Self, No-Self, and the Experience of the Living: An Enactive Approach of Sound, Space and Affect

Paulo C. Chagas – paulo.chagas@ucr.edu

There are so many views of the Self that is virtually impossible to approach the Self without a subjective bias. The Self has been associated to both the body and the mind; feelings, perceptions, thoughts and consciousness appear as forms of the Self. On the other hand, the Self can be completely de-associated from the body and such mental processes. The Self can be something absolute, or with an ontological value like the phenomenological categories of *Being* and *Dasein* in modern philosophy. Indeed, the Self has a dense and rich texture that opens the door for a semiotic inquiry. This paper proposes an account of the Self that aims to bridge different fields of scientific and humanistic scholarship. I am particularly interested in exploring the notion of self-organization and the autopoiesis point of view that provides with a multi-faceted, organism-centered account of the living. Instead of viewing meaning as representations, constructions or illusions, the investigation focuses on the self-establishment of the living process. It approaches cognitive understanding as embodied meaning relating perception to action. Finally, I will present a research on the relationship between sound, space and affect as an illustration of the enactive approach of cognition.

The theory of *autopoiesis*, introduced in 1972 by Chilean biologists Humberto Maturana and Francisco Varela is concerned with the paradigm of self-organization of the living (Maturana and Varela 1980). The autopoiesis accomplishes an epistemological turn as it approaches modern biology as an experimental field. Two essential keywords for this turn are *autonomy* and *identity*. On the one hand, autopoiesis puts the "autonomy of the living at the center, instead of obscuring its role, as has been the case for modern biology"; on the other hand, it reduces "the core properties of the organism to their minimal form" (Varela 2002). In this respect, autopoiesis accounts for biological evolution in two different ways, through the retrospective analysis of biological evolution, from complex multicellular organisms back to singles cells, and also by projecting the understanding of simple molecular living organisms into complex multicellular organism endowed with a nervous system and cognitive faculties.

Autonomy, Autopoiesis and Self-Organization

According to the autonomy viewpoint, organisms are fundamentally a process of constitution of an identity by detaching themselves from the environment. The bacterial cell is the simplest, emblematic example of living systems because it possesses the capacity to produces all the chemical components that lead to the constitution of a distinct unity. The cell membrane is the boundary that separates the cell from its environment and defines the internal metabolism. Identity is achieved through *operational closure*, which gives rise to an emergent or global coherence that constitutes the reference for a *domain of interaction*. The level of interactions is the logical and mechanical source for informational, intentional, or semantic values to all living organisms. Each living system constructs its environment through the domain of interactions made possible by its autopoietic organization. The living system must distinguish itself from its environment while at the same time interacting with it. The interactions have relevance and consequences for the unitary identity and the evolutionary pathways of organisms.

The autopoiesis theory, built around the principle of autonomy at the biological level of the cell, is consisted with empirical studies on self-organization and self-production that emerged in the second wave of cybernetics. Maturana and Varela formulated the notion of minimal autonomy as a *circular* process of self-production:

> An autopoietic system—the minimal living organization— is one that continuously produces the components that specify it, while at the same time realizing it (the system) as a concrete unity in space and time, which makes the network of production of components possible. More precisely defined: An autopoietic system is organized (defined as unity) as a network of processes of production (synthesis and destruction) of components such that these components: (i) continuously regenerate the network that is producing them, and (ii) constitute the system as a distinguishable unity in the domain in which they exist (Varela 1997, 75).

Despite being formulated for the minimal living system—the cell—the principle of biological individually and the self-organizing concept of autopoiesis have been consistently extended to the study of the life of multicellular organisms. Autopoietic biology provides a link to a phenomenological understanding of the living and the mechanisms of sense-making. The notion of an individually that is self-produced and structured coupled with its environment opens the door for a re-understanding of teleology as an intrinsic or endogenous quality of life: "There can only be an individuality that copes, relates and couples with the surroundings, and inescapably provides its own world of sense" (Webern and Varela 2002, 117). Consequently, in addition to the basic purpose of maintaining its own identity—affirmation of live, the living organism, by interacting with the environment, fulfills a *sense-creation* purpose directed to maintain the process of self-realization.

