

Meaning and semiosis: To know is by necessity purposeful

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Abstract: This chapter argues that semiotics should be understood as a manifold of various perspectives of the *meaning* of representation processes. All means for representing knowledge are semiotic in nature. As an in-between, semiotics, in whatever perspective, underlies all sciences. Semiotics itself becomes possible on account of the anticipatory nature of life processes.

Keywords: anticipation, confluence, meaning, semiotic processes, narration, story

1. Introduction

The hopes and promises associated with semiotics have not yet been realized. This study, part of a broader attempt to suggest a new foundation for semiotics, is focused on the epistemological conditioning of the discipline. The emphasis is on semiotic processes and on meaning as their continuous outcome in the ever-changing context of interpretation.

The semiotics we are arguing for is one of new directions. One possible result could be a semiotic process conceived as a procedure for generating representations of ambiguity and vagueness, and for supporting interpretation processes.

In representing something, every living organism [henceforth “the living”] simultaneously re-presents itself. New forms of representation contribute to the knowledge already accumulated through experience. The outlook and the sense of future derived through human representations correspond to Peirce’s pragmatic view: “The rational meaning of every proposition lies in the future” (1998: 161-181). Indeed, each representation embodies anticipation in the sense that each representation answers questions connected to some goal related to a possible future. Machines have work as their outcome. Regardless of their nature and level of sophistication, machines do not anticipate. They are in reaction to similar past events, not in anticipation of change. The record of their functioning is a record of their

deterministic nature. On this account, mathematical machines, through data processing, can support inferences and produce predictions. Weather, or seismic events, or floods, or droughts, are examples of predictions ingrained in the life of people tethered to cell phones. For the living, where there is no repetition of any kind, predictions – such as the effectiveness of a drug or of a new technological method – are at best the outcome of statistical generalizations. In the living, the future is an open-ended space of possibilities: “trillions of trillions of hypotheses” as Pierce described them in relation to abduction (CP 5.591). Each representation – from an open-ended space of possible representations – reflects choices made.

The living takes in the world as sensory *representation*. Representations are a prerequisite for natural and/or artificial reproduction. Metaphorically speaking, the sperm and the egg to be fertilized are embodied representations of the particular male and female; so is the stem cell, unfolding under complex anticipatory dynamics. In the context of COVID-19, representations (in the form of synthetic nanomaterials) of messenger RNA became the substratum of possible vaccines. The representation, of a spike protein, based on data from sequencing the virus, is supposed to augment immune responses to the real virus. To the best of our knowledge, no semiotician was involved in the process of conceiving such vaccines. Would their active participation have made a difference? Would a semiotic perspective help those who engineered the newest vaccine? The rhetoric of these questions is not accidental. If indeed a semiotic perspective of biological processes, supposed to facilitate acquisition of knowledge regarding living processes, can be justified, we could expect that it contributed to the discovery of a new vaccination method. This is not the case. The knowledge domain of semiotics is neither biology nor the medicine of vaccination. It is not economics, nor cognitive science, never mind all those so-called “semiotics of...” populating search engine results but never making a difference in the knowledge domain of the fields that they want to attach.

Semiotics comes into place at the level at which knowledge – from rudimentary to complex – can be identified. The sensorial “measures” the environment (the world we live in); i.e., it encodes amplitudes (orders of magnitude). It does not “know” anything, it does not understand anything. At the sensorial level (Foerster, 1974), there is no distinction between an apple, the smell of a flower (or something else), the sound of a waterfall or of a bird. Nikolai A. Bernstein in *Construction of Movements* ascertained that “We know the world through our actions” (2022: 254, see also Nadin, 2020). Expressed otherwise: We construct knowledge as the proprioceptive information (captured by our senses) is interpreted in a particular context. Indeed, sensorial data are associated with action. Meaning emerges as actions are carried out – some more successful than others (i.e., some more meaningful than others). Meaning, embedded in the temporal structure of

each action, is not an observable, but an interpretation. Repetitive patterns – called “experience” – stabilize meaning. Experience is what helps differentiate the qualia of the world. The language of actions, as much as the language of descriptions (images, formulae, sounds, etc.), is intrinsic to behavior.

Semiotics has the status of a meta-discipline. Its object is its own condition as a necessary go-between unavoidable entity. Semiotics is about meaning, including its own significance in the human being’s activity. Meaning is the outcome of an open-ended process from representation to knowledge. This understanding leads to awareness of what semiotics can do: 1. provide a critical function; 2. provide a value assessment methodology. In order to facilitate the understanding of these functions, we shall suggest possible means for achieving them.

2. Alternative foundational views of semiotics

Semiotics, in order to justify its legitimacy, has to account for how from the quantities taken in through the senses we arrive at awareness of the world, i.e., a representation of pragmatic significance.

