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Chapter 1

Communication and Knowledge: A Proof of Completeness

Abstract: Overcoming the dualism between knowledge and communication should be considered one of the major advancements that has followed from pragmatism. This chapter tries to explain the reasons for this and to advance some proposals that would make this pragmatist achievement better known. After a quick review of the relationship between knowledge and communication, I propose an attentive analysis of Peirce's semiotics to help understand that all kinds of knowledge always exhibit a dialoguing semiotic structure, namely, a semiotic structure that is intrinsically open to others' intervention. The second part of the chapter proposes to complete the overcoming of dualism by reading communication as a form of synthetic knowledge within a conception of synthesis as action, in which we recognize an identity through changes.

Keywords: communication, knowledge, synthesis, pragmatism, Peirce's semiotics

1 Introduction

Overcoming the dualism between knowledge and communication should be considered one of the major advancements that has followed from pragmatism, but it has not been highlighted with the proper emphasis up to now. This chapter tries to explain the reasons for this and to advance some proposals that would make this pragmatist achievement better known.

Let us begin with a quick review of the entanglement between knowledge and communication. Traditionally, scholars, no matter the discipline, looked at communication as an addendum to the hard kernel of knowledge in their fields; that is, communication begins when knowledge ends. First you have to know, and only then will you be able to communicate. However, the digital revolution has shown that this approach is no longer adequate and that it was always mistaken. Because of the rapid development of communication, it is clear that study, research, and the dissemination of knowledge cannot be severed from one another. Certainly, over the course of

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the history of philosophy, a number of authors have acknowledged that research implies dialogue among experts and that study is a dialogue with others who produced research at another time and in another place. The speed of the digital revolution has accelerated this process so much that it is clear that the nature of these processes related to knowledge is intrinsically communicative. To take a particularly striking example, think of the chain of epistemic functions present when one is working with ancient artwork: digging, finding, restoring, conserving, publishing, conferencing, exposing, and marketing are all phases of this chain. Traditionally, communication was confined to the last phase and was confused with marketing. Digital tools have now shown that all of the steps related to the gaining of knowledge have a communicative facet, as can be seen in social networks, applications, e-mail, and digital archives. Communication helps us make our way through all the steps of gaining knowledge. There is a profound continuity among the different phases of the epistemic enterprise, for which we need a different conception of communication. Pragmatism, especially following the semiotic clues left by Charles S. Peirce, possesses all the instruments that can enable us to understand the continuity between knowledge and communication and to foster a view, based on the concept of gesture, that will help to shape different habits of communication in the future.

The functional relationship between knowledge and communication must be discovered in two senses: communication must always be present in knowledge as much as knowledge must always be happening in communication. An attentive study of Peirce's semiotics helps us understand one side of the problem by forcing us to acknowledge that all kinds of knowledge always exhibit a dialoguing semiotic structure. This expression wants to underline Peirce's conception of semiosis as a kind of development of signs that comprehends subject and object, utter and receiver. Signs themselves create propositions, dialogues, and endless interpretations that can be analyzed and formalized but cannot be antecedent to semiosis. Scholarship agrees on this point, as has been argued by Pietarinen (2006), Short (2007), Maddalena (2009), Bergman (2011), Bellucci (2019), and Brioschi (2022). A more complete look at this side of the problem implies the construction of a model of communication based on Peirce's semiotic. It is possible to see an attempt to do this in Mats Bergman's book *Peirce's Philosophy of Communication* (2011), which proposes a model that can be further ameliorated and graphically represented. An amended version of the model would complete the series of models meant to explain analytically how communication is present in the formation and transmission of knowledge that have been created by numerous scholars over the last seventy years. This perusal of existing models and the construction of a Peircean model will be discussed in the first part of the chapter.

The second part of the chapter will be devoted to the other side of this functional relationship, which has always remained a little more obscure. For historical

reasons, since communication carried with it a different power and meaning during the first half of the last century, even classic pragmatists did not explore the conclusion that communication is always knowledge; that is, that knowledge is present in any act of communication, or, in other words, any act of communication is an act of knowledge. An interesting exception can be found in Dewey's *Art as Experience* (1934), even though he focuses mainly on aesthetic experience. The kernel of the problem is that studies of communication, including those considered in pragmatist scholarship, have privileged a study of roles, functions, and elements of communication in analytic terms. Synthetic activities are considered only as combinations of analytic sections, parts, and elements. However, this approach has demonstrably fallen short of a real explanation of communication, especially in the way it is now understood. Recent studies of Peirce's consideration of continuity have led to a different conception of synthesis as meaningful action, in which we recognize an identity through changes (Maddalena 2015a). As we are going to see, I will call "gesture" this kind of phenomenologically and semiotically structured, meaningful action. A sequence of gestures will provide a different kind of rhetoric, of which the linguistic one is only a specific case. Beyond the usual rhetoric built on language, we have a series of rhetoric of gestures like rituals, experiments, and arts. Communication as synthetic knowledge is more likely to be accepted within this different conception, which will be the topic of the second part of the chapter.

