp *p* *mf* *fp*

mp-pp *p* *mf* *fp*

Figure 6. During the Cadenza for Cello, the remaining parts cooperate only in that they have similar material. Entrances in Violin I and II. In measures 252–253, especially, interrupt the Cello lines.

243 Cadenza for Cello
= ♩ = 93.8 —

p *pizz.* *mf* *con sord.* *mf espr.* *senza sord.* *f* *senza sord.* *ff* *pp*

248

p *(pizz.)* *mf* *(con sord.)* *pp* *mp-pp* *pp* *cresc. poco a poco*

molto giusto *f marcato* *stacc. corto ed inciso, accomp. sempre* *arco* *un poco meno f*

f marcato - un poco meno f *stacc. corto ed inciso, accomp. sempre*

f espr. *sempre ben in fuori* *f* *cantando intenso*

The third movement opens with a viola solo in measure 286. Note that the designation is 'Solo to m. 373.' Throughout the solo, the other parts do not entirely respect the solo, nor does the viola insist on being heard above the other instruments. (See Figure 7.)

Figure 7. Stylistic imitation of Viola solo by Cello line; measures 286–290.

III

286
Andante espressivo
= ♩ ♩ (♩ = 70) →

Solo to **373**
dolce, cant.

mp (non troppo)

mf *p* *pp* *mp* *p*

In measure 314, in the midst of the continuation of the Viola solo, there is a large interruption by the Violin I and II and Cello. The dynamic level seems more confrontational than cooperative or supportive of the violist's solo. At the same time, it does appear as if the characters are beginning to react to the other parts, rather than simply announcing their individual patterns in a completely self-centered manner. (See Figure 8.)

Figure 8. Measures 311–315. In measure 314, there is an interruption of the Viola solo by the Violin II part.

f *p* *ff* *ff marc.*

mp *mf* *f* *ff*

f *p* *ff* *marc.*

In Figure 9, one can see designations for solos in the first and second violin. This is still while the viola cadenza/solo is in effect. In measure 363 especially, the cello competes with the viola, here both parts are marked 'solo.'

Figure 9. During the Viola solo, interruptions and simultaneous solos with all three other parts exist.

The image shows a musical score for four staves: Violin I, Violin II, Viola, and Cello. The score is divided into two systems. The first system starts at measure 359. The Violin I staff has markings for *ff marc.* and *mf non troppo*. The Violin II staff has *ff marc.* and *f marc.*. The Viola staff has *ff* and *f marc.*. The Cello staff has *ff*, *mf*, and *sf*. The second system starts at measure 373. The Violin I staff has *ff marc.* and *pp*. The Violin II staff has *ff* and *f (accomp.)*. The Viola staff has *f* and *mf*. The Cello staff has *f sub.*, *mf*, and *p sub.*. There are also markings for *pp espr.* and *pp* in the Viola and Cello staves respectively.

The concluding material of the third movement contains the violin cadenza, which begins in m. 374 and ends in measure 421 and is the only truly solo cadenza in the piece. (See Figure 10.) Typical of a violin part, it is quite virtuosic and none of the other instruments play during this section until nine measures before the start of the fourth movement. (Even then, the entrances are quite soft and of a timid nature.)

Figure 10. Cadenza for Violin, at the end of the third movement.

The image shows a musical score for a single staff: Violin I. The title is 'Cadenza for Violin I (Solo to 438)'. The tempo is 'L'istesso tempo'. The score starts at measure 381. The Violin I staff has markings for *p*, *mf*, *f*, and *f marc.*. There are also markings for *senza rit.*, *♩ = 112 subito*, and *espr.*. The score ends at measure 438. There are also markings for *marc.*, *ff*, *f*, *p sub. espr.*, and *f marc.* in the first system. In the second system, there are markings for *piu f*, *mf cresc.*, *f espr.*, and *molto intenso*.

Concrescence

The objective world presents us with the data we use to make decisions and evaluate our position in it, and Whitehead believes that our perception of these data is a fusion of two distinct types of observation. The first is the "mode of presentational immediacy." This presents the contemporary world to us through its relation to the physicality of our being. These are sensations or feelings that we inherit through bodily experience or awareness of sensation. The second, and often of more importance, is perception "in the mode of causal efficacy." This is the way we experience objects as distinct from sense perceptions. Observing the fact that there is a chair in the room has nothing to do with sensory perception.