Associating knowledge acquisition with semiotics, as a meta-discipline, and meaning, as a particular form of knowledge complementary to quantitative descriptions of reality, helps to define the impact semiotics might have on human activity. The immediate consequence of this association deserves to be spelled out: It identifies temporality, characteristic of semiotic processes, as intrinsic to its definition. Many have tried to review the methods and concepts that make up semiotic awareness. From such reviews – Kalevi Kull and Ekaterina Velmezova (2014) facilitated an overview – it becomes quite clear that in the absence of a dynamic view of semiotics, its reason for being accepted and practiced vanishes. To label an entity as one or another type of sign is irrelevant. We need to understand that only the union of a past-defined dynamics and the dynamics of a future-informed action is of consequence. Based on this understanding, we shall come to realize in which sense a semiotic perspective is *complementary* to the deterministic view of change.

In what follows, an attempt will be made to redefine semiotics according to what from inside the discipline became an imperative: couching the semiotic in the broader view of pragmatism. Let me “rewrite” Peirce: The purport of semeiotic consists in the open-ended holistic modes of existence, in particular, of rational conduct, which, in any given context, would ensue the acceptance of a semiotic process perspective (paraphrase performed on Peirce CP 5.438; see Hartshorne, 1965).

The anticipatory nature of the living vouches for the necessity of a semiotic view. This is similar to how the deterministic nature of physical processes (such as the functioning of the universe) explains gravity. With

one important difference: gravity is the embodiment of determinism. Semiotic processes (semioses) testify to the non-deterministic nature of the living.

Yet another paraphrase of Peirce: We compare action (through which anticipation is expressed) to the finale of the “symphony of thought” (CP 5.402), or better yet, to holistic cognitive process, integrating the sensorial, the cognitive, and the motoric. Belief is but one cadence, so is emotion. We do not understand the few bars at the end of a musical movement as the purpose of that particular movement, but rather as an integral part of the whole. Its meaning is constructed in the act of interpretation by those interpreting it and by those witnessing the process as part of an engulfing interaction. The upshot – e.g., the punchline of a joke, the silence after a last verse of great emotional weight, the enthusiastic response, the hug – is a concrete manner of meaning emergence. It is a possible future. To evaluate the outcome, to take a critical view of it, is what semiotics is about. In view of this, let us be clear: the label *semiotician* does not qualify the person using it as a semiotician (just as *genius* does not turn someone into one).

To define an alternative perspective of semiotics can only start by defining what makes it necessary. We bear the fundamental idea to which almost everyone in the choir of semiotics agree: Semiotic processes are a prerequisite for knowledge acquisition. Knowledge itself stands for something else – whatever that particular knowledge is about: matter, poetry, sex, astronomy, moral values, etc., etc. For this reason alone, the semiotic description, while not the same as the knowledge represented, is about the awareness of change, not about change itself.

To know is to know for some purpose – including a purpose for its own sake. Purpose – exactly what distinguishes the living from non-living matter – is related to the awareness that all there is, including the knowing subject, changes. To know is by necessity purposeful. This is why knowledge is not in reaction to the past, but in anticipation of the future. Anticipation is always expressed in action. Knowledge acquisition, implicit or explicit, is the elementary form of anticipatory action. We know for the future.

Anticipation is a realization in the space of possibilities. Some realizations are right – we avoid so many dangers, most of the time not even aware of them. Some are wrong. Prediction is informed by determinism: same cause, same (or almost) same effect. Anticipation is action informed by non-deterministic processes. It can easily degenerate into superstition or self-delusion. Semiotics has nothing to contribute to the determinism of predictive mechanisms. However, semiotics could inform awareness. Consider, as an example, the culture of earthquake awareness in Japan and the learning process – a whole life long – for everyone involved. Faced with the threat of terrorist attacks, Israel developed an effective alert system in which reaction and anticipation complement each other.

Science and technology, on account of the deterministic view, have contributed means of production based on the idea that a past state (only) determines the present state and the future state. For all phenomena pertinent to non-living matter, this assumption has proven magnificently successful. For all phenomena pertinent to living matter, this assumption is at best confusing, if not wrong, to the extent of bringing life to an end (this is one reason “biophysics” is an oxymoron). Inference from the past to present and future, often supported by statistical generalization, is powerful, but insufficient. The future informs the present through the realization of the meaning of something – disease, creative act, nutrition, exercise, etc. – that stands for a desired goal: maintaining life. No stone is “animated” by the purpose of remaining a stone and not being eroded or pounded into sand. All cells, of animals and plants, interact for the purpose of remaining viable parts (i.e., staying alive) of the whole that defines a living entity (Nadin, 2017a, 2017b, 2018).

Purpose, for the achievement of which semiotics should provide means for integrating a variety of processes, is not reducible to the “atoms” from which the anticipatory action is made. To achieve a goal – e.g., advertising for a product, sharing a political program, engaging students in a project, denouncing racism, or affirming a new scientific or aesthetic value – involves, of course, all it takes to design a marketing campaign or a political event, or a new teaching and learning environment. But to do away with racism, for example, goes beyond the sign *#BlackLivesMatter* (or the graphic elements involved). A new scientific concept – Cassirer (1921) dealt with relativity theory – engages semiotic means (a new foundation, new methods for describing it, testing). Aesthetic activity, usually described as innovative (or creative), comes to expression semiotically. In the context of the COVID-19 lockdown, face masks, and social distancing, new forms of expression were amply tested. But none is reducible to a sign or signs, or to their typology/classification. They are all of the nature of a semiotic aggregate, a whole unfolding in real time, or in virtual time. Understanding that the focus on the sign is reductionist is a beginning towards redefining semiotics as a consequential epistemological activity.