2 Well-Known Models of Communication

Many articles and books have been written on semiosis, a few of them concerning the possibility of transforming Peirce's semiotics into a model of communication. Perhaps the most important attempts are Thomas Sebeok (2001), Umberto Eco (1975), Jürgen Habermas (1981), Tom Short (2007), and Mats Bergman (2011). As mentioned above, in the first part of this chapter, I want to illustrate the place that a Peirce-based model of communication would have within the work done in these kinds of studies.

Let us sum up some of the different models of communication that have been proposed.¹ A first group includes the so-called linear models. Perhaps the two most influential of these are those devised by Shannon and Weaver (1948, Fig. 1) and Jakobson (1960, Fig. 2). I will present the graphic versions of various models because I find them significant, and I will try to do the same with Peirce's theory of communication.

¹ See also Gili-Colombo (2012).

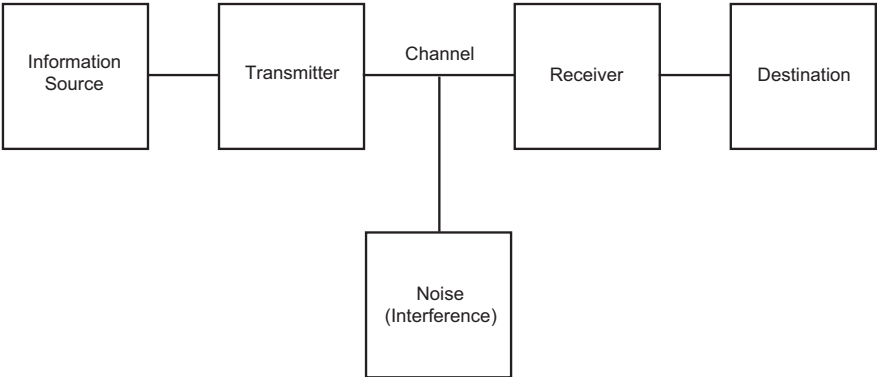


Fig. 1: Shannon and Weaver (1948).

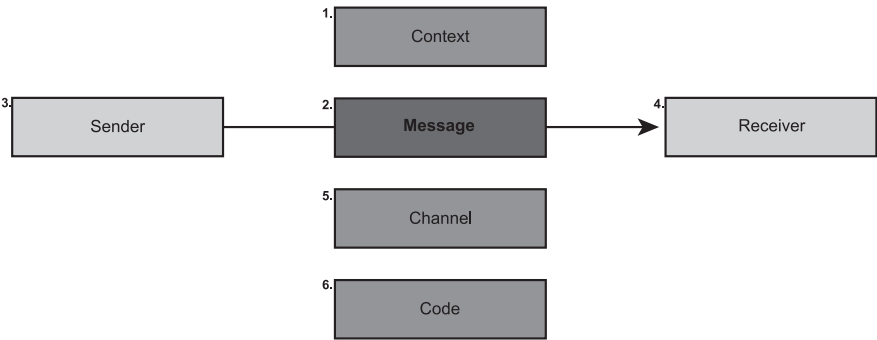


Fig. 2: Jakobson's Model of Communication (1960).

Linear models represent an initial attempt to analyze communication, highlighting each of its basic elements and functions and focusing on its elementary flux in the journey from sender to receiver.

Another group of models, which has an antecedent in Schramm's model (1954, Fig. 3), was developed mostly during the 1970s. Umberto Eco's and Stuart Hall's models may be the most influential models espousing this interactive conception of communication. Here, the focus is not on distinguishing the functions of communication but rather on their interactive organization, usually centered around code and coding, understood as the primary source of the infinite exchange of roles taking place during any communication. Hall's model (Fig. 4) highlights the way in which the code is produced, which is part of his political understanding of communication, while Eco stresses the semiotic side of coding and the ways in which communication fails (Fig. 5).

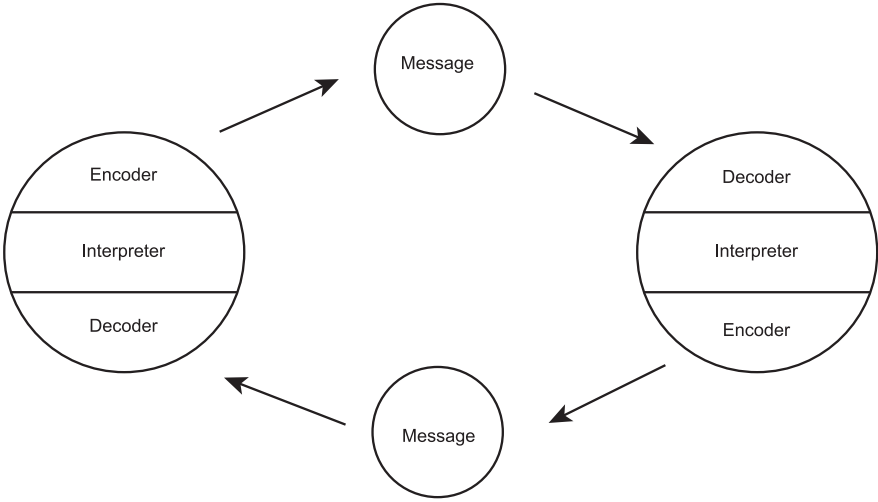


Fig. 3: Schramm’s Model of Communication (1954).

