

A Philosophical Look at Keynes and Hayek

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Semiotic Paths to Complexity

By

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PREFACE

Both Keynes and Hayek have been revived in the wake of the latest global financial crisis and are still alive in contemporary debates. This book calls for a new look at the contributions of John Maynard Keynes and Friedrich von Hayek to economic theory under the semiotic approach of Charles S. Peirce. In the context of Peirce's classification of sciences, semiotics enhances an original attempt to open up new ontological, epistemological and axiological perspectives regarding the influential contributions of Keynes and Hayek to the economic theory of a complex real world. Both thinkers warned that the understanding of the complexity of economic phenomena demands not only purely deductive reasoning, but also other methods of inquiry along with the study of other fields of knowledge – such as History, Philosophy and Psychology.

Among the deep global social and cultural challenges, the crisis in epistemology is characterized by a radical questioning of the whole matrix of economic knowledge. As Edward Fullbrook highlights in his recent book *Narrative Fixation in Economics* (2016), the Cartesian view of human reality has deeply shaped the way in which neoclassical economics theorizes about the economic and social existence. Indeed, neoclassical economics has reinforced the relevance of the Cartesian method of inquiry that moved the so-called scientific (true) knowledge out of the general flux of experience.

Taking into account the evolution of economics as a science in the 20th and 21st centuries, the need for a deep epistemological “turn” is a must. In this attempt, this book looks at different semiotic paths to complexity considering two well-known thinkers.

In recent research, there has been an increased interest in semiotic approaches to social sciences. As a matter of fact, the revival of the contribution of classical pragmatism has enhanced the revision of the epistemological foundations of scientific knowledge. In the 19th century, Charles Sanders Peirce proposed the understanding of *logic as semiotics* – one of the normative sciences in his philosophical architecture. His semiotic approach rejects the theorization of knowledge under models of strict rationality since the most important thing in the process of knowledge is “*how to question what we know and how to reconstruct what we know to match the changing world*”. Under this evolutionary

perspective, semiotics is the science of signification, representation, reference and meaning. Peirce's theory of signs turned out to shape a new epistemological framework that favours the fallibilist standpoint.

The semiotics of Charles S. Peirce, considered in the context of his philosophical approach, can contribute to the re-examination of the economic theories of Keynes and Hayek. It is expected that the selected topics can result in significant progress with regard both to important epistemological problems within the discipline of economics and the renewal of the bond between philosophy and economics. The complexity of the social and economic policy problems of the 21st century call for a revision, in a non-trivial way, of our conceptual outlooks in economics in a context where the evolution of globalization has contributed to unprecedented social, political, and environmental challenges.

Dealing with economic problems using a semiotic approach requires an ability to go beyond our received ideas and conceptualizations of economic problems to redefine them in new interdisciplinary contexts. The combination of the philosophical background of Charles S. Peirce with the influential economic ideas of John Maynard Keynes and Friedrich Hayek permits this interdisciplinary dialogue that may help in developing new methodological frameworks. This book fits in well with such an end, preparing the reader for engaging in current relevant real-world debates.

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INTRODUCTION

ANOTHER LOOK AT THE SEMIOTIC PATHS OF KEYNES AND HAYEK

This book offers a new look at the contributions of Keynes and Hayek. It attempts to show the specific links between principles of theories, philosophical claims and policy thinking. In this sense, the book unavoidably brings up issues of a "meta-theory" in Economics. While this meta-theoretical attempt is concerned with the investigation, analysis, or description of the economic theory itself, this theory refers to the body of generalizations and principles related to Economics as a field of knowledge. Against the objectivistic philosophical assumptions which underlie contemporary research in economics, the book proposes an interpretive alternative to the reading of the works of Keynes and Hayek that favours a semiotic view of knowledge as an interpretive process.

Considering their legacies, Wapshott (2011) highlights that Keynes' ideas were ascendant in the post-war era since his proposal fostered spending to overcome the 1930 great Depression. However, by the mid-1970s, Hayek's ideas spread in the attempt to reduce government intervention and the dangerous menace of economic planning. Despite their differences, there is a consensus that Keynes and Hayek introduced innovative reflections.

John Maynard Keynes was born in Cambridge, England, in 1883. Keynes began his studies at King's College in 1902, where he was affected by the analytical tradition of the English philosopher George Moore. After 1907, Keynes became a member of the "Bloomsbury Group" connected with English intellectuals. In the course of economics established by Alfred Marshall, he became a lecturer at Cambridge. Two years later, Keynes became editor of the 'Economic Journal' and his first book, *Indian Currency and Finance*, was released in 1913. During the Great Depression, Keynes's ideas on counter-cyclical public spending got great support. At that time, he participated in a group called the "Cambridge Circus" that had included well-known economists such as Joan Robinson and Richard Kahn. In the period between 1911 and 1945, Keynes was engaged in British and in international political affairs (Madi 2017).