There are two types of "prehension." This initial type of prehension emerges as a single series of occasions when lined up consecutively over time because the process is individual and internal. In a thin slice of the present moment, for example, one prehends that, while in the middle of a sentence, one must continue speaking. In other words, we are taking the data we receive from our immediate past to construct our present. The second type is a multi-dimensional seriality of occasions, as we move outward to include more actual entities in each observation.¹⁶ After reading this article or listening to a performance of a new work, that information will become part of your experience and will inform future decisions (such as whether or not to listen or read more).

When a span of actual occasions are considered as a large or multi-dimensional group, the prehension of sequences, transitions and successive instants becomes the personal identity of an individual or part of the identity of a group of individuals – in other words, a life. A "society" of actual occasions is a life. Here the term society is used simply as a way to denote a group, held together simply by proximity and, as such, shared experiences. (One can make this connection because of the shared similarities between members of the society.) According to Whitehead, "members of a society are alike because, by reason of their common character, they impose on other members of the society the conditions which lead to that likeness."¹⁷ The likeness within a society develops over time, with increasing or decreasing concrescence between members of the society as relations become more or less intertwined through interactions of "actual entities."

The continuous prehension of data during moments of experience concresces relationships between and among people, creating a society. As a society, the members are interdependent and the existence of any particular society is entirely dependent on the membership. There is a membership because they have formed relationships over time and therefore project their future possibilities as vectors outward from their current prehensions.

Returning to the String Quartet, the fourth movement shows evidence of shared material between the previously distinct character patterns, especially regarding specific intervals. This shared material begins through motives realizable only through the contribution of each instrument. (See Figure 11.)

Figure 11. Incorporation of shared characteristic intervals between all four parts.

The image shows a musical score for a string quartet, specifically a section starting at measure 454. The score consists of four staves, likely representing the four instruments. The music is in a key with one sharp (F#) and a common time signature. Above the first staff, there is a rehearsal mark '454' in a box and a text instruction: 'Always bring out the notes in the extra staff:'. The score features various dynamic markings such as *f*, *f-p*, *f-mf*, *mf-p*, *mf-p*, *f-p*, *f*, *f-p*, *f*, and *f*. There are also markings for *p* (piano) and *sub.* (subito). The notation includes eighth and sixteenth notes, rests, and slurs. The overall texture is dense and rhythmic, with many notes beamed together.

In m. 456 we see the G# in the second violin, the B and A# (a characteristic interval of the second violin) in the cello, D in the first violin, and F# in the second violin. It is also interesting to note that as intervals are used as motivic material, character-patterns are shared between parts. In measure 461, the P5 interval indicated by a4 and e4 in the violin II and cello was originally a characteristic interval assigned to Violin I. The aug5 interval on beat one of m. 461 is characteristic of the cello (m6), yet here it is created by the g3 and d#4 of the three other parts. (See Figure 12.)

Figure 12. Incorporation of shared characteristic intervals simultaneously between parts.

In other words, the whole is greater than the sum of the parts. The individual parts, originally quite diverse and in opposition to each other, have now condescended to the point of simultaneous activity. In a final statement of simultaneity, intervals (originally ascribed to individual parts) have become in m. 595–597 organically connected to each other. In Figure 13 we see that the first interval, P5, is shared between all parts although it was originally ascribed to the first violin. The Quartet has become like an organism, where one part cannot be separated or extracted from the rest without the whole and each individual being affected.

Figure 13. Characteristic intervals interconnected among all parts.

After this climax, the conclusion begins (m. 600). Note that throughout the conclusion "all the notes of Violin II end motives whose other note or notes are heard in another part." This is further evidence of concrecence. (See Figure 14.)

Figure 14. The note at the beginning of the Conclusion states, "all the notes of Violin II end motives whose other note or notes are heard in another part." Here the individual voices have found concrecence to the point where phrases are not complete until there has been some sharing or simultaneity between at least two parts.

* Throughout the "Conclusion", all the notes of Violin II (usually pizzicato) end motives whose other note or notes are heard in another part.

In the final bars, the individual character patterns are eventually restated in a similar manner as in the introduction and the piece ends in nearly the same way as it began.