But we need to take the next step: to understand the holistic nature of semiotic processes and their continuity. As a consequence of the necessary nature of sign processes, understood as means that inform action, semioses are integrative in nature. In this view, it does not suffice to identify the iconic nature of the user interface based on the desktop metaphor, or to find a justification for the indexical in identifying individuals by their fingerprints. Actually, it requires the understanding of the possibilities created, not of ways to represent things or phenomena.

Those who consider the sign as the equivalent of what the atom is for matter miss the alternatives represented by fluid sign processes (for instance, how the index can achieve iconic qualities or become symbolic) within an

open-ended, non-decidable process. From all these possible alternatives, I suggest the dynamic view of semiotic events succeeding in time. And I shall present three different examples of ways to understand semiosis as goal-oriented: the model of the flowing stream; narration and story; and the model of confluence.

3. Semiosis as a flowing stream

A very promising attempt at organizing and subsequently evaluating our own semiotic experiences is suggested by the flowing stream, conceived by Gelernter (1991) and further pursued as a computer application by Freeman (1997). The flowing stream is the sequence of every digital document – mail, photo, word processed, URL, notes, sounds, etc. – referenced in the order of their receipt (or in the order in which they were generated, using the time stamp of the device used). This simple idea changed the nature of data management.

But semiotics is not about data (representing quantities), but about meaning, that is, interpretations of the embedded significance of everything present in the temporal structure. In this sense it is more of an art – like medicine – than a science. No duality, rather a repeated invitation to complementary views (Nadin, 2019). A record of succeeding experiences is the premise for understanding not only what happened, but also of what might happen. Let’s use a visual representation: a paraphrase of Gelernter’s (2013) sketch on the back of a napkin.

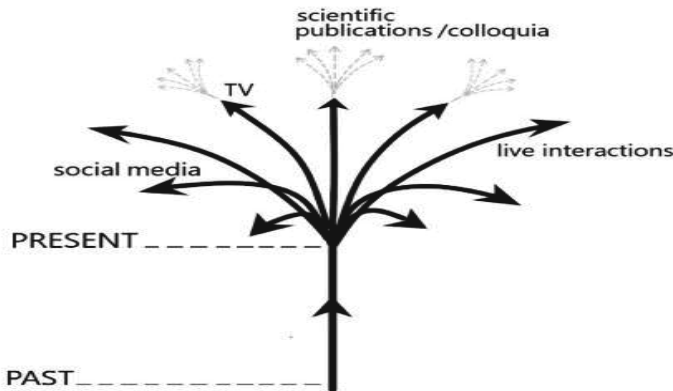


Figure 1: The flowing stream-semiotic processes unfolding.

Every semiosis has a past and a future. Consider calendar entries: events consumed (e.g., visit to the ophthalmologist, a trip on an airplane, a concert attended), events taking place (reading a book, listening to music, running), events to come (the next class to teach, a faculty meeting). The purpose of an action (e.g., writing a birthday card, finishing the symphony for its first

performance in a concert hall, preparing for graduation, hugging) and its semiotic representation are connected. In the semiotic “forest of trees” from which other “trees” are growing, the past – a reference on the trunk, “I was hugged” – is always a retro-semiosis: an interpretation at $t_{present}$ of whatever happened, or we assume happened, at t_{past} . The interpretation has its own time stamp. It is not a mechanical act, but a living experience. Even the act of interpretation can be further interpreted: Why is t_{past} meaningful at $t_{present}$? Because while succeeding events (narrations) are time-bound and independent of the observer, their interpretations in stories are not. The interpretant process is open-ended. Apply this to Shakespeare’s writing, to the paintings of the Impressionists (recall Manet’s *Le Déjeuner sur l’herbe* and how it morphed into many interpretations, each with its own meaning). Apply it to Newton’s physics and to genetics, to political programs and to ideologies. Notice how the meaningful extends from its inception to the present, and how it informs anticipatory action. As an epistemological construct, semiotics has no justification in doubling the quantitative description of all there is. But it earns its legitimacy by making possible the realization of meaning, how a semiotic process is pragmatically significant.

Interpretation takes place from the tail end of the process: the narration in reverse, from end to beginning. Possible extensions are all meaning-pregnant. Thus semiosis, as a flowing stream, integrates the subject: The subject sees the red light and stops. Or drives through. The video camera provides a different record, independent of what the subject believes or makes up: “I saw a car speeding in my direction and didn’t want to be hit”. Their meanings are different. Through the semiosis, the subject extends a hand to the past and a hand to the future: “No, I don’t want to be fined for a violation, even if the video camera shows clearly that I did not obey the rules”. Interpretation is always goal-driven: it depends on the context. The record is independent of context (but dependent on technology and its built-in assumptions).



Figure 2: Infinite semiosis along a variety to timelines.
Semiosis generates futures as meaning.

Actually, semiosis, i.e., semiotic process involving sequences or configurations of signs, is a diary of someone's semiotic experience. It cannot be reduced to the various signs making them up. A headache can be considered as such – the pain localized in what is called the head – or as symptomatic of something else, part of something else. Or – and this is the place where the flowing stream metaphor of trees unfolding from trees, etc. comes into play – it can suggest a context (stress, shock) that leads to the headache. Better yet, the headache stands for something else, not as an “atom” of the state, but rather as a process. It is an open-ended process associated with future states: from taking a pill, resting, undergoing tests, requiring surgery, and so on. The tail (see Figure 2) – i.e., the time vector from the headache-free past to the present – is minimal. But the time of pain seems unending. Take note that this is not the mechanical interval outputted by a clock, but the subjective time that Bergson opposed to that of the physical universe that Einstein considered as the only time worth considering (on April 6, 1922, in Paris, Albert Einstein and Henri Bergson publicly debated the nature of time).

Each semiosis, i.e., process of individual involvement in semiotic processes, starts with being born, primeval cry, naming, birth certificate, and continues with vaccination record, social security number, driver's license, official identification card, etc. More and more semiotic identifiers accumulate: first words spoken, individual motoric expression, aptitudes identified, kindergarten, school, college, etc., etc. Notice how the “tree” branches out and new “trees” grow out. Think only of someone's loves, or of the social interactions through which identity – a semiotic aggregate – is ascertained. It takes one rumor (not to say an article in a peer-reviewed journal) to fill the world with semiotic processes ranging from rational inferences to pathological speculations. This is where the critical function of semiotics is relevant: not in deciding upon truth or falsehood, but in suggesting the meaning of each. If the dynamic systems metaphor (e.g., the flapping of the wings of a faraway butterfly can cause a hurricane) can be modeled through a deterministic process (computers are appropriate for this), the semiotic “butterfly” escapes description. Wars were started on account of semiotic processes that went awry. Even though it is not an observable, meaning is important. In the frame of COVID-19, the process has been experienced at a scale never before experienced. One example: COVID-19 is presumably caused not by the SARS-CoV-2, but by magnetic anomalies (this peer-reviewed article, by now retracted, was published in Elsevier's *Science of the Total Environment*). The meaning of such a hypothesis cannot be conjured without putting it in the broader context of many aberrations. Evidently, semiotics is not entitled to evaluate the hypothesis, but rather to shed light on its significance in the context of the various efforts to address the pandemic.

The semiotic ecology expands. Cloning belongs to the process: Humans imitate and are imitated; they multiply; their semiotic output (intentional or accidental) increases and becomes part of the vaster encompassing ecology called culture. This is probably what everyone focused on the semiotic nature of culture reported on, without realizing the complexity of the process. Indeed, culture is an ever-evolving process, of G-complexity: that is, it cannot be consistently and completely described (Nadin, 2014). It would be beneficial to take the flowing stream model and apply it to or conceive of activities such as social programs, education, medical care. The anticipatory dimension is evident: The possible future is a semiotic future, of goals representing possible states of reality. The tremors registered on a seismograph are representations of measurements – data used to infer from the past to an upcoming earthquake. The degree to which the laws of physics describing such an occurrence are known is reflected in the accuracy of the probabilistic prediction. The symptoms associated with medical conditions – headache, fever, sweating, etc. – are of a different nature. Their meaning is context dependent. There are no laws describing the state of health (from good to bad). The meteorological data suggestive of a hurricane, as well as the musical passion of a four-year-old girl or boy who might become the prodigy of the future can be considered from a semiotic perspective despite the fact that they refer to fundamentally different forms of change. The flowing of a stream is a suggestive representation, provided that the focus remains on meaning.

4. Narration and the meaning of change

Emancipating semiotics from the yoke of sign reductionism is a difficult task. For those who are not willing to free their thinking from this deeply ingrained understanding of semiotics as the discipline focused on signs, I shall state my credo: Only dead fish go with the flow.

Narration, and its extension in the story as interpreted narration, is an alternative corresponding to the understanding of semiotic processes as time events. The most intuitive description of a narrative is the following: record of a sequence of events as they succeed in time. The word (from the Latin *narrare*) means to recount. Therefore, each narrative adds up to knowledge, at least in the sense of documenting successful and less successful activities.

The narrative emerged as a plurality of means of expression for describing human experiences and making sense of them, i.e., understanding their meaning. Some comments about narration could help in realizing its semiotic significance. It is a matter of record that parents involve the narrative as a means of sharing knowledge with their children. Schank and Abelson (1995) argue that stories – interpreted narrations – about one’s experiences, and the experiences of others, are the basic constituents of human memory, knowledge, and social communication. They call for a shift

towards a functional view of knowledge. Schank explains: “Intelligence is really about understanding what has happened” so that those who share in it might “be able to predict when it may happen again” (1995: 1). Such knowledge is constructed by indexing narratives of one’s own and others’ experiences and mapping them to structures already in memory. Atance and O’Neill (2005) write about the narration as a goal-oriented representation making it possible to pre-experience an event. In other words, the goal-oriented aspect suggests that anticipation implies awareness of narrations as preliminaries to actions ahead of the time when such actions might become necessary (before storms, earthquakes, volcanic eruptions, fires, etc.). Through narration as a semiotic experience of recording actions, humans acquire the developmental basis for skills such as planning and causal reasoning – which are semiotic in nature. Their object is what stands for the real, and this entity can be a narration. Episodic future thinking emerges around the age of four and is related to children’s abilities to construct and comprehend verbal accounts of experiences. The neural basis for the role of narrative in the abstraction of daily experience to knowledge (Mar, 2004) is a subject of interest not only to those focused on marketing, but also to those discussing the broad issues of sustainability. Narrative comprehension engages a widely distributed network of brain regions, as well as the sensorial and the motoric, and is clearly distinct from basic language comprehension (Nichelli et al., 1995; Ferstl et al., 2005; Xu et al., 2005).