Born in 1899, in Vienna, Austria, Friedrich von Hayek became a legal British citizen in 1938. He served in the Austro-Hungarian Army's artillery regiment in 1917 and battled on the Italian frontier. He followed an academic career in the post-war period after finishing his studies at the University of Vienna. In the 1930s, he was selected as the Tooke Professor of Economic Science and Statistics at the London School of Economics (LSE) and took part in a debate with John Maynard Keynes from Cambridge. After leaving the LSE, he taught at the University of Chicago and Freiburg. In 1974, Hayek was honoured with the Nobel Prize in Economics together with the Swedish economist Gunnar Myrdal (Madi 2017).

The objective of a semiotic analysis is the development of meaning, interpretation - a process including symbol grounding to reality. Thus, semiotics does not separate the process of research from the process of representation of the world of experience. Evoking multi-disciplinary associations, semiotics is concerned with both the theory and practice of interpreting economic, cultural, and behavioural sign systems. In this sense, semiotics helps one to think analytically about the implications of economic thinking for the broader culture in which it is produced and disseminated.

The word *paths* has been chosen to take into account the remarkable wealth of the trajectories of John Maynard Keynes and Friedrich Hayek. However, the term *paths*, in the plural, also suggests that the semiotic paths are neither single nor linear. The book highlights the diversity of the semiotic paths followed by Keynes and Hayek to attain the perception of the problems of the capitalist economy that are intrinsically complex, open and changing. The word *paths*, then, does not apply here only to the conceptual developments of Keynes and Hayek, but also to the paths of the ever-changing realm of the economic object. Through the expression “semiotic paths”, we acknowledge the constant re-shaping of economic research where the conduct of a semiotic analysis may:

- Establish the main signs to be decoded as a system of signs or values that assigns meanings to the elements that belong to it. To decode a system is to figure out its meanings, as in interpreting the role of money.
- Determine what the sign means in the context of different theoretical approaches.
- Establish a set of signs (prices, money, etc.) related to the main sign system which we are going to decode, that is to say, the representation of the capitalist market.

- Point out the interconnections between related signs within a sign system.
- Consider the overall context (historical, cultural, and political) in which the main signs appear.

A semiotic approach to economics

In the last decades, economics, instead of being considered a social science, has been associated with formalism and positivism. Against this trend, this book proposes a dialogue between economics and semiotics.

In the 19th century, Charles S. Peirce (1839—1914) considered semiotics, as a general sign theory, that is necessarily philosophical in orientation. Looking back, in 1690, John Locke acknowledged that the real role of semiotics is to ascertain the way knowledge is acquired, increased and communicated. Peirce's contribution highlights open and constantly growing signs. These triadic relations are an essential characteristic of his studies where semiotics is understood as the study of the relationship between sign, object, and interpretant that can trigger an infinite semiosis.

Indeed, as Fabrichessi and Marietti (2006) claimed, semiotics as philosophy and philosophy as semiotics emerge from a reading of Peirce's papers. Semiotics, for Peirce, is philosophy in the sense that it also refers to modes of being, knowledge and human action. And philosophy is semiotics since it involves reflection on a potentially infinite series of sign manifestations. Indeed, his philosophy represents the interplay between logic and realism and his epistemology is authentically semiotic because of the consciousness that truth is subject to the modes of being. In other words, his analysis of the foundations of logical thought is carried out in a semiotic way. In the same perspective, Nathan Houser (2016b) considers that philosophical thinking could benefit by embracing semiotic realism and by applying semiotic analysis to philosophical problems. As Peirce brought into question the meaning of human and social beliefs, his semiotic theory avoids the Cartesian restriction of individuals' inner privacy. In fact, Peirce's contribution is compatible with a theory that applies to social groups and organizations and therefore, a combination of semiotics with philosophy could lead to a richer assessment and comprehension of economic investigations.

Drawing on Peirce's contributions, the book calls for a reflection on the role of semiotics in economics. How to understand economic relations according to processes of meaning-making? How can symbolic relations generate new meanings (interpretations) in the capitalist market? Special attention is paid to the economic representations discourse and the way

economics is related to culture. What is interesting to note in most complex systems is that social life moves into a symbolic method of organization where beliefs are open to changes and affect the material world.

Following Peirce, semiotics takes part in the enterprise of understanding the economic ideas and practices that constitute the society in which we live. Despite its relevance, semiotics has only sporadically discussed economics. In 1968, Ferruccio Rossi-Landi's book entitled *Language as Work and Trade* anticipated problems that are now considered central to the development of present-day capitalism. He highlighted the role of communication and 'immaterial work' in the economic analysis. In particular, communication plays a dominant role in the process of market exchange into which human life is integrated, and in the economic discourse that overwhelms the Western culture with discussions about the public deficit, debts, credit, inflation and deflation, uncertainty and free markets (Petrilli and Ponzio, 2005). In addition to the contributions of Rossi Landi, more recent studies of Bruno Latour, Michel Callon and Donald MacKenzie have focused on the sociology of finance. They have investigated the "performativity" of the economic discourse and the interconnections between economics and business, especially in the building of financial markets. Moreover, semiotics has also important links with the Foucaultian works on biopolitics and governmentality. Some other works have emphasized the role of discourse, market power, and the political economy of the sign, such as those of Gilles Deleuze and Felix Guattari.

Finally, Bob Jessop (2004) developed a distinctive approach in the social sciences that combines critical semiotic analysis with an evolutionary and institutional approach to political economy. The recognition of the semiotic dimensions of political economy enhances the exploration of the constitutive role of semiosis in economic and political activities, economic and political institutions, and social order more generally. However, this approach in economic and political inquiry does not neglect the articulation of the semiosis with the materialities of economics within wider social formations in the context of "economic imaginaries" (representations) that identify and privilege some economic activities and turn them into objects of observation and governance. Following Fairclough (2003), Jessop argues that the "economic imaginaries" refer to the semiotic moment of a network of social practices in a given social field, institutional order, or wider social formation. Thus, the economic imaginaries re-articulate a particular conception of the economy and its extra-economic conditions of existence. Since these

imaginaries can exclude aspects that are crucial to the general performance of the economic and extra-economic relations, such exclusions restrict, for instance, the effectiveness of planning, governance, and economic predictions. A key concern is that there are competing economic representations, each one with particular drivers and outcomes in the material world.

The book

This book aims to outline the different semiotic paths in their economic thinking and analysis. That will not lead to the "right" answers, but it could lead to a more advanced understanding of how Keynes and Hayek built the paths to inquiry in Economics. The book highlights

- The methods of inquiry and the economic representations since Keynes and Hayek brought into question the challenges to modelling the real economy.
- The links between the evolution of the capitalist market and human beliefs and behaviour.
- The analysis of the interrelations between culture, institutions and policy-making.
- The epistemology of the complexity of economic systems.

Their contributions help cast a better light on how semiotics may enhance the interpretative potential of real-world economic issues. Among the relevant questions at stake are: What can humans know and how do humans come to know? Can humans ever know anything with absolute certainty? How do social sciences differ from the natural sciences? In which sense can the economic discourse predict or build the future? What sorts of events, processes, or conditions cause others? Which is the nature of our ignorance or limited knowledge about the future? Which is the role of the market in shaping human behaviour? How does economic ideology influence the evolution of institutions? How does the human mind relate to its context? What sorts of states are just? What are the best forms of society and government?

The use of semiotics in Economics is an endeavour that implies decoding the hidden meaning of the signs of economic processes. Following Peirce, we believe that human existence develops in the universe of signs, the interpretation of which conditions the actions of individuals, groups, and society. In short, a new look at the works of Keynes and Hayek, under a semiotic approach, refers to signs, objects, a

variety of interpretants, indexical signs, symbols, arguments, semiotic chains, concepts of Firstness, Secondness, and Thirdness, among others (Lungu, 2016). Using the viewpoint of the Peircean semiotics, the theories of Keynes and Hayek can be considered systems of signs where culture and economics could be articulated in the same general framework. This semiotic approach is meant to complement other perspectives.

CHAPTER ONE

KEY PHILOSOPHICAL ISSUES

The semiotic theory of C. S. Peirce is an attempt to explain the cognitive process of acquiring scientific knowledge as a pattern of communicative activity in which the partners in dialogue are, indifferently, members of a community or sequential states of a single person's mind. In linking the acquisition of knowledge to the structure of communication, Peirce highlighted that logical inference and the analysis of signs are inter-related. For Peirce this knowledge-communication process involves a relationship between "objects" and "signs", including, prices, money, legislation, etc.

Peirce stressed the existence of a deep relationship between knowledge and semiotics. Semiotics is about mediation, that is to say, it integrates the concept of the representation through something called a sign. Representations of real-life issues are not the outcome of deterministic processes, but rather of interactions that involve randomness since not everything, in reality, is subject to the law. Peircean semiotics recognized that knowledge is context-dependent and he incorporated logic in a much broader theory of signs that also accommodates every possible perception, feeling, or intuition. He established semiotics as logic of vagueness (Nadin, 1980). Peirce's concepts of indeterminacy and "openendedness" in interpretation and inquiry may be understood as the possibility of representations of actual phenomenal processes in the world of experience. Therefore, the "reconstitution" of reality from the representation refers to possible meanings in a true pluralistic approach. What is outstanding about Peirce's logic is the recognition of multiple universes of contexts and discourses and how they relate to the real world.

Semiotic chains and the variety of interpretants

In the analysis of the semiotic chains, two statements elaborated by Peirce are extremely relevant: "Symbols grow" and "We only think with signs" (Peirce 1995). Indeed, semiotics, as an investigation about meaning and communication, refers to a way of seeing the world of experiences, and of

understanding the impacts of culture on human behaviour and decision-making.

In this perspective, the key concepts refer to the three modal categories of triadic thinking where the process of mediation cannot be separated from the phenomenological experience. In semiotics, the evolutionary process of interpretation of experience involves intelligibility and meaning (Silveira, 2007). In other words, the observation of logical relations intrinsic to phenomena occurs in an evolutionary process of signification and representation. Moreover, the interpretation of signs in the temporal flow feeds the extension of the mediations (Houser 2016). In the light of a semiotic perspective, knowledge involves intelligibility, interpretation, and signification, in a process in which the sign is inserted in the universe of experience.

First of all, let's define what is a sign. According to Peirce:

A sign, or represent, is that which, under a certain aspect or mode, represents something to someone. It directs itself to someone, that is, it creates in the mind of that person an equivalent sign, or perhaps a more developed sign. To the sign thus created I call the interpretant of the first sign. The sign represents something, its object. It represents this object not in all respects, but in reference to a type of idea which I have sometimes called the basis of the representamen (Peirce 1995, 46).

In the semiotic process, the object outside the sign raises an idea through a reaction of the mind. The sign denotes a perceptible object, imaginable or even unimaginable and must represent something else called its object and refer to it. According to the author, the sign may have more than one object and such objects may each be a singular thing existing and known:

(...) which is believed to have previously existed or is expected to come into existence, or a set of such things, or a known quality, relation or fact whose singular Object may be a set or a whole of parts, or may have another mode of being, such as some permissible act whose being does not prevent its denial of being equally allowed, or something of a general nature desired, demanded, or invariably found in certain general circumstances (Peirce 1995, 48)

The "interpretant" of the sign is the effect of the sign on the interpreter. For Peirce, this effect can be of three different kinds: it can be logical, emotional, or energetic. The interpreter is, in the first case, a usual thought, in the second an emotion, in the third, an action. In this triad, the emotional interpretant has the nature of a feeling; the energetic interpretant involves the interaction of opposites in the external world with the subject

of semiosis; and the logical interpretant is a general concept, that is, it has the nature of a concept (Silveira 2007, 53-54). Thus, for the philosopher, the universe of phenomena can be grasped as a fabric of possibilities and needs, of feelings, actions, and thoughts (CP 8.314-15). The interpretants have also relevant implications for a theory of knowledge in which the sign is being considered. Moreover, the interpretants can be considered as immediate, dynamic and final. The dynamic interpretant of the sign is the interpretant that the sign itself determines - it is the meaning of the sign or, in other words, the interpretative power of the sign. In turn, the dynamic interpretant refers to the various interpretations of the sign that occur (Silveira 2007, 49). Finally, the final interpretant refers to the interpretative tendency of the sign over time that determines a habit of conduct. Its goal is the effective interaction with the dynamic object of the sign. However, there is no guarantee that it will be possible to achieve a single interpretation and that it will be definitive.

In the context of logical interpretations, the relations of representation correspond to genuine triadic relations (Santaella 2000, 65). In a genuine semiosis, Peirce (1995) said that only the symbol has the power to represent the generality of law or habits. These symbols, as a genuinely triadic logical relation, are in themselves mediations. The interactive process of semiosis is continuous and feeds the extension of infinite mediations in an evolutionary process of signification and representation (CP 4.237). From this perspective, representations, while being signs, result from a process of realistic and non-deterministic interpretation. In other words, the system of signs is always grounded in some context (Colapietro 2014).

Against the obsession of semioticians with taxonomies, Peirce reflected on the logic of meaning that shows its intrinsic vulnerability to causation and contingency, as well as its openness to further causal implications. Indeed, semiotics and realism are articulated. While the immediate object concerns the object as contained in the sign to which it refers, the dynamic object refers to the object only attainable by collateral experience and it maintains a relation of exteriority with the sign. There is a homology between sign and dynamic object that cannot be contingent. In showing the links between semiotics and realism Ibri (2017) affirms that realism feeds on regularities based on a phenomenological approach to ensure a homology between the general forms of signs and dynamic objects. From the pragmatic point of view, the continuity of such homology over time makes logical interpreters (and scientific beliefs) efficient guides of conduct. Semiotics is forward-looking. Indeed, the epistemological condition of the sign is its processing characteristic.

Indeed, Peirce addressed the philosophical relevance of the continuity and states that “continuity governs the whole domain of experience” (CP 7.566).

At the core of our argument, there is a rejection of the Cartesian reductionist-deterministic understanding of reality (Nadin 2010). The economy is a system of signs and representations. Following a semiotic approach to economics is about developing methods of analysis and interpretation of signs which give meaning to the economy in proposing representations. As Max Fisch (1951) said, Peirce's realistic semiotics can probably be seen as one of the most radical attacks on the Cartesian narrative and the idea of a unified science that has overwhelmed what is called western civilization. A comprehensive semiotic analysis of complex phenomena, as those defining the relation between economics and culture, enhances the continuous re-examination of the real world. As a result, the interpretation of the signs means the building of meaning as an instance of the semiotic process.

As human beings have incomplete knowledge about the world, semeiotic mechanisms make plausible the constitution of frames in a continuous process of reconfiguration of both knowledge and strategies for processing new information. Peirce emphasized that the sign has an inferential nature: we continuously test our hypotheses, discard those which are inappropriate, and construct better ones in choices, decisions, or actions (Nadin 1993). Moreover, the significance of thought relies on its reference to the future.

As semiotics is connected with real-life issues, the significance and the meaning of a sign can be quite varied. In truth, Peirce's approach allows room for re-interpretation since there is the belief that meanings do evolve. In one of his famous letters to Lady Welby, Peirce writes:

It has never been in my power to study anything— mathematics, chemistry, comparative anatomy, psychology, phonetics, economics, the history of science, whist, men and women, wine, metrology—except as a study of semiotics (Peirce 1953, 32).

Semiotics and reality

While working in economics as a specific field of knowledge, the adoption of a semiotic perspective attempts to make explicit the signs that are rooted in a set of cultural norms and conventions. The study of signs has to do with an alternative approach to scientific knowledge that does not rely on the dichotomy of object-subject. A semiotic approach to economics can create a new mindset for the interpretation of economic phenomena

(Băileşteanu and Lungu 2013). There is a generally admitted definition of sign originated from Peirce: 'A sign is an object which stands for another to some mind' (Peirce 1991, 141). As we may understand through these definitions, everything is a sign as long as it is engaged in the sign-relation or semiotic relation. This implies that a sign itself does not create the semiotic relation; on the contrary, the semiotic relation makes something into a sign.

There are three elements of the sign relation: representamen or sign, its object, and its interpretant. In a triadic relation, meaning is produced by the action of 'interpreting' with the sign. Considering the phenomenological categories of Peirce, 'Firstness' may be related to certain qualities of feeling; the second category of elements of phenomena comprises the actual individual facts and the third category consists of thought (Ibri 2017). Human beings are always on the way to signifying what they perceived and through the communication of signs in a semiotic process. To Peirce, the human knowledge about reality is acquired through an inferential process in which signs and their objects are related. According to his ontology, the reality is not confined to the universe of existent objects, habits, social norms or cultural conventions, but the reality also includes the principle of chance that is a driver of "uberty" and change.

As of 1897, the clue-question in Peirce's philosophy is the rejection of necessary reasoning. In the Harvard Lectures on Pragmatism, he addresses this with "It is the reasoning of mathematics" (EP 2: 205). Peirce was aware that necessary reasoning (deductive reasoning) is strong in security, but weak in "uberty", that is to say, in the ability to yield new knowledge and information, which according to him also belongs to the tasks of reasoning. In his words

Whereas necessary reasoning (deduction) is strong in security, its non-necessary counterparts (abduction in particular) are strong in uberty, in the advancement of human knowledge (EP 2:463).

Peirce not only questioned the foundations of necessary reasoning – attached to the neoclassical theory in economics since Walras, but he used the principle of indeterminism as the basis of his argument against the doctrine of "necessitarianism". From the point of view of economic relations, the adoption of necessary reasoning rejects the dialogue with reality. Such necessary reasoning would not take into account a realism that would affirm the general nature of the possibilities of the object, which in turn would shape the nature of economic theories to be adopted. Given the nature of the complex object of Economics as a science, which

exhibits an immense multiplicity of variables and is subject to a high degree of accidentalities, coincidences cannot be taken as causalities. In this sense, a deterministic approach does not seem to account for economic phenomena.

For the doctrine of necessitarianism, the principles of the uniformity of nature and of universal causality perform at least two crucial functions. First, they ensure the universal applicability of scientific reasoning in order that science can provide an exhaustive understanding of reality. Second, these axioms are not ad hoc assumptions made by scientists but rather a priori conditions underlying rational thought.

Although Peirce agrees that the existence of laws is required of any intelligible world, the evidence of regularity in nature disclosed by science in the 19th century did not suffice to prove necessitarianism. In his attack on "The Doctrine of Necessity", he offers four arguments for believing in real Chance:

1. The general prevalence of growth, which seems to be opposed to the conservation of energy.
2. The variety of the universe, which is Chance, and is manifestly inexplicable.
3. Law, which requires to be explained, and like everything which is to be explained must be explained by something else, that is, by non-law or real Chance.
4. Feeling, for which room cannot be found if the conservation of energy is maintained (CP 6.613).

In the context of this dispute over axioms and philosophical foundations of the scientific thinking in the 19th century, Peirce was a pioneer in identifying the role of Chance. Recalling Peirce's words "What is Chance? Chance does play a part in the real world, apart from what we may know or be ignorant of" (CP 6.602). According to Peirce, the doctrine of absolute Chance (the view that Chance is part of the universe) implies that laws of nature are abrogated. Causality, the traditional pillar of metaphysics, was challenged as the past does not determine exactly what will happen in the future.

As of 1866, in the Lowell Lectures, we can find the first steps towards the concept of indeterminism. Peirce analyses the role of induction and addresses the following question: does reliance on statistical methods presuppose or imply determinism? According to Hacking (1990, 61), while Peirce did not defend indeterminism explicitly in these lectures, he had already denied the merits of determinism as a scientific theory and recognized indeterminism as a coherent scientific option.

In his attempt, it is Peirce's case against John Stuart Mill that opens up the path to the doctrine of indeterminism. Peirce rejected Mill's general claim that the uniformity of nature can be justified by induction. It is worth remembering that while Mill admits the existence of 'accidental relations' and is aware of the probabilistic character of scientific results (Mill 1973, 275), he wants to show that determinism can explain the accidental relations and 'irregularities' by reference to the "necessitarian" view of Chance.

Against Mill, Peirce states that there are many more irregularities, or accidental relations, than uniformities, or regularities, in nature that do not allow us to accept the empirical defence of Mill's principle of uniformity in the universe (W 1: 417). And Peirce adds that in relation to the empirical evidence, for every scientific generalization there are residual phenomena that the law fails to explain, and thus no truly universal law has ever been found (W 1: 420). Indeed, Peirce is concerned to show that the existence of Chance is not incompatible with the existence of laws (W 1:421). One of Peirce's main concerns was to articulate "the world's ways of being" with "the ways of discovering the ways of being in the world" in order to oppose nominalist philosophies. Therefore, the definition and demarcation of *real* needs to be a starting point in this discussion.

Generality is, indeed, an indispensable ingredient of reality; for mere individual existence or actuality without any regularity whatever is a nullity. (CP 5.431)

That which any true proposition asserts is real, in the sense of being as it is regardless of what you or I may think about it. (CP 5.432)

In 1903, Peirce made a sharp distinction between the real and the fictional. And he says:

For the fictive is that whose characters depend upon what characters somebody attributes to it; and the story is, of course, the mere creation of the poet's thought. Nevertheless, once he has imagined Scherherazade and made her young, beautiful, and endowed with a gift of spinning stories, it becomes a real fact that so he has imagined her, which fact he cannot destroy by pretending or thinking that he imagined her to be otherwise. (CP 5.152)

In short, the fictional is not real because it depends on what characters a human mind attributes to it. What are the merits of this perspective? First, the signs are produced in the relationship of human actions and the material world. Second, the capitalist market is a combination of the material

properties and the social meaning of signs influenced by cultural contexts (Eco 1976). Third, the interconnections between signs can be considered building blocks in theoretical representations.

Regarding economics, a semiotic approach brought into question the boundaries of the economic nature of these problems. About these boundaries, Donella Meadows (2010) says that an academic discipline's boundary rarely coincides with the right boundary for thinking about a problem. Nonetheless, to find the right way to think about each new issue, we need mental flexibility.

Against a deterministic world-view

The debate about the relevance of determinism as a world view of laws of nature is one of the features of the 19th century. On the one hand, Laplace believes in the assumption of necessitarianism. On the other hand, C.S. Peirce rejects the doctrine of necessity and Darwin's natural selection, and proposed the conceptualization of chance as an ontological principle in the context of his philosophical realistic indeterminism where the laws of nature themselves changed with time. In *The Taming of Chance*, Hacking said:

Peirce denied determinism. He also doubted that the world is a determinate given. He laboured in a community seeking to establish the true values of Babbage's constants of nature; he said there aren't any, over and above those numbers upon which we increasingly settle. He explained inductive learning and reasoning in terms of merely statistical stability. At the level of technique, he made the first self-conscious use of randomization in the design of experiments: that is, he used the law-like character of artificial chances in order to pose sharper questions and to elicit more informative answers. He provided one of the standard rationalia for statistical inference — one that, named after other and later workers, is still with us. He had an objective, frequentist approach to probability, but pioneered a measure of the subjective weight of evidence (the log odds). In epistemology and metaphysics, his pragmatic conception of reality made truth a matter of what we find out in the long run. But above all, he conceived of a universe that is irreducibly stochastic.

(Hacking 1990, 200-1)

The philosopher rejected the legacy of Cartesian rationalism focused on the cogito. He did not subscribe to a static metaphysics (of essences), but rather preferred a dynamic ontology in which being, and temporality converge in an ongoing process of disclosure of possibilities. Most importantly, human life is not a solitary venture, but it is formed in the

context of human interactions where people are connected with communication, dialogue, and contestation.

It is worth noting that Peirce's semiotics, understood as logic, avoids a psychologist approach to the theory of knowledge. Indeed, in the 20th century, different "paradigms" in psychology have been related to different views of knowledge (Hjørland 2011). While behaviourism has been mainly related to empiricism (and to logical positivism) cognitivism has been mainly related to rationalism, and the "discursive" view is mainly related to historicism and pragmatism. Behaviourism dominated until about 1971, after which cognitivism became much stronger despite the growth of emerging views in psychology from about 1990 that regard the mind and psychological processes as cultural and social by nature. The *behavioural view* made the following programmatic statements: psychology is a pure objective, experimental science, psychology belongs to the natural sciences, the theoretical goals of psychology are prediction and control of behaviour, in principle, the behaviourist does not acknowledge a distinction between human beings and animals, psychology can be conducted in terms of stimulus and response, stimulus can be predicted from behaviour, and behaviour from stimulus. *Cognitivism* is interested in the inner mechanisms of human thought and the processes of knowing - in contrast to the advocates of behaviourism who neglect the inner mental processes. Considering the human mind as a computer, this approach describes the mental functions as information processing models and uses quantitative, positivist research methods. In the 1990s, the *social turn*, also known as "the discursive turn", highlighted the idea that human psychology and functions like perception, thinking, memory and emotion are seen as cultural and social developments. In this view, the study of the human mind requires the study of the society and the culture in which it functions.

In the late 1860s, Peirce generalized the Kantian notion of "representation" (W 1:257) in the cognitive process and directed his philosophical attack against all types of Cartesian intuitionism which postulates the existence of immediate (and thus non-semiotic) cognition. One of the most significant contributions to semiotic theory made by Peirce is his conception of scientific epistemology as the study of the logic of signs.

For Peirce, human cognition, including sensory perception, emotions, feelings, as well as inferential reasoning, involves "signs" linked to each other in an endless series of interpretative chains. In his words:

I use the word "Sign" in the widest sense for any medium for the communication or extension of a Form (or feature). Being medium, it is

determined by something, called its Object, and determines something, called its Interpretant or Interpretand ... In order that a Form may be extended or communicated, it is necessary that it should have been really embodied in a Subject independently of the communication; and it is necessary that there should be another Subject in which the same Form is embodied only in consequence of the communication. The Form (and the Form is the Object of the Sign), as it really determines the former Subject, is quite independent of the sign. (EP 2:477)

These signs that are grounded in an external reality have a mediation role between the world of experience and the world that is represented by the human minds (CP 1.532).

Indeed, as Peirce warned, we have no control over the dynamic object. Since the semiosis is an interactive and continuous process, then the interpretation may continuously change according to the changes of the dynamic object. Recalling Peirce's words

We must distinguish between the Immediate Object--i.e., the Object as represented in the Sign--and ... the Dynamical Object, which, from the nature of things, the Sign *cannot* express, which it can only *indicate* and leave the interpreter to find out by *collateral experience*. (EP 2:498)

The sign is an example of "mediation" conceived of as a generalized category. The sign relation necessarily involves three elements associated with the semiotic process: the sign itself, the dynamic object and the interpretant. In short, the sign itself (representamen) is a vehicle of communication and the interpretant refers to the meaning of the sign. Peirce founded his semiotic philosophy on the notion of the mediation by signs. What he adds to our understanding of systems of thought is that they are not linear. Semiotic thinking involves a dynamic set of interactions and feedback in the flow of time. The relationships between elements in the system are important in understanding how the system as well as the component parts will behave. In the semiotic process, Peirce warned that feelings come first in both a hierarchical and a chronological sense. Moreover, according to the three Peircean categories, thoughts are considered to be between feelings and actions. In other words, thinking is itself between feelings (as qualities) and actions.

General representation, mediation, thinking, synthesis and cognition are in the third category way of being and involve time flow. In the context of phenomenology, the temporal course of experience is translated into the acquisition of Thirdness that brings the experience of thought, of the mediation between the first and the second (CP 7.527). The generality

of Thirdness involves the representation of particulars, that is, the insertion of facts in the universe of intelligibility that presents a dynamic of evolutionary learning in time (Ibri 2017).

In what sense does human behaviour refer to representational competencies? What is the role of knowledge of the symbol systems? Keynes and Hayek were aware of the functions of signs regarding relevant economic representations. Against the *homo economicus*, they both highlighted that economic agents are surrounded by signs in everyday life, and they developed explanations that underly the psychological and cognitive processes that affect behaviour and change in social life. Understanding which signs influence behaviour is a critical first step.

Another crucial feature of the Peircean semiotics is that the cognitive process is based on a relational view of reality where dyadic and triadic relations are, respectively, instances of the categories of secondness and thirdness. Semiosis is a typical example of triadic relations that involve temporality. Temporality indicates the presence of time relations and the irreversibility of time. Peirce correlates the three related items of the semiosis, the representamen, its object and its interpretant, with the three dimensions of time. Present time corresponds to the representamen, past time to the object, and future time to the interpretant (Fernández 2009). Indeed, semiosis is a forward-looking process.

Peirce conceives time as an existential analogue of the logical flow from premises to conclusion. He regards this as a generalized evolutionary development of the semiotic flow from object to interpretant. The idea of time must be employed in arriving at the conception of logical consecution; but once the idea is obtained, the time-element may be omitted, thus leaving the logical sequence free from time. This done time appears as an existential analogue of the logical flow (CP 1.491). For Peirce, time is that diversity of existence whereby that which is existentially a subject is enabled to receive contrary determinations in existence. The philosopher approaches the mystery of time from the vantage point of logic as semiotics. Consequently, there cannot be semiosis without time. If we join Peirce's dictum that man is a sign, we may come close to identifying temporality and the semiotic realm in which we are immersed.

The contextual character of meaning and interpretation

In more general terms, Peirce's semiotics enhances an epistemic approach to human and social phenomena. His semiotic tools, especially his notions of indexical signs, symbols, and chain-like semiosis, enhance analytical

distinctions in sign operation and structure that have proved powerful for research into social, economic, and cultural phenomena as a starting point for analysis.

Semiotics provides a key to the understanding of the different levels and domains that constitute material human life. Indeed, human interactions, under Secondness, are considered from different perspectives -economic, social or cultural. Through the examination of the relationship between cultural processes and the theoretical discourse about them, it becomes clear how the members of a society are constantly interpreting their social interaction and historical experience by constructing interpretive models or accounts that represent, in a limited way, the practices and conventions of the culture.

According to Peirce, the cognitive process can only occur in interaction with the world of experience. The human mind works with representations of the world that are tied to Thirdness, the thinking that occurs. And human decisions are not seen as objective, or mechanical, but as part of a communicative process. Peirce's insistence on the full reality of Thirdness provides the economist with a means of avoiding naive empiricism that systematically reduces economic phenomena to "verificationist" instances of economic actions. Indeed, Peirce rejected all forms of Cartesian introspection and argued that thinking requires signs to convey the information about the object.