Accepting autopoiesis as embodied teleology reintroduces the subject in the account of biology and paves the way to an *embodied* understanding of meaning. Organisms define themselves by creating the domains of self and the intentional world. The *Umwelt* (Cf. Uexküll 1973) is not a neutral place but acquires a meaning in relation to the organism. For a cognitive self, the environment constitutes a surplus of signification, which Varela explains with a musical metaphor:

> Like jazz improvisation, environment provides the ''excuse'' for the neural ''music'' from the perspective of the cognitive system involved. At the same time, the organism cannot live without this constant coupling and the constantly emerging regularities; without the possibility of coupled activity the system would become a mere solipsistic ghost. (Varela 1997, 84).

Subjectivity, intentionality, and meaning are keywords of an *organic phenomenology* as formulated by the autopoiesis. As the organism is able to organize itself (self-organization) it becomes an ontological center itself, governed by the principle of autonomy. Webern and Varela (2002) explains autonomy—following Kant and Jonas (1973)—as teleological behavior that overcomes the distinction between form and matter (substance), which inverts the ontological relationship form/matter: "Form becomes the essential, and substance has

become the accidental" (Jonas 1973, 125; quoted in Webern and Varela 2002, 118). The autonomy becomes the space that exists between the "realization of the living and its underlying matter. The subjective dimension that what gives the "desire" of the living, from the simplest organisms to the human beings, is a form. Form desires itself; the desire happens in matter against the entropically natural state, in which everything is possible, but death is a certitude. The autopoietic theology accounts for a circular, self-referential movement of the living: "To live means to say yes to oneself emphatically as the basic movement of existence, because existence is always existence of form on and against pure matter" (Weber and Varela 2002, 119).

For Weber and Varela, Kant's transcendental analysis gives already a visionary account of self-organization. From Kant emerges the notion of an intrinsic or endogenous theology, which is an empirical feature of the organism. An organism self-organizes matter into a living being; Kant recognized that this cannot be done in a mechanical way. Two centuries later, the new developments in both science and philosophical research make possible "to go beyond Kant in an account of life and purpose" (Weber and Varela 2002, 121).

The Cognitive Self, the Ego, and Groundlessness

Varela et al. (1991) provide a multilayered account of the lived human experience and its possibilities of transformation that encompasses cognitive science, philosophy and experimental practice of meditation. Cognitive science includes neuroscience, cognitive psychology, and cognitive technology. Merleau-Ponty's phenomenology inspires the embodied account of the lived human experience. The fundamental issue is to question the status of the self as cognitive subject. The self, or cognizing subject is fundamentally fragmented, divided, or non-unified. By criticizing Western science for having no direct, hands-on, pragmatic approach to experience, Varela et al. propose to articulate a dialogue between Western cognitive science, and Buddhist psychology and meditative practice. This pragmatic endeavor provides a new direction in cognitive science called *enactive* approach, which proposes a view of cognition as embodied action. The domain of cognitive science should be enlarged by opening up a perspective on human direct experience inspired from Buddhism in the form of mindfulness/awareness meditation. The study of self and the

relation between subject and object offers many points of convergence between Buddhist doctrine, phenomenology, and cognitive science.

Cognitive science provides with a broad, interdisciplinary perspective for studying the mind by linking it to knowledge, technology and social practices. The digital computer and artificial intelligence played an important role in the development of cognitive science. Artificial intelligence has deeply penetrated the contemporary mind through mobile devices, computer games and science fiction. Varela and al. account for three successive stages in the development of cognitive science: *cognitivism*, *emergence*, *enactive*. Cognitivism, which emerges on the first wave of cybernetics during World War II, compares human intelligence to computer intelligence saying that both accomplish computations of discrete functional elements—symbols—that represent some aspects of the real world. Freud's psychoanalysis, for instance, attempts to make representations accessible to consciousness. Cognitivism recognizes that there are cognitive processes which we are not only unaware, but we cannot access; this leads to the idea that the cognitive self—the self—is basically fragmented or non-unified. *Emergence* accomplishes the shift from a representational to a connective view of cognition, based on the principle of self-organization. Cellular automats and the study of neuronal networks are exemplary applications of the emergence principle; cognition is seen as "the emergence of global states in a network of simple components" (Varela et al. 1991, 99); changes in the connectivity among the elements result on the emergence of cognitive patterns. Finally, the *enactive* approach formulates an autopoietic view of cognitive science based on the structural coupling between organism and environment that brings forth a world. The enactive program sees cognition as embodied action that occurs through a network consisting of multiple levels of interconnected activity between organism and environment. Representations no longer play a central role; in enactive cognition "intelligence shifts from the the capacity to solve a problem to the capacity to enter into a shared world of significance" (Varela et al. 1991, 207).

Varela et al. criticize Western philosophy for providing only a rational understanding of life and mind but lacking on a pragmatic method for transforming human experience. The teaching of emptiness (*sunyata* in Sanskript) is such a method in the Buddhist tradition of mindfulness/awareness meditation practice. Emptiness is a key concept of Buddhism. It

affirms the non-substantiality and design interdependence of all things, events and situations that make up the world. Embracing emptiness means to consider that everything is embedded within a context and that the contexts are constantly changing. Things are empty because they don't exist outside these changing contexts. We have the flexibility to adapt to anything, and to become anything. Emptiness (*sunyata*) should not be mistaken for nothingness or void. In opposition, emptiness evokes optimism, because it makes us conscious of the wide range of possibilities that we can become in our lives. Embracing emptiness is thus accepting the interdependence of things, the state of profound connectedness as the solely reality; we are all linked, and there is no fixed way for things to be. "Things are codependently originated; they are completely groundless (Varela et al. 1991, 223).

The habitual grasping of a self is the ego-self—or simply ego. Trunga (1973) explains the development of the ego through five *skandhas*, a set to Buddhist concepts that describes the ego as a five-step process. The first *skandha*, the birth of ego, is called or basic "ignorance" or "form". When a gap or space occurs in our experience, there is an awareness openness, absence of self. Because we fear the absence of the self, of the egoless state, we try to solidify or freeze that experience of space. We are afraid of selflessness, we want to hold on something. The second *skandha* is "feeling", we try to occupy ourselves, diverting our attention from our aloneness. The third stage is "perception/impulse"; ego develops three strategies or impulses: aggression, passion, and indifference. The fourth stage is "intellect" or "concept"; we begin to categorize things. The fifth *skandha*, "consciousness", is the last development of ego. Consciousness consists of emotions and irregular patterns of thoughts. Our ego is constantly in motion, constantly busy:

> "Our thoughts are neurotic in the sense that they irregular, changing direction all the time and overlapping one another. We continually jump from one thought to the next, from spiritual thoughts to sexual fantasies to money matters to domestic thoughts and so on. The whole development of the five skandhas—ignorance/form, feeling, impulse/perception, concept and consciousness—is an attempt on our part to shield ourselves from the truth

> of our insubstantiality. The practice of meditation is to see the transparency of this shield" (Trungpa 1976, 23).

Enactive cognitive science shares with the mindful approach of experience inspired by Buddhism the existential sense of groundlessness, which is associated to the lack of stable foundations. While enactive cognition is merely scientific and theoretical, as it doesn't offer insight into how we live in a world without foundation, mindfulness/awareness opens up the lived experience as path for realization. Also, it stays in opposition to the philosophical tradition of nihilism that takes groundlessness as negative value, as loss, despair, and alienation. Varela and al. conclude with the invitation to the scientific community to develop a transformative approach to experience that embodies groundlessness as compassion.

The Semiotic Self, the Immune System, and Self-Realization

Seebeok (1978) proposes a two folded apprehension of the Self: (1) *immunologic*, or biochemical; and (2) *semiotic*, or social. The immune reaction is based on two components, recognition and response. The immune system recognizes antigens and provides responses to eliminate them. "The qualifying property of an antigen is its foreignness—its property of being non-Self" (Sebeok 1978, 264). In this immunological model, the immune system maintains body integrity by distinguishing between self and non-self. Sebeok distinguishes two parallel recognition systems: immunologic memory and immunologic anxiety. Anxiety is viewed in semiotic terms as a regulatory mechanism based on indexical associations that progressively acquire symbolic attributes in the sense of Peirce. Anxiety in animals involve biological attributes (hunger, sexuality, etc.), in man the indexical processes move to objects and concepts, i.e. to a semiotic apprehension of the Self.

Varela (1994) asks the question if immune systems can be considered cognitive systems. He distinguishes between the classical mode of operation and the network mode of operation. The classical mode is appropriate to eliminate external antigens such as bacteria and viruses. "The network mode is appropriate in the case of "self-antigens," i.e. molecules which are a part of the organism itself" (Varela 1994, 36). Defining cognition as constrained action-perception, Varela argues that the immune system is indeed cognitive because it is capable

of perception and learning. “It perceives, learns, and adapts (under strong constraints) to aspects of reality that have only been brought into existence through the participation of its own cognitive activity” (Ibid., 39). This understanding of the immune system is applicable to neuronal cognition. The nervous system makes possible for the animal to establish action-perception correlations that are in the base of its active involvement in the world. Varela’s assumption that the objects of cognition “are bought into existence by the coupled perceptions and actions of the cognitive system itself” (Ibid, 39), leads to a semiotic account of the leaving experience that no longer dwells in the realm of the distinction self / no-self.

The Self is a central concept of the teachings of Sri Ramana Maharshi. The Self stands for a “single immanent reality, directly experienced by everyone, which is simultaneously the source, the substance and the real nature of everything that exists” (Godman 1985, 9). In opposition to the “I” (ego), the Self is not an experience of individuality. The Self should not be confused with the individual self, nor the Self can be regarded as the body. The individual self—ego—, according to Maharshi, is essentially non-existent, it is an illusion of the mind which obscures the true experience of the real Self: “The world does not exist without the body, the body never exists without the mind, the mind never exists without consciousness and consciousness never exists without the reality” (Ibid., 13). The Self stays for true knowledge. The Self is the ground of objective knowledge, which is not knowledge at all but a play of ignorance: “Thus, the Self is the ultimate ground of knowledge and ignorance, of the appearance and disappearance of objects (Mahadevan 2010, 73). The terms *knowledge* and *ignorance* are used in two different senses, as Mahadevan summarizes: 1. Absolute knowledge = Self-knowledge; 2. Relative knowledge = Knowledge of objects; 3. Metaphysical ignorance = Nescience; 4. Mental ignorance = Ignorance of objects. Maharshi’s philosophy addresses the experience of the living through the fundamental question *Who Am I?* He says: not the body, not the cognitive senses and not the objects of perception—sound, color, not the organs of speech, language, speaking, moving, grasping, excreting and enjoying; not the mind which thinks, not the nescience “which is endowed only with the residual impressions of objects and in which there are no objects and no functionings” (Maharshi 2010, 5). The “I” emerges in individual bodies and minds. The “I” thought is the first though that comes to mind and from which other thoughts emerge. The question “Who am I” is a though than can

destroy all other thoughts including itself. When this happen, “Then, there will arise Self-realization” (Ibid. 8).

Part II – Description of the Research on “Sound, Space and Affect in Immersive Environment”

In the following, I will present my research on the relationship between sound, space and affect in immersive sound environment, which illustrate the enactive approach of cognition. The investigation has two phases. The first phase consists on an empirical research with subjects for investigating the role of the sound spatialization in human emotional response. It will be carried in EARS (Experimental Acoustics Research Studio), a studio that I founded and direct at the University of California, Riverside. The research will take advantage of EARS cutting-edge surround sound system for immersive listening consisting of 32 speakers and 4 subwoofers. The subjects placed in the center of this immersive space will be exposed to sounds with different temporal and spatial characteristics. Their affective response to the sounds will be investigates through surveys and interactive tools. The second phase of the research will focus on spatialization in the context of the electroacoustic composition. The research will investigate how space and affect impacts sound phenomena and how technology creates virtual reality by exposing us to different forms and contexts of listening. The question is precisely how the immersive experience of listening to sounds in a surround space creates affect?

From a conceptual point of view, the research is rooted on Husserl’s *Phenomenology of Inner Time-Consciousness* (Husserl 1991). Husserl proposes a philosophical reflection on temporality as the fundamental substrate for building consciousness, which provides also a introspective, robust method to investigate the temporal characteristics of physical objects. The phenomenological method acknowledges that inner-consciousness of time occurs in an extended horizon including the past (*retention* and *memory*), present and future (*protention* and *expectation*). Listening to a melody is an emblematic metaphor of how the present is experienced as an extended frame of simultaneity. When a melody sounds, the individual tones do not disappear without leaving a trace, they reverberate in the flux of inner-time consciousness. One hears every tone of a melody as a now and hears the whole melody as a

now. “At any given time I hear only the actually present phase of the tone, and the objectivity of the whole enduring tone is constituted in an act-continuum that is part memory, in smallest punctual part perception, and in further part expectation” (Husserl 1991, 25). Husserl’s phenomenology opens the way to consider time consciousness as a texture of simultaneity, which is a fundamental feature of sound and music.

A second reference of the research is Varela’s approach to time, at the crossroad of neuroscience and phenomenology (Varela 1999), which emphasizes the crucial role of affection in the constitution of time. In opposition to Husserl, Varela considers the experience of time as a dynamic, recurrent constitution. This idea supports my own account of the inherent “polyphony” of sound phenomenon. Listening to music is an apprehension of the experience of *simultaneity* as the listener must assign meaning to perceive musical sounds detached form the “polyphonic” acoustic environment (Chagas 2005). Auditory perception involves many layers of interactions with sounds objects. The listener is an active agent in the constitution of *meaning* for both sound and music perception. Addressing the question of how something can show up as present but also reach a temporal horizon, Varela proposes a non-linear account of time based on the cognitive integration of three scales of duration:

1. The 1/10-second scale (between 10 and 100 milliseconds): the level of basic identification of elementary events perceived as non-simultaneous; the minimum distance needed for two stimuli to be perceived as non-simultaneous.
2. The 1-second scale: the level of relaxation time for large-scale integration, which corresponds to the time of completing neuronal interconnections; the time it takes for a cognitive act to be completed.
3. The 10-second scale: the level of descriptive-narrative assessments; it is linked to our linguistic capacities, which constitutes the flow of time as related to personal identity.

Accounting for the role of affection in the constitution of time in the context of active involvement in the world, Varela uses the word *transparency* to indicate an unreflective absorption that can interrupt the flow of experience. Transparency is a “readiness or dispositional tendency for action” in the large horizon of our lives, an “expectation about the way things in general will turn out” (Varela 1999, 299). It is not limited to individual action but

extends to the historical and social human experience. Varela relates the constitution of affect to a *loss of transparency*. A panoply of "affective tonalities" correlates to different degrees of breakdown in transparence and the multiple ways it happens. Following this concept, he proposes three categories of affect: *emotion*, the tonality of the affect that accompanies a shift in transparency; *affection*, a broader dispositional orientation; and *mood*, an affective background. These three categories can be distinguished as three scales of affect homologous but not necessarily isomorphic to the three scales of temporality (Varela 1999, 300):

1. *Emotion*: the awareness of a tonal shift that is constitutive of the living present.
2. *Affect*: a dispositional trend proper to a coherent sequence of embodied actions.
3. *Mood*: which exists at the scale of narrative description over time.