Here we’d better be vigilant: The narration is not a progression of statements that describe something (Bruner’s definition, 1968). The narration is the unity between the event and its representation (in words, images, sounds, etc.) as a time sequence. Saussure would say “signifier” and “signified”, but this holds true if we do not consider them at a certain moment (synchronic perception, frozen at the time of its capture), but rather in a diachronic sense. There are narrations extending over a life-long (e.g., our biophysics), even beyond the “expiration date”, and others that can be extracted and further analyzed (as we shall see in the example to follow).

It is not surprising that some (Mar, 2004) identify the causal structure as a necessary condition for a sequence of events to qualify as narration. Actually, the narration called *determinism* – a sequence starting with a cause and ending with an effect – is an example of a selection of cause-and-effect related events, but not a necessary attribute of narration. There are narrations of non-deterministic sequences, defining the living, and for which the semiosis is supposed to open access to their meaning. A person gets infected by the SARS-Cov-2 virus; the person is non-symptomatic. Can we infer from this that the person does not contaminate others? This is a possible understanding, i.e., meaning. But everything else – not infective, mildly infective, selective infectivity (e.g., only children, only men, only the elderly) – is possible. This is a semiotic meaning problem, not one of quantities, measurements (called “tests”), or models. This view entails a

form of language which includes a context (setting) and a plot: a sequence of events bound by temporal, and implicitly causal, relationships.

Narratives take place in a context; meaning is context dependent. Time, location, and characters are elements of the narrative. In a distinct way, scientific texts are narratives (Bruner, 1986). Consider Newton's physics, Einstein's views, quantum mechanics, genetics, etc. Their understanding is unequivocal. There is one and only one interpretation: The law expressed can be tested, but not changed. But when interpretation can expand beyond the law, we are in a different situation. The semiotic process might evaluate the semiotic means used, as well as the authority of the scientist (what GoogleScholar provides) or of the institution he or she represents. Past publications, collaborators, affiliations, and funding can be taken into consideration. All these are semiotic identifiers. The means of expression – e.g., language, diagrams, visualization tools – are part of the broader semiotic process of evaluation. The narrative intelligence theory (Mateas and Sengers, 1999) states that the temporal structure affects the reader's ability to comprehend the story. Quantum mechanics, with its entanglement model, conflicts with the understanding of Einstein's world of a limited light speed. But this is not a semiotic subject. The semiotic perspective rather concerns the culture into which a semiotic concept evolves. In other words, how the meaning is conveyed, shared, and informs the life and activity of those who are part of the culture of their time.

If indeed semiotics is about purposeful actions, it is not surprising that interpretations of the narrative – stories – are generated for a goal: establishing norms, conveying knowledge, creating a context for raising a question. Questioning is the semiotic process of conjuring meaning. The narrative is held together by the temporal chain. The story escapes the temporal chain. It often involves virtual times. The epistemic power of the narrative corresponds to its function as a record of events. The epistemic power of the story explains how and why meaning is conjured. In previous writings examining the relation between semiotics and anticipatory expression (Nadin, 2013), the following were asserted: 1. narration is a record of change; 2. story is an open-ended process of narration interpretation, i.e., meaning assessment. These are operational definitions that can help in understanding their complex multi-causality.

At that time, I presented the narration of the 9/11 events and the plethora of stories it generated. The meaning of the events associated with a spectacular terrorist attack continues to unfold. The COVID-19 pandemic is yet another example that invites a new perspective.

In semiotic terms, the narration, like any sign process, is an aggregate (Max Bense, 1974, introduced the notion of *supersign* to describe such sign aggregates). It can be extremely detailed, or rather abstracted. "Queen X dies Tuesday, at this time and this place, surrounded by her daughters". "The King dies five days later, in the middle of the night, while trying to get out of

bed”. The same goes as “The Queen died and then the King died” (the example comes for E.M. Forster, 1927, the 20th century British author: What happened and in what order). Of course, these are representations standing for real events, not the events themselves. The time sequence is representative of a semiotic process, described here through words. But imagine instead of words, images or combinations of words and images, or sounds or whatever can represent something else. The time sequence as a whole is representative for a process selected from a multitude of other events. It is a record – a memory – and as such makes the semiotic process part of the semiosis of life.

The sequence “Queen dies, then King dies” (a simple narration) can easily lead to a story: Queen dies because the King was unfaithful; King dies because Queen poisoned him (or had someone do it), or she cursed him. In E.M. Forster’s example, the King died of a broken heart – different semiosis, different meanings. In the story, the narrative data – what and how things happen – are associated with meaning corresponding to the context. Stories are meaning processes triggered by narrations.