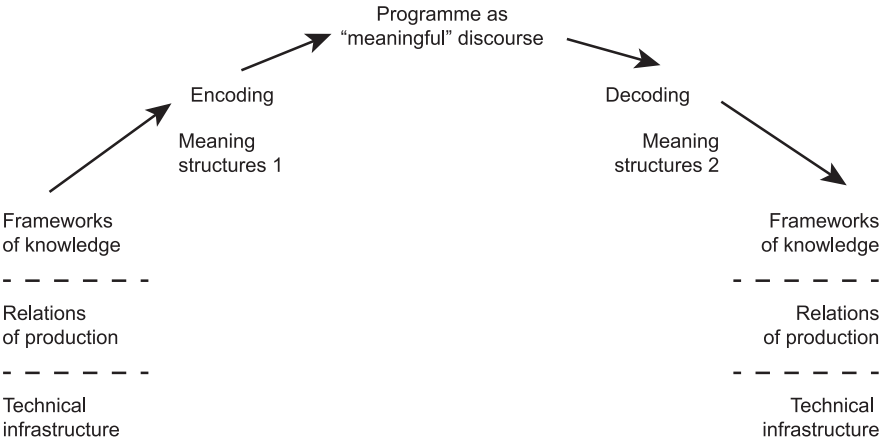


Fig. 4: Hall’s Communication Model (1973).

We can single out a third group of models under the heading of “transactional.” As examples, we refer the reader to Dance’s helical model (1970, Fig. 6) and Barnlund’s sophisticated model (1970, Fig. 7). Here, the accent falls on the context and evolutionary development of communication. More recent attempts like Ellestrom’s (2018, Fig. 8) should also be included in this group. Focusing his model on

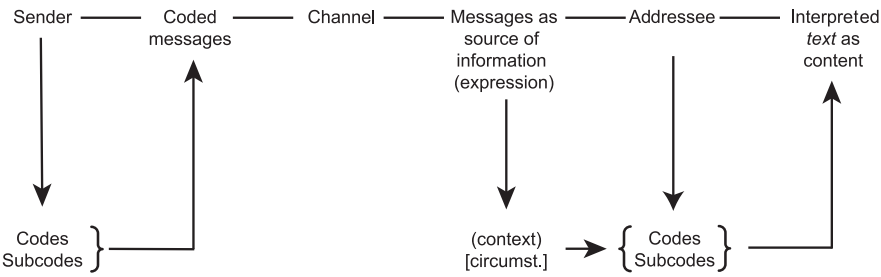
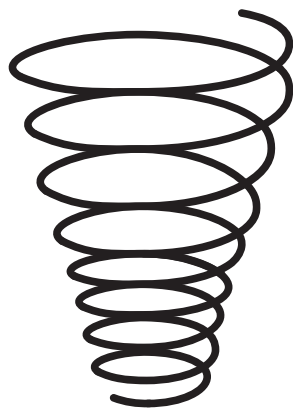


Fig. 5: Eco's Model of Communication (1975).

the media product, Ellestrom claims to use Peirce's conception of interpretant, even though he erroneously states that the interpretant refers only to the mental, which is contrary to Peirce's statements in his article titled "Pragmatism" (1907, EP2, 398–433), as commonly accepted in the scholarship. However, it is interesting that Peirce's semiotics can help in avoiding the subject-object distinction, the centrality of verbal or written language, and the lack of connection with the rest of the logic of the previous models.



DANCE'S HELICAL MODEL depicts communication as an endless spiral of increasing complexity.

Fig. 6: Dance's Helical Model (1970).