Conclusion

To summarize, Whitehead's Philosophy of Organism is made up of individual occasions, "actual entities," that exist in relation to themselves in time (through prehension of past events and future possibilities) and each other by perception of sensory and observational data and degree of concrecence.

By incorporating aspects of personification and characterization of individual musical parts in his *String Quartet No. 2*, Carter created an environment where individual characters do not sacrifice any part of their individuality for the greater whole and yet work toward agreement through conflict. At the same time the work is able to achieve an overall beauty and synthesis of sound that had not been realized previously through the medium of string quartet writing. The piece is a journey where the performers and audience members have experienced a real drama between four protagonists by the end.

I began this research simply because my initial exploration into Carter's music was a difficult experience for me. How is it that these pieces have won such honors and prizes? I found that the answer in making sense of the musical material began with understanding the extra-musical influences, in addition to understanding theoretical concepts behind Carter's compositional technique. The key to making sense of the whole necessitates understanding the individual parts and lines of musical activity by instrument or group while simultaneously listening to the overarching impact of the total sound and the way in which the individual lines meld and become intertwined. It is this communication between the voices where one notices and understands their differences, unique characters, emotional qualities, strengths, fears, and aspirations and it is incumbent upon the listener to find an approach to understanding Carter's music. Listening to the quartet with this information has contributed to a deeper appreciation of the music and I hope will enable other students of Carter's music. It is this kind of curiosity, which Carter finds himself imagining to exist in the audiences for which he writes his music: "the curiosity to find out what is new, to assess it, and to try to come to terms with it."¹⁸

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Notes

- ¹ Schiff, 11–12.
- ² Hosinski, 3.
- ³ Hosinski, 3.
- ⁴ Hosinski, 2.
- ⁵ Hosinski, 2.
- ⁶ Hosinski, 10–11.
- ⁷ Hosinski, 27.
- ⁸ Hosinski, 46.
- ⁹ Hosinski, 20. Quoted from *Process and Reality*.
- ¹⁰ Hosinski, 21.
- ¹¹ Hosinski, 20–21.
- ¹² Schiff, 36.
- ¹³ Schiff, 36.
- ¹⁴ Find Source!
- ¹⁵ Rashvihar Das, *The Philosophy of Whitehead*. Ann Arbor, MI: University Microfilms, 1959, 81.
- ¹⁶ Hosinski, 65.
- ¹⁷ Hosinski, 132.
- ¹⁸ Carter, *Essays and Lectures*, 318.

Santrauka

Laiko ir vaizdinių suvokimas muzikoje

Elliott Carterio, vieno produktyviausių Amerikos gryniosios muzikos autorių, kūryba apima didesnę šimtmečio dalį. Jo kūriniai su būdinga poliintervaline akordika, daugiaformėmis kompozicijomis, metrinėmis moduliacijomis ir instrumentinių grupių griežimu skirtingais tempais vienu metu, taip pat kūriniai, kuriuose panaudotos ir išryškintos atskirų instrumentų natūralios galimybės ir asmeninės atlikėjų savybės, iki šiol tebėra neišsenkamas novatoriško požiūrio į muzikos komponavimą šaltinis. Be grynai muzikinių įtakų, Carterio kūrybą veikė ir nemuzikiniai faktoriai, kurie turėjo reikšmės minėtų komponavimo technikų sukūrimui.

Remiantis Styginių kvartetu Nr. 2, šiame pranešime pristatomi novatoriškų koncepcijų sukūrimo ir pritaikymo filosofiniai bei literatūriniai pagrindai, aptariamas laiko faktoriaus panaudojimas. Pranešime paminėta A. Northo Whiteheado „organizmo filosofija“, keturios laiko filosofijos teorijos (H. Bergsono, P. Suvchinskio, Ch. Koechlino ir G. Brelet), iliustruotos J. Cocteau filme „Poeto kraujas“, ir personažo plėtojimo metodas, panašus į rašytojų J. Joyce'o ir E. Dickinson. Ši analizė atskleidžia unikalų E. Carterio požiūrį į komponavimą kaip holistinį kūrybinį procesą, muzikos teorijos ryšį su šiandienos poreikiais ir tikslais. Pati jo muzika sako, ką jam ir mums reiškia patirtis.