Through stories, the information from the narration – who died, when, where, etc. – is associated with meaning (Nadin, 2011) in view of the intentions of the storyteller, or of the scientist who works on a new theory (of gravitation, of relativity, of quantum mechanics). The information regarding the falling apple (or the falling of anything, such as stones, meteorites, individuals, etc.) – the data record, the narration – reveals the meaning of the physical laws, in this particular case, the law of gravity. But it can, as well, associate the narrative to a story different in its condition from the one expressed in the theory of gravity: poetic, dramatic, religious, metaphysical. Imagine a story where the apple does not fall down, but up! In each case, a different meaning is conjured. Kings fall from power, leaves float in the wind (slow falling); the fall of Rome marked the beginning of the “Dark Ages; people who fall on account of faith lost need help to get up and get on with life; fallen angels come to Earth to redeem themselves; and so on. Some meanings are subject to confirmation through experiment; others, being unique, are not. Physical, chemical, and biological entities are observables. Meaning is not. At best, we can construct a record of how meanings change over time, in various cultural contexts. This is actually what semiotic process is. As Richard Feynman, recalling the death of his first wife, noticed that the clock stopped at the time recorded on his wife’s death certificate. Was there a meaning to be assigned to this? (It is poetic, of course.) The narration prompted the physicist, a self-declared atheist, to produce a scientific story: elimination of mystery, poetry, religion, etc. He knew that he himself had fixed the clock, and he knew that it might stop if it were moved. It was, after all, a mechanical contraption. But similar narrations – e.g., the clock that stops exactly with the last breath of a dear person, or of some celebrity, or a daughter’s dream about the loss of her

father – populate culture and foster storytelling in many variations. They should not be misunderstood as observables, but rather as meaning processes, as interpretations. In some cases, the sign processes of the narration serve in knowledge acquisition; in others, in the expression of meaning. The semiotics of narration (time sequence) is similar to that of Euler’s discovering that a problem in geometry is actually not just about quantities, but also about the symbols reflecting quality, as well as the meaning of a topography.

The clock of narration corresponds to the intervals between events in real life; the clock of interpretation corresponds to a living time, of many possible rhythms. The clock of narration and the time of interpretation – the time of the story – are different. The clock of narration corresponds to the rhythm of events in the physical world. The time of interpretation projects into the physical world rhythms characteristic of the change in the living, in particular, rhythms associated with interpretation (stories about the same event can be substantially different). The pain timed on a clock and the subjective time associated with experiencing pain are never the same. When we react to something – a car rushing by while we cross the street – the reaction time affects performance. The semiosis underlying reaction is different from that of anticipation. When we imagine things in the future, we have the convenience of controlling the rhythm of time. Indeed, as events unfold in time, the gravity-based machine that measures the interval corresponding to the movement of celestial bodies – the clock – serves as a reference. Let’s imagine that all the machines we call “clock” (no matter what kind) stop. Time does not. Only the measurement – of intervals – is affected. Semiosis corresponds to time perceived, i.e., time experienced, not to time measured. The living is affected by intervals in the environment of existence; but the living also introduces its own rhythms into reality. Saccadic movements, the foundation of sight, have a rhythm different from the heartbeat and neuronal connections. Birds in flight or the slow fall of leaves are other examples of particular time scales; the heartbeat of animals is extremely varied.

Being a record of change, each narration is a representation of the dynamics of reality. Each interpretation of a narration is a story, i.e., the meaning we associate with the information on record. A faster clock, such as the clock of interpretations, is what it takes to evaluate the possible consequences of the phenomena on record in the narration. In other words, the future itself, as we relate it to clocks, is nothing but the outcome of time associated with a faster clock. The semiosis of the possible future based upon which anticipatory action takes place is independent of the measured time. As a virtual reality, this future does not depend on the rate of change expressed by the clock. We refer to possible futures – plural! – because clocks with various speeds, from very slow to extremely fast, can be constructed. Each such clock allows us to investigate the future *not as a*

probability, but *as possibilities* (often negating probability) – where innovation takes place. If the information in the narration is continuously subjected to interpretations from the future, facilitated by the faster time experienced cognitively or sensorially, its meaning becomes *anticipation*. This is yet another reason why a foundation of semiotics that reflects the nature of the living can only be grounded in the anticipatory processes definitory of the living.

5. Semioses as confluence

The conception and practice of semiotic awareness of reaction (representations in reaction to events) and the conception of pro-active activity (inventing the future) could and should be understood in their unity. This is what semiosis is supposed to achieve: a process of integrating sign processes and their subsequent context-dependent interpretations. To evaluate such processes, and to subject them to critical examination are the actual possible tasks of semiotics. Confluence, as a process easy to identify in nature (confluence of rivers, for example) as well as in the functioning of the organism (confluence of physiological processes, for example), is a possible way to characterize behavioral aspects, i.e., qualitative states (De Kleer and Brown, 1984). In activities of semiotic significance, in particular in creative activities, there is always a confluence: of previous semiotic outcomes, of skill, of culture, of interactions, of randomness. This is a non-mechanistic view of how processes that seem independent of each other lead to situations impossible to predict through the use of the quantitative descriptions typical of physical processes. Design – the etymology reveals the connection to sign processes – is the backbone of creativity. It integrates semiotic processes regardless of what they represent. A car, a poster, a website, an urban development plan, a symphony, a dance routine, political action, etc. are the outcome of confluent semiotic processes, expressed in a language that can be easily understood and translated into instructions for production. The recent crisis triggered by a pandemic, that itself goes back to many confluences, had a powerful social component. The semiosis of revolt integrated many forms of expression. The confluence of Black Lives Matter, #MeToo, Antifa, etc. is telling about how various forms of social activism (some begun over 30 years ago, others just emerged) influence each other, and how these are expressed. Reading their respective programmatic documents makes evident what they might have in common, but also what distinguishes them. The confluence does not alter the confluent streams and their respective meanings. For instance, the call to dismantle the Western nuclear family in association with affirming transgender identity adds up to a rather confused political message exactly because it integrates disjoint semioses. Rowling (2020), the celebrated author of the Harry Potter series of novels, ended up hated exactly because she made public, from the pedestal of a

successful author (originator of semioses), the disjoint semiosis behind a “politically correct” call to action, and the new reality that such actions create. Feminism and the newly established right to transgender are quite contradictory.

Confluence is a matter of compatibility. White Supremacy, in its various expressions, and the Black Power movement are probably as different as COVID-19 and the seasonal flu are. Each of them is semiotically identified. The laws of science are important in revealing the meaning. As semiotic processes, the streams capture the extremes of a conflictual situation that might lead to the breaking of the dam represented by the social contract currently in place in the USA, as well as in other progressive countries around the world. One example of semiosis: Demonstrations in the rich neighborhoods of Hamburg and the never-ending protests in Portland (Oregon) are different in nature, but they are fueled by indignation and a state of desperation: When will this end? This in itself is not a semiotic outcome, but rather a necessary interpretation that could inform political actions. The Hong Kong protest movement is part of the same narration. And so is the *el estallido* (the explosion) in Santiago de Chile. Many fizzled-out movements – from Occupy Wall Street to the LGBTQ Day of Silence, to the #BlackTransLivesMatter, to Reopen (protesting Coronavirus lockdowns in India, Lebanon, and Iraq, for instance), to #RunWithMaus – illustrate a symptomatic *état d’esprit*, i.e., frame of mind. The semioses triggered have a shared meaning – protest of a current state – and an open-ended interpretation. Of course, the government would like to transform everything into observables. This is the function of the new intrusive observation technology. But not even China and North Korea could eliminate the semiotic process of meaning generation.

A semiotic entity – the hashtag, so easy to acquire in the age of social media – is by itself not a source – it can be easily traced – but a context of interpretation in the vast landscape of confluence. It is, at best, a label. It is quite similar to the “*When will this end?*” of the COVID-19 – to which not even the vaccine is an answer. The qualitative aspects captured in the dynamics of semiotic confluence are useful in understanding how unrelated events, of divergent ideologies, can, under given circumstances, contribute to the instability of the economic, social or political system. This in itself does not make the semiotic approach consequential, but it delivers means for designing a course of action. In the most strictly observed society of the time – the Soviet Union – the *Samizdat* was part of the broader context of semiotic processes conjuring a variety of meanings.

The confluence in what history will recognize as COVID (Crisis of Vision, Nadin, 2021) – beyond the name of a pandemic – screams for effective answers, not for abstruse speculations or broad-stroke ascertainments. It is not the *Samizdat* of the past, but a new context that invites new forms of action. This is where semiotics could find opportunities for

affirming its credibility through providing consequential answers to the questions that society is facing. Such answers can take the form of confluent semioses: When governments are distrusted, why should a vaccine program initiated by the government fare better? (see: Warp Speed Action; USA government generously funded the pharmaceutical and medical establishments).

What creates what we call COVID is its semiotically entangled image. It is the confluence – not by accident, but by necessity – of pandemic, economic, and financial inadequacy, social unrest, political instability, misguided science, technology run amok, precarious medical care, and deficient education. They are all expressed in a variety of sign processes.

Work itself, as a prerequisite for consumption, ceased to be a productive endeavor. It is predominantly a semiotic activity, i.e., manipulation of representations. More often than not, companies are not about creating working places, but about the profitable use of collections of management tools. The disruptions called Amazon, Uber, AirB&B, Instacart, etc. are the outcome of this situation. COVID is a crisis of knowledge, and in this sense, since semiotics is the prerequisite for knowledge acquisition and dissemination, it is an opportunity for semiotics. In the landscape of academic and research facilities, the Wuhan University Center for the Study of Charles Peirce and Research in American Thought could have considered the confluence of COVID-19. China locked down a huge area. This was a semiotic-based decision more than anything else. It did not affect the virus or its spreading. It affected the ability of the rest of the world to understand the meaning of the process of high infectivity and to lethality due to primitive medical care. After all, the pandemic almost became known as the Wuhan pandemic (for a while, the “China pandemic”) given its place in the origination (still disputed). But with the exception of reports by Western journalists, everything else was brought to silence. This happened in the context of global semiotic integration through the Internet; this was the first time that sign processes in a context of globalization were shut down. It was, and still is, a semiotic event, an experiment we thought could no longer happen – and we wish will never happen again.

The entangling of various factors leading to the COVID confluence is quite different from seeking the meanings of a text (literary, philosophic, scientific) or trying to peel away the layers of specialized knowledge that make up the current state of science. Art criticism or literary critical exercises are different in nature from critical semiotic evaluation. The various aspects of the pandemic, as part of the broader crisis, cannot be conceived or assessed as independent of each other, i.e., reduced to one of its parts, and even less to their formal aspects, to their aesthetics.

The “Tower of Babel” intended to reach to heaven grew and grew until its reason for being vanished. The consequence (according to the story) was the loss of the one language that unified humanity. It was replaced by many

languages so different that no one understood the other. Similarly, in our time of specialized languages, everyone understands each other less and less. This would qualify, of course, not as a confluence, but rather the opposite. The semiotics of the process of language differentiation driven by the expectation of greater precision – sciences driven by extremely exact measurements – at the expense of expressiveness, has so far escaped the attention of the community of semioticians. Only ontology engineers, working within a false understanding of semantics, are dealing with one of its particular aspects. Somebody has to tell computers what those strange words from specialized fields of knowledge mean. Ontologists provide the digital dictionary. The effort of ontology engineers to build a tower reaching to heaven, to the god named *Computer*, restarted. More ambitious, and more seductive than ever. But also ever more in danger of collapsing. What is achieved in digital language in terms of less ambiguity is lost in terms of engaging the subjectivity of interpretations, and thus in creative potential.

Semioticians have also missed out on the new languages of social activism and politics. The death of a Black man in police custody eventually triggered not only protest, but also a macabre spectacle of looting, destruction, and mistreatment of many innocent people. The destruction of symbols of the past (monuments to slave owners, to generals who fought for maintaining slavery, to racist politicians, etc.) is in itself a powerful sign process. Most of the time, the meaning is clear. But what is the meaning of adopting new symbols, or of generating new languages, such as the language of “cancel culture”, in the absence of shared understandings? The meaning of associating behavior (questionable by the rigors of the moment) to public acceptance is the semiotic outcome of the “attention economy”, monetizing what the age of ever more rapid processes entails. This is a post-Marxian economy of eyeballs, in which what is monetized is not a product, but semiotic performance. It should come as no surprise that Herbert Simon (1982), who understood better than semioticians the role of interface in society, contributed to defining the concept. Ferruccio Rossi-Landi was one of the few semioticians who recognized the subject. The critical dimension of the semiotic perspective acquires a very important role under the new circumstances. The golden casket of a fentanyl addicted victim of police incompetence is a semiosis that society needs to critically evaluate before new mythologies, soon to be replaced by even newer ones (or cancelled), are created. This is part of the same integrated reality for which COVID stands, although this might not be immediately apparent. But a first take says it all: Similar tragic events – people killed in confrontation with the police – in a context of almost full employment, led at most to an outcry. The pandemic context affects each semiotic process, including how we treat those who are affected by COVID (or more recently, COVIDs, since the virus mutated). With the USA in lockdown for a while, and the rest of the world affected by the economic breakdown, all conditions were created for integration of the

pandemic into social unrest, political turmoil, instability (with the prospect of civil conflict). The confluence model suggested in this study as yet another way to address the pragmatic nature of semiotic processes has the advantage of opening a broader perspective than the one afforded by the physical model of convergence.

For those who are prepared to give semiotics an opportunity to ascertain itself as a necessary endeavor intended to support purposeful activity, let us end with a comparative view. Nobody disputes the role of mathematics in the progress of society. Very few, if any, would, along the same line, endorse semiotics as they endorse mathematics (even if they find it difficult).

Unrelated events, of divergent ideologies, can come to confluence and furthermore, within a framework, accumulate as a potential source of disruption (Gorard, 2020). The instability of the economic, social, or political system ensues as an outcome of qualitative changes. The pandemic is an example of confluence.

6. Conclusion

Semiotics (the plural) is as much about signs as mathematics – yet another plural aggregating the various ways of dealing with quantity –is about numbers, or linguistics about letters of the alphabet. In mathematics, algebra, set theory, trigonometry, combinatorics, probability, statistics, geometry, and topology, etc. deal with particular aspects of everything of mathematical significance. Mathematics is about measurement and the quantitative aspects of reality. Semiotics is about integrated sign processes that result in meaning, across any and all forms of human activity. All knowledge, regardless of the perspective it was acquired from, is expressed semiotically: through something (a semiotic entity) that stands for something else, to someone. It is a representation that encapsulates the experience of interactions resulting in change. The argument made in this study is relatively straightforward: Semiotic competence is the premise for semiotic performance.

In this study suggesting a knowledge perspective of semiotics, we argued for a plurality of semiotic means and methods. The perspective suggested integrates the awareness of the sign in the larger image of narrations and associated stories. The three examples of alternative semiotic approaches suggested are part of an open-ended toolbox that semioticians are invited to expand. The dynamic nature of semiotic processes should become our goal.

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