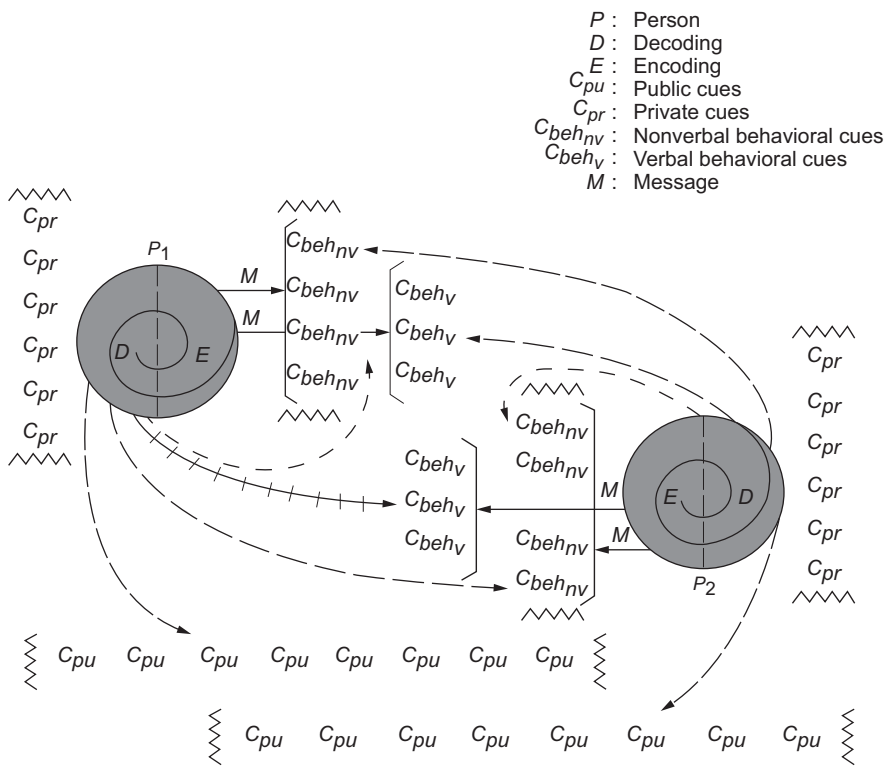


Fig. 7: Barnlund's Transactional Model (1970).

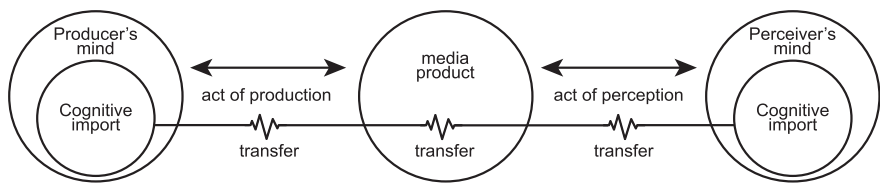


Fig. 8: Lars Ellestrom's Communication Model (2018).

3 Peirce's Theory of Communication

As mentioned above, possibly the most complete work examining Peirce's theory of communication has been done by Mats Bergman (2011). Bergman's account does not reach a graphic formalization, but it provides all of the necessary information to build one. I have performed a similar work of reconstruction (Madda-

lena 2015b) and I think that, even if there are important differences, i.e., the names of the interpretants,² the main points coincide. I sum them up in four keystones.

First, semiosis starts from a vague, common ground in which an immediate object is indicated. Second, the end of the communication is an ideal limit in which the real or the dynamic object will emerge as true. These two points express the distinctions outlined in Peirce's mature semiotics. The object that we communicate is not the object as it is, which is variable from moment to moment, as Hegel pointed out in infinite richness, but the immediate object, which is already a common representation. This immediate object is singled out from a vague general ground of experience through indices, both genuine (namely, containing an icon) and degenerate (namely, pure references like proper names). The dynamic or real object, which is present vaguely at the beginning of the communication with a phenomenological richness that cannot be completely determined at once, will appear in its fullness only at the end of the inquiry, when all meanings would be disseminated and explicit. Third, in the middle there is a growth of meaning that involves all kinds of signs (generally expressed as representamen). Fourth, there is a distinction of functions, but not of nature, as between immediate object, representamen, and interpretants.

These last characteristics account for the knowledge that any fact, insofar as it is also a communication, is a sign. Peirce pointed out 10 main classes of three elements, observing that the combination of them would amount to 5,049 types of signs. Beyond the numbers, it is important to notice that those classes represent an evolution of signs that can be well represented in our model: Peirce was thinking about signs as moving pictures, always in action. The ideal limit of the vague ground and the final manifestation of the dynamic object leaves room for a non-semiotic ur-beginning and an ideal end of inquiry, but everything else must be a sign.³ Here, it is important to underline also the role of logic-final interpretant, which, according to Peirce, is a habit of action. From this perspective, this logical-final interpretant saves its phenomenological ground but it also follows a semiotic, symbol-driven, course. With respect to the previous models, the triad of immediate object, representamen, and interpretants cover the sender-receiver roles as well as the process of encoding that is semiotically determined.

Given these characteristics, Peirce's model of communication could be described as a spiral that starts with immediate object and ends up with dynamic

² Scholarly debate about interpretants can be followed in the articles by Short and Lizska in the *Transactions of the Charles S. Peirce Society* (Short 1981, 1982, and 1996 as well as Lizska 1990).

³ Ransdell, Short, De Tienne.

object, passing through a continuous reformulation of representamen. As in Ellestrom's transactional model, we do not need a distinction between subject and object, or between sender and receiver, because all functions are included in the evolutionary process that makes the meaning develop. As in Eco's system, semiotics is central but has no need of external elements. In this model you can explain why communication becomes thinner or stops for a while or enters into latency.⁴ In this model, one has at the same time the powerful simplicity of the basic linear models, the semiotic precision of the interactive models, and the evolutionary sense of meaning of the transactional models. We can express these concepts graphically as follows (Fig. 9).

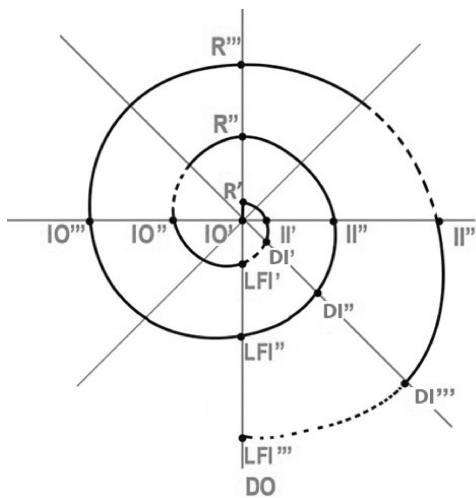


Fig. 9: Peirce's Model of Communication (see Bergman 2011 and Maddalena 2015b).

DO=Dynamic Object; IO=Immediate Object; R=Representamen; II=Immediate Interpretant; LFI=Logic-Final Interpretant.

However, this model would be quite incomplete if we were not able to see another perspective on it that enlightens the passage that Peirce attributed to the discipline of stechiology:⁵ the passage from indefiniteness as vagueness to determinacy, and, finally, to indefiniteness as generality. As many authors have pointed out, Peirce considers two kinds of indeterminacy: the vague and the general. Usually, he de-

⁴ Graphically, you need to have different line thicknesses to depict growing or diminishing meaning. Temporal latency can be expressed by a dotted line. A temporary stop is always a latency. A real stop is the final one.

⁵ From the Greek: the doctrine of elements (EP2, 350).

fined these according to a sort of theory of games, pursuant to which vague is what must be determined by the utterer while general is what must be determined by the interpretant.⁶ Moreover, this stechiologic definition reverberates in the logic, where general is a universal quantifier that gives rise to a general proposition, vague gives rise to a particular proposition, and determinacy gives rise to a singular proposition. Eventually, this division ends up in a logical-metaphysical distinction among possibilities, actualities, and generalities where in the firsts the principle of contradiction does not hold and in the thirds the principle of the excluded middle does not hold (EP2, 351). In actualities, namely, in existent things, both principles hold. Now, our spiral must move from possibilities to determinacy and, eventually, to generality. Apart from the jargon, our vague perception of reality, whether physical or mental, becomes a determinate representation that achieves a general meaning (Fig. 10).

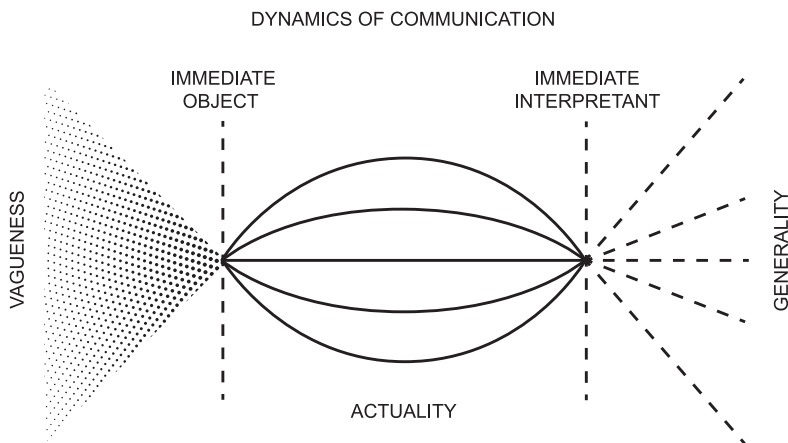


Fig. 10: Stechiological Dynamics of Communication.

The juxtaposition of the two diagrams should be possible with Riemann's surfaces, but such a project has not yet been completed. The two joined diagrams may represent a Peircean model that I consider to be the most apt for representing what is going on in any communication. With this model, we have another example of the fulfillment of the first part of the functional relationship: any knowledge is communication.

⁶ Cf. also Williamson (1994), Bergman (2011), and Bellucci (2019).

4 Synthetic Completeness

The second part of the functional relationship—any communication is knowledge—remains unaffected by this diagram. As much as I think it is better oriented to representing what happens during communication than others, Peirce's theory of communication (with its graphs) remains a mere analysis of what is going on. As much as it attempts to represent dynamics, it remains static. As much as it seeks concreteness, it remains disembodied. The problem that Peirce's theory shares with the others that we have seen is its intrinsic analyticity. The latter amounts to conceiving the epistemic flux as static and disembodied in order to identify its mechanisms. One of the big blunders of contemporary philosophy is not to have challenged Kant's distinction between analysis and synthesis at the root,⁷ meaning that synthesis is still conceived of as the reverse of analysis, a sort of patchwork of analytic elements. Peirce himself provided good phenomenological, semiotic, and logical tools offering a different view of synthesis, but he did not achieve this different view. Also, as far as communication is concerned, we have the same issue. Peirce's theory was a very good analytic theory, but it does not transform reality synthetically, as should be the goal of a pragmatist.

Correctly, in his book Mats Bergman notices the same weakness without thematizing it. Bergman states that at the conclusion of Peirce's semiotic theory we find a circle because we extrapolate the semiotic elements from communicative language and, afterwards, we build up communicative rhetoric from semiotic elements (Bergman 2011, 137). He points out that this can also be a virtuous circle, but the impression of something disproportionate remains, caused by a poor conception of the synthetic as a mere reverse of the analysis that assembles semiotic building blocks. In fact, there are a few examples of applications of Peirce's rhetoric; these attempts are not really innovative because they are mostly centered on describing scientific discourse.

The point is that Peirce himself, like many Peirce scholars, was, on the one hand, too focused on the linguistic characteristics of his semiotics and, on the other hand, was not aware of the challenge of coming up with a different conception of syntheticity. Moreover, his attempts to create a non-scientific rhetoric, as in his novel set in *Thessaly*, were linguistic and unsuccessful (W8, 296–340). Finally, a precise consideration of Peirce's mature writings leads to varying conclusions. Some of the topics he inquired into, like the relationship between the

⁷ Obviously, there were strong arguments against the existence of this distinction, like those of Quine, White, and Kripke (1980). However, these challenges remained internal to the same tradition and did not propose an alternative paradigm.

normative sciences and the need for logic in aesthetics and ethics, as well as his studies in phenomenology and openness to metaphysics, led him to a different conception of the synthetic results of communication and, therefore, to a different rhetoric. If you consider all of the aforementioned factors of his mature research, you will see that the rhetoric to which his semiotic studies pointed at could not be only linguistic. In addition, it is clear that this rhetoric could and should include the most relevant features of Peirce's pragmatic maxim, which warns against ending up in discursive argument and, rather, counsels in favor of habits of action. Certainly, linguistic rhetoric is a part of those habits, but it does not exhaust their entire scope. Finally, this rhetoric of habits will exhibit the virtuosity of the circle of semiotics-rhetoric if it demonstrates a different grasp of reality (it will be possible to decide whether this different grasp is more original or broader later on). My take, going beyond Peirce, is that this rhetoric of the habits of action reveals a synthetic approach to reality that supplements an analysis of semiotic characteristics. The actions within this particular grasp of reality are what I call gestures, using the term for his original meaning, which comes from the Latin *gero*; that is, to bring, to carry on. In this view, a gesture is an action with a beginning and an end that carries on a meaning (Maddalena 2015a).

We have to be careful in our understanding of this “carrying.” In Aristotle, there is a distinction between actions with an aim or meaning that is extrinsic to the actions themselves and actions that have an intrinsic meaning. Aristotle calls the first of these sets of actions *poiesis* and the second *praxis*. Here, we have a third category of action that causes the meaning to happen in its becoming, proceeding from the internal to the external.⁸

Peirce himself took into account the exceptional characteristics of this kind of action in his Existential Graphs (EGs). He considered them to be his *chef d'oeuvre* and also the “proof” of pragmatism (Zalamea-Nubiola 2011) because they showed the real unity between theory and practice, just as he had forecasted in the pragmatic maxim. In EGs, the meaning happens in the process of drawing the graphs because they are “a moving picture” of our thought. Peirce understood that EGs were a graphic representation of the epistemic value of the pragmatic maxim. However, he did not see that they also effected a unification of communication and knowledge. While we are drawing, we are at the same time coming to know something new—namely, we are synthezizing—and making it public and communicable, as you can see in the example below. We can see in the graphs that

⁸ The research by Giorgio Agamben (2017) is very interesting with respect to this distinction, even though it disregards the problem of the meaning by holding that the third kind of “action” has no meaning at all, as in a gag.

“every Catholic adores a woman” (beta graphs) but also that “there is a woman that every Catholic adores” (beta graphs) and “there is a woman that every Catholic must adore” (gamma graphs) (Fig. 11).

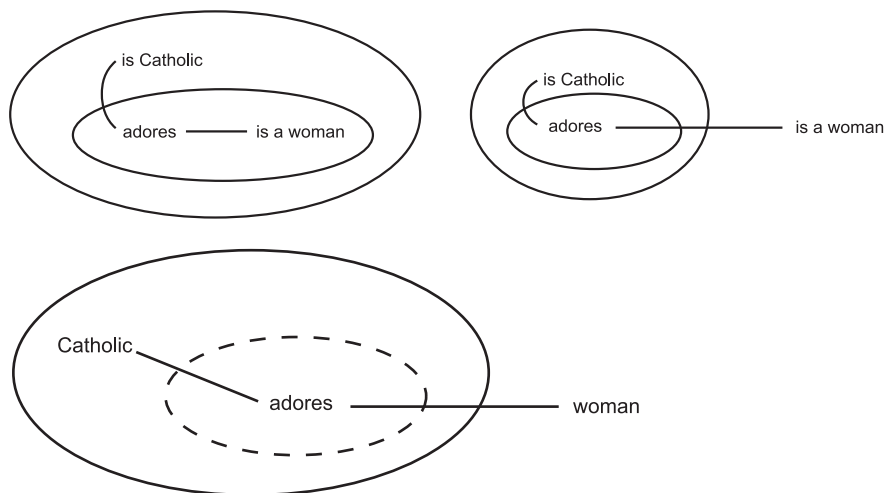


Fig. 11: Beta and Gamma Graphs.

Peirce provided many descriptions of the entanglement between semiotic and logic that can be seen in the graphs. The most sophisticated account occurs in the gamma graphs, those with modalities, in which he identified semiotic characteristics pertaining to all of the graphs. What follows is a short list of these.⁹

- a. The sheet of assertion in the alpha and beta graphs—propositional logic and first order logic, respectively—is a continuum in the Peircean sense.
- b. In his description of beta graphs, that is, first order logic, Peirce states that the line of identity, which acts as a quantifier (universal or existential according to the way in which it is enclosed in the cuts), is a continuum that moves upon the continuum of the sheet of assertion.
- c. What allows the line of identity to work as a quantifier is its being a “perfect sign”; namely, an “equal blending” of icons, indexes, and symbols.
- d. In gamma graphs—modal logic—the sheet of assertion must be imagined as a multidimensional (plastic) continuum.

⁹ For studies on Existential Graphs, see Roberts (1973), Shin (2002), Pietarinen (2011), and Zalamea (2012).

- e. The line of identity in gamma graphs represents an act of becoming, understood as transition among possibilities, actualities, and necessities. Entailed by this metaphysical dimension is the logical consequence that in gamma graphs, the line of identity can also remain open to different realizations of possibilities. Peirce represents this property with a loose ending of the line. In this case, he renames the line “the line of ter-identity.”

Working with Peirce’s existential graphs helps us greatly to understand that there is a tool that has the power to represent reality as transition among modalities and also to represent any reasoning that happens within this transition. The graphs are really a tool that unites theory and practice through a moving picture that enables us to understand that reasoning itself is in its turn a transition. Moreover, we understand that this representation, with its semiosis of open interpretative possibilities, is possible thanks to the very semiotic structure of our actual scribing. Finally, and most significantly, reasoning happens *while* we are scribing our graphs: there is no gap between reasoning and the representation of reasoning. In other words, in the graphs we understand something new by engaging in the action of scribing: we synthesize by drawing a line on a multidimensional plastic continuum. While we are scribing and synthesizing, we are also communicating something to someone else.

Striking though this outcome was, Peirce limited his subsequent focus to an examination of the deductive consequences of the graphs. He was in awe because this magnificent tool could accomplish all of the operations solvable in symbolic logic, but in an easier way. He failed to realize, however, that his *chef d’oeuvre* opened up a completely different view of synthesis. This is especially odd given that Peirce’s mathematical, semiotic, and phenomenological descriptions of the graphs allow us to generalize a kind of action that is specifically apt for synthesizing.

In fact, the graphs pave the way to a generalized view of gestures, actions that carry on a meaning; that is, through which meaning is articulated while it is in its development. This is the synthetic happening of the analysis we saw in the spiral of communication.

With EGs, we know that gestures, like scribing a graph, must have a semiotic structure that causes all signs to work together, like the line of identity. Moreover, we can add that the different kinds of phenomenological realities that are at the foundation of communication—firstness, secondness and thirdness, which have a modal version as possibilities, actualities and necessities—also must work together in this kind of action. This phenomenological foundation means that all actions embody a certain vague feeling or idea (firstness, or possibility), a determinate existential and physical extension (secondness, or actuality), and a general replicability as a habit of action (thirdness, or necessity). This phenomenological structure is impor-

tant for understanding that the communicative process also has a non-semiotic, residual component that is present in the dynamic object and that will be completely expressed only at the very final moment of inquiry, when the dynamic object will appear as a sum of all conceivable consequences or habits of action.

Gestures have a phenomenological and a semiotic structure (Fig. 12). When they are complete, they synthesize a new meaning. Even if not complete, they have some power of synthesis that is expressed in less powerful forms of communication; these forms cover the usual continuum of gestures that the scholarship in the field has identified.¹⁰ But above all, gestures show the same dynamic that we saw before: they actually embody vague meaning in order to open up various general interpretations (but not all of them).

Do we have examples of these gestures as meaningful developing actions? Our lives are full of examples. Some general categories comprehend public and private rites, scientific experiments, and artistic performances. As for the first category, think of the ceremony of the swearing in of a President using an oath. During this ceremony, the vague promises of the electoral campaign become real power and open up various meanings of the oath to the participant: joy, concern, responsibility, importance of tradition, etc. In another field, let us consider a scientific experiment, like Rutherford's gold foil. During the experiment, the vague hypothesis of a difference of density in the structure of the atom became evident in action, opening new perspectives on studies in the field. Certainly, there is a difference between the first time an experiment is performed and other times, and studies have to be done to assess whether completeness happens only in the first time. Finally, a play or a concert is an example of artistic performance that is presented to a different audience each night, making the gesture different each night.

We might list thousands of examples from different fields, and we might also see how any single phenomenological and semiotic item makes up those habits of action. I have tackled the demonstration of this point in other works (Maddalena 2021) and do not do so here. Here, I wish only to point out the interrelationship between knowledge and communication. If it is true that language is a flux of signs (with a phenomenological basis) and reveals a possible model of communication, it is also true that this model of communication can be maintained synthetically as a rhetoric of gestures, in the scientific and broad meaning of "gesture." Without this second aspect, pragmatism would fail to unite knowledge and communication in its own terms.

¹⁰ Cf. Kendon's continuum (Kendon 2004).

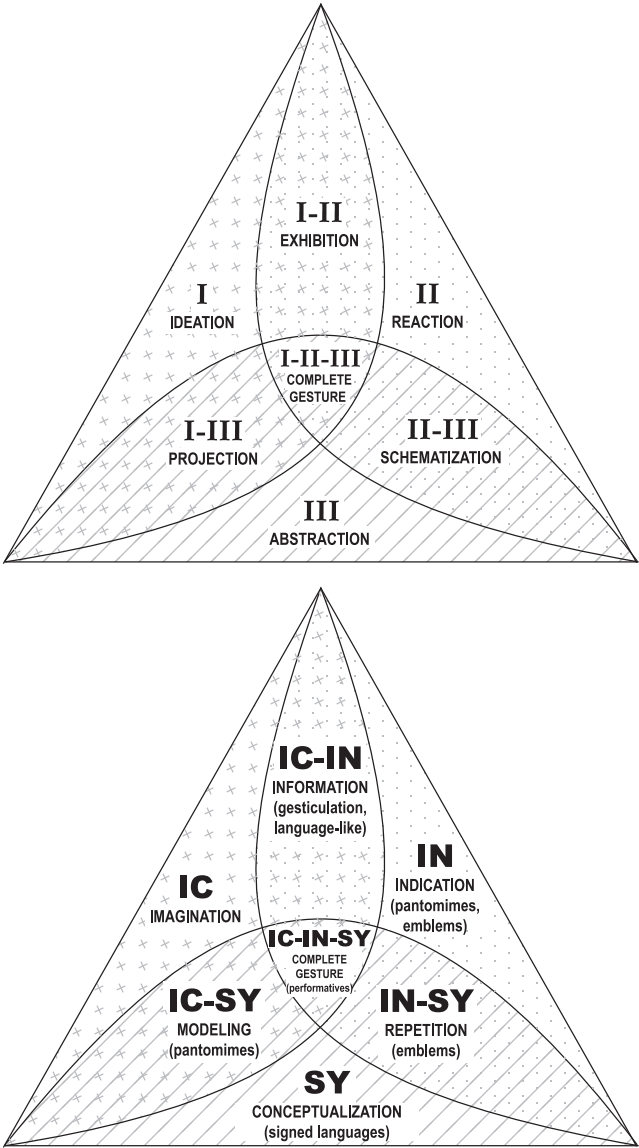


Fig. 12: Phenomenological and Semiotic Structure (Mapped Kendon's Continuum).

Perhaps this conclusion is not surprising, but it has not been sufficiently stressed. Part of the explanation for the omission of this second aspect is that classic pragmatism had a strong synthetic drive but often became stuck at the analysis of a synthesis because it did not challenge Kant's definition of the two classes of argument. Another part of the explanation is that classic pragmatism discovered many new epistemic tools (think of abduction, stream of consciousness, conversation by gesture, instrumental logic) but in the process was not able to get a bird's eye view of the entire philosophical path it was clearing. In any case, the practitioners of classic pragmatism accomplished terrific work in opening the road. Now, it is time to complete the journey towards a new form of philosophy. Gesture as a tool for creating a synthetic dimension of philosophy is the first step on this journey.

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