Peirce's realistic semiotics enables us to grasp the foundations of social normativity within different institutional settings by showing how semiosis plays a normative role for human beings in a context where linguistic and non-linguistic signs can be included. This contrasts with the focus on language that characterizes the Saussurean semiotic and structuralist thought (Márkus 1984, 113). Moreover, signs have a material dimension that supports the connection between life's normativity and material reality. A sign is a representamen within a specific social and cultural system. Underlying human relations in different institutional settings, some signs are part of semiotic processes with a triadic dimension ("Representamen-Object-Interpretant").

Peirce's realistic semiotics refers to an understanding of the cultural process where signs are intrinsically normative. In this setting, both the concepts of 'representamen' and 'interpretant' refer to an 'object', that is to say, to a real object in the world. The referents for such normativity are cultural 'objects' such as values, beliefs, norms, laws. Following Peirce, the meaning of both individual and collective behaviours and actions has a contextual nature. Moreover, the outcomes are not teleologically oriented but deduced from the dynamics of human society evolution. In truth,

semiosis is an open-ended process in which each moment of interpretation alters the field for subsequent interpretations. This approach requires the use of a philosophy of knowledge that distinguishes natural sciences from social sciences since they require two different implementations of the logic of the inquiry. While natural sciences point to technically exploitable knowledge for an instrumental activity, social sciences refer to a kind of knowledge that is communicable, and thus, this knowledge supports the interactions between individuals mediated by symbols. Against the neoclassical paradigm of economic thought, Keynes and Hayek were concerned with the foundations of the idea of economics as a social science of wealth, which pre-supposes the existence of institutions (Dufourt 1995).

Therefore, semiotics and human temporality are intimately connected. Indeed, time is a fundamental problem of philosophy and the cognitive and social sciences. Economic change is a related relevant issue.

Change as a semiotic problem requires a new conceptual understanding of the markets as social and cultural units in evolution. A key issue to retain is that markets undergo change in different ways: transformation of production processes, investment and consumption patterns, business strategies, and policy-making goals through historical time. Moreover, social norms change as well. And the interpretations of the sign systems of economic relations are overwhelmed by feelings, cognition, change, expectations, and foresight. Against naturalist and rationalist approaches, the semiotic mediation deals with signs and signification, and it can only occur in the course of social life. The relevant assumption is that markets are open systems, that is to say, evolution has an unpredictable and non-teleological nature.

The transformations in the capitalist system and Western societies have revealed that the so-called process of modernization enhances the modifications of values and ideas. Therefore, the apprehension of the meaning of economic relations considers how the economy relates to institutions and culture in a given society.

Culture is a sign system that consists of a variety of signs, objects and interpretants. More precisely, the complexity of the cultural dimension of social life is related to a system of signs that the members of a society share. In this line of thought, the semiotic analysis of institutions refers to a triadic point of view, considering that meaning should change consistently with changes in context. This wider approach understands cultural norms and patterns of behaviour as well as the interplay between actors in a system to address complex challenges. When applied to economic institutions, a semiotic approach can help in understanding how

the evolution of institutions is related to the dynamics of an existing system of signs. Moreover, relevant related questions refer to the boundaries of economic knowledge and the problem of change in the capitalist economies.

Under a semiotic approach, the conceptualization of “institution” refers to a semiotic process of interpretation and representation. The term “cultural semiotics” has been used since Ernst Cassirer described certain kinds of sign systems as “symbolic forms” and claimed that the symbolic forms of a society constitute its culture. According to Cassirer (1923), cultural semiotics has two tasks:

- the study of sign systems in a culture concerning is the definition of their role in the culture,
- the study of cultures as sign systems regarding the impacts on the experiences of individuals that belong to a specific culture.

Each sign process includes at least a sign, an interpreter, and a message which is conveyed to the interpreter by the sign. The interpreter’s response, which amounts to construing a message in perceiving the sign, is called an interpretant. Within society, individuals are regularly connected by sign processes. Moreover, the institutions that exist in each society are characteristic of their social culture.

Though it is often just called the “study of signs,” semiotics is the study of sign processes and sign users as well. From a semiotic perspective, in addition to the material dimension of social life, signs function as codes of a society (concepts, values, for instance) which connect with the interpretant in a conventional nature (Posner 1988). Besides, the dynamics of business create new codes, new signs or new usages of them. Mass media and advertising are also becoming increasingly important as producers of signs and they are competing with traditional institutions such as universities, churches, governments. The semiotic characteristics of institutions contribute decisively to changes in codes within specific areas of daily life by means of affecting different aspects of how people live, such as clothing, leisure activities, sports practice, gestures, and speech.

At the material level, capitalist societies have developed the concept of “property” that refers to the power of disposition over things. In this context, money may be considered as a symbolic representation of property. The most important function of money is to enable the market exchange of power of disposition at any time. In this context, the stability of money has deep and relevant implications on the distribution of wealth