A third approach of the research focus on sound embodiment in electroacoustic music. Electronic sounds are artificially produced and disconnected from the body. The inquiry into the relationship between electronic sound and affect turns the attention to the body, to an understanding of the electronic sound as embodied meaning relating perception to action. In opposition to instrumental and vocal sounds that are "tightly coupled" with the body and the objects that produced them, electroacoustic sounds can be seen as "loosely coupled" because they leave room for multiple combinations (Luhmann 2000). The recorded sound of a voice or instrument can be subject of a variety of transformations and can turn into something completely alienated from the original sound. I am particularly interested in exploring the notion of self-organization and the autopoiesis point of view for developing a multi-faceted, organism-centered account of sound and music. Can they be studied from the perspective of autopoietic organization? Does the autopoiesis view deepens our understand of sound and music? It is possible that the research won't be able to give an adequate answer to these questions. However, the investigation on the relation between electronic sound and immersive environment might illuminate mechanisms of sense-making related to sound, space and affect.

References:

Barbaras, Renaud. 2002. "Francisco Varela: A new idea of perception and life**."** *Phenomenology and the Cognitive Sciences* 1: 127–32.

Chagas, Paulo C. 2005. Polyphony and Embodiment: a Critical Approach of the Theory of Autopoiesis. *Trans – Revista Transcultural de Musica* 9. Available at: http://www.sibetrans.com/trans/trans9/chagas.htm.

Chagas, Paulo C. 2014. *Unsayable Music: Six Reflections on Musical Semiotics, Electroacoustic and Digital Music.* Leuven: Leuven University Press.

Cuming, Naomi. 2001. *The Sonic Self: Musical Subjectivity and Signification*. Bloomington: Indiana University Press.

Gordon, David (ed.). 1985. *The teachings of Sri Ramana Maharshi*. London: Arkana Penguin Books.

Jonas, H. 1973: *Organismus und Freiheit. Ansätze zu einer philosophischen Biologie*. Göttingen: Vandenhoeck and Ruprecht. New edition (1994): *Das Prinzip Leben*. Frankfurt am Main und Leipzig: Insel.

Lidov, David. 2005. *Is Language a Music? Writings on Musical Form and Signification*. Bloomington: Indiana University Press.

Luhman, Niklas. 2000. *Art as Social System.* Translated by Eva M. Knodt. Stanford, CA: Stanford University Press.

Mahadevan, T. M. P. 2010. *Ramana Maharshi and his Philosophy of Existence*. Tiruvannamalai: Sri Ramanasramam.

Maharshi, Ramana, *Who Am I?* 2010.. Tiruvannamalai: Sri Ramanasramam

Maturana, Humberto, and Francisco Varela. 1980b. "Autopoiesis: The Realization of Living." In Maturana and Varela *Autopoiesis and Cognition: The Realization of Living*, 59-141. Boston: Riedel

Sebeok, Thomas A. 1978. "The Semiotic Self". In *The Sing & Its Masters*, 263-7. Austin: University of Texas Press.

Uexküll, J. v. 1973. *Theoretische Biologie*. Frankfurt am Main: Suhrkamp.

Varela, Francisco. 1979. *Principles of Biological Autonomy*. New York: North Holland.

Varela, Francisco. 1994. "A Cognitive view of the immune system." *World Futures; Journal of General* Evolution, 42:1-2, 31-40. Available at https://doi.org/10.1080/02604027.1994.9972495

Varela, F. J. 1997. Patterns of life: intertwining identity and cognition. *Brain and Cognition* 34: 72–84.

Varela, Francisco. 1999. "The Specious Present: A Neurophenomenology of Time Consciousness." In *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*, edited by Jean Petitot, Francisco Varela, Bernard Pachoud, and Jean-Michel Roy, 265-314. Stanford, CA: Stanford University Press.

Varela, Francisco, Evan Thompson, and Eleanor Rosh. 1991. *The Embodied Mind*. Cambridge, MA: MIT Press.

Trungpa, Chögyam. 1973. *Cutting Through Spiritual Materialism*. Boulder, CO: Shambhala Publications.

Trungpa, Chögyam. 1976. *The Myth of Freedom and the Way of Meditation*. Boulder, CO: Shambhala Publications.

Weber, Andreas and Varela, Francisco. 2002. "Life after Kant: Natural purposes and the autopoietic foundations of biological individuality" *Phenomenology and the Cognitive Sciences* 1: 97-125.