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Dossier temático «La semiótica de C. S. Peirce en la intersección de información y comunicación»

Pausing the Send Command: A Semioethical Methodology to Arm the Hinge between Information and Communication

Pausar el comando de envío: una metodología semiótica para armar la bisagra entre información y comunicación

Pausando o comando de envio: uma metodologia semiótica para armar a dobradiça entre informação e comunicação

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Abstract

This article explores the intersection between information and communication from the standpoint of Peirce's semiotic theory. An initial reminder of the tenets of Peirce's early semiotic theory of information provides the logical framework necessary for the investigation. We then explore the heuristic power of information at two levels, one first-intentional, the other, centrally, second-intentional. We identify specific critical exigencies at the nexus between information and communication that govern the assessment of inferential consistency and knowledge gains obtained while generating information. We then turn to an analysis of the transition between the representational relation and the interpretational relation at the core of semiosis. A detour taken to study how medieval thinkers worked out the transition from *suppositio* to *significatio* yields a logical and analogical clue regarding the hinge between information and communication. That hinge reveals itself to be a fluid transition between the logical and the ethical given the responsibilities involved when verifying the reliability of information. The paper's high point comes with the introduction of the phrase "editorial semiosis" to characterize the activity at the hinge, an activity clarified through Peirce's concept of self-control. The paper ends by considering whether some form of "artificial editorial semiosis" could counteract AI-generated pseudo-information.

Keywords: INFORMATION; COMMUNICATION; SEMIOTICS; C. S. PEIRCE

Resumen

Este artículo explora la intersección entre información y comunicación desde el punto de vista de la teoría semiótica de Peirce. Un recordatorio inicial de los principios de la temprana teoría semiótica de la información de Peirce proporciona el entramado lógico necesario para la investigación. A continuación exploramos el poder heurístico de la información en dos niveles, uno primero-intencional y el otro, centralmente, segundo-intencional. Identificamos exigencias críticas específicas en el nexo entre información y comunicación que rigen la evaluación de la coherencia inferencial y las ganancias de conocimiento obtenidas al generar información. A continuación, analizamos la transición entre la relación de representación y la relación de interpretación en el núcleo de la semiosis. Un desvío para estudiar cómo los pensadores medievales elaboraron la transición de la *suppositio* a la *significatio* produce una pista lógica y analógica sobre la bisagra entre información y comunicación. Esa bisagra se revela como una transición fluida entre lo lógico y lo ético, dadas las responsabilidades que implica el verificar la confiabilidad de la información. El punto culminante del artículo llega con la introducción de la expresión "semiosis editorial" usada para caracterizar la actividad en la bisagra, una actividad esclarecida mediante el concepto de autocontrol de Peirce. El artículo termina considerando si alguna forma de "semiosis editorial artificial" podría contrarrestar la pseudo-información generada por la Inteligencia Artificial.

Palabras claves: INFORMACIÓN; COMUNICACIÓN; SEMIÓTICA; C.S. PEIRCE

Resumo

Este artigo explora a interseção entre informação e comunicação do ponto de vista da teoria semiótica de Peirce. Um lembrete inicial dos princípios da teoria semiótica da informação do período inicial de Peirce fornece a estrutura lógica necessária para a investigação. Em seguida, exploramos o poder heurístico da informação em dois níveis, um primeiro intencional e o outro, centralmente, segundo intencional. Identificamos demandas críticas específicas no nexo informação-comunicação que regem a avaliação da coerência inferencial e os ganhos de conhecimento obtidos pela geração de informações. Em seguida, analisamos a transição entre a relação de representação e a relação de interpretação no centro da semiose. Um desvio para estudar como os pensadores medievais elaboraram a transição da *suppositio* para a *significatio* produz uma pista lógica e analógica sobre o limite entre a informação e a comunicação. Essa articulação é revelada como uma transição fluida entre o lógico e o ético, dadas as responsabilidades envolvidas na verificação da confiabilidade da informação. O ápice do artigo vem com a introdução do termo "semiose editorial" usada para caracterizar a atividade na articulação, uma atividade esclarecida pelo conceito de autocontrole de Peirce. O artigo termina considerando se alguma forma de "semiose editorial artificial" poderia neutralizar a pseudoinformação gerada pela Inteligência Artificial.

Palavras-chave: INFORMAÇÃO; COMUNICAÇÃO; SEMIÓTICA; C.S. PEIRCE

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Introduction

The theme of the present volume of *Informatio* posits that semiotics plays a role at the intersection between information and communication. This article explores that intersection from the standpoint of Peirce’s semiotic theory. I start with a reminder of the main tenets of Peirce’s early semiotic theory of information to provide the logical framework necessary for the investigation. The paper continues with an exploration of the heuristic power of information both at a first-intentional level and, especially, at a second-intentional level, a central point of the argumentation. The nexus between information and communication is governed by specific critical exigencies regarding the assessment of what sort of cognitive increase information ought to generate without loss while maintaining a continuously consistent inferential flow. At this stage the paper turns to an analysis of the transition that occurs between the representational “standing for” relation and the interpretational “standing to” relation at the core of semiosis. It does so through a medieval detour that looks at how late middle-ages thinkers worked out the transition from *suppositio* to *significatio*. The strategy ends up providing a fruitful clue, at once logical and analogical, regarding the nature of the hinge between information and communication. Ensues a discussion of that hinge, which reveals itself to be also a fluid transition between the logical and the ethical given the responsibilities involved when verifying the reliability of information before it gets communicated. The high point of the paper is reached when realizing that the activity at the hinge is best rendered through the phrase “editorial semiosis,” an activity clarified through Peirce’s ethical concept of self-control. The paper ends with an attempt to answer the question whether it is possible to develop some form of “artificial editorial semiosis” that could

counteract AI-generated pseudo-information by turning the latter into something closer to genuine inferential information through various strategies of verification.

Peirce on Information

That Peirce conceived an elaborate theory of information in the second half of his twenties, between 1865 and 1867, has been well established. Jérôme Vogel (Université du Québec en Outaouais) produced an epochal dissertation in that regard in 2013 and turned it into an excellent book, *Les fondements logiques de l'information chez Peirce* (Paris: L'Harmattan, collection Du sens) in 2021. Vogel is one of the first Peirce scholars^[1] to have studied minutely the rapid and complex evolution of Peirce's conception of information during those three years and to have understood them with unsurpassed clarity, at once philosophical, logical, and semiotic. What his work has made clear is that the earliness of that theory is no cause for obsolescence: its sophistication is such that it has remained fully pertinent to this day and will retain that pertinence for a long time. A serious discussion of the intersection between information and communication must be based on a logically robust theory of information, otherwise our inquiry would become pointless or vacuously rhetorical.^[2]

Peirce expressed his early elaborate theory in exceptionally dense and compact formulations. Vogel made sense of every pithy sentence and found a wonderful method to explicate them vividly. He designed a graphical method of representation that effectively exhibited dynamically the actual logical expansions or contractions at work within distinct inferential processes (hypothetical and inductive) affected by degrees of probability or plausibility. Key to Peirce's conception of information is that information consists in a type of representation that positively modifies an anterior state of knowledge. Telling uniformed people that they are each wearing a uniform is not informative to them. Telling them about a flaw in their uniform-wearing (your shirt is untucked; your right shoe is muddy) may be informative if they hadn't noticed the flaw. That is not enough: recipients of the provided information (as interpretants of that symbol) need to register it meaningfully, through action or other form of acknowledgment, should they care about it or pay attention to it. They need to learn something new from

it—“new” relatively to their prior state of information. When they learn something new, they also reposition themselves toward further learning or enhanced attention.

A proposition (or longer statement including a logical argument) becomes *virtually* informative when it carries a potential for modifying a given state of knowledge by adding to it some extra determination (denotative in its range of application, or connotative in its range of comprehension). A proposition becomes *effectively* informative the moment it gets communicated to a receptive audience that registers the proposed modification and acts accordingly (even if negatively). Every proposition may be said to be virtually informative to the extent that what it states regarding its object may not be known to some relevant interpretant.

Vogel explains that information has two complementary features. In the first place, information as expressed in a given stream of propositions is the sum of its own contents—contents that are themselves the result of past interpretative inquiry regarding both what those propositions denote (their indexicalized subjects) and what they connote (their sets of attributes, whether monadic, dyadic, or triadic). As Vogel put it (dissertation p. 101), the information of a symbol is the quantity of what that symbol’s interpretants already understand of its object. This is in part what Peirce means in his famous equation “denotation x connotation = information” (W1: 288, 1865) or “extension x comprehension = information” (W1: 465, 1866) or “extension x intension = implication” (W1: 342, 1865). That formula expresses the area within which information grows or expands. Key to this formula is the general principle that the more the extension of a particular attribute expands (i.e., the quantity of subjects that it can be attributed to), the more that attribute’s comprehension or connotation will decrease (i.e., the more that attribute will have to shed sub-qualifiers to accommodate the diversity of its subjects). Inversely, the lesser the extension of an attribute, the greater its comprehension can become since qualitative description of the object can become more focused and thus more comprehensive. An increase of comprehension without a decrease of extension is generally the product of an abduction. An increase of extension without a decrease of comprehension is generally the product of an induction. A corollarial deduction (the usual kind) is not informative

because it fails to increase either quantity: it is not an ampliative inference. Deduction is analytical, abduction and induction are synthetic. What Peirce has shown is that information grows only when either the extension does not decrease when the comprehension increases (thus one more attribute has been identified that applies to the entire extension without decreasing it), or the comprehension does not decrease when the extension increases (which means that new subjects have been discovered that share the same set of attributes already attributed to a narrower set of subjects). Information expands connotatively when we discover a new property possessed by some known object or set of objects, or denotatively when we discover additional entities to which some known set of properties are also applicable. Such “discoveries” are engineered through inferential interpretance, hypothetical or abductive in the case of supplemented essential predicates, and inductive in the case of supplemented subjects. The expression of such supplements that do not decrease the extension (when the comprehension abductively increases) nor decrease the comprehension (when the extension increases inductively), Peirce called an “equivalent representation,” thus a representation that managed to bring in either a “superfluous depth” or a “superfluous breadth” flowing over and above what was already known—the result of ampliative interpretants. Information consists of interpretants that convey such “equivalent representations,” that is, ampliative conclusions that increase knowledge without affecting the essential definitions of the terms involved.^[3]

In the second place, information is also a *process* that encourages, regarding some object of research, the expression of additional attributes or forms or properties that inquisitive interpretants have not made out yet while examining and describing that object. Information is necessarily incomplete, but well-formulated information will mention or express incidentally that incompleteness to signal that the symbolical proposition that carries that incomplete information is ripe for completion, should additional inquiry occur. In that second sense of the term, information is then also the quantity of what a symbol has yet to learn and can still learn from its interpretants about its object. This second aspect of information consists therefore in its inherent heuristic potential. There are also, besides, logical situations where ill-formulated information (e.g., an ill-denoted connotation such as *tailed men* in a hypothetical context) or an ill-connoted denotation such as *cats*

and stoves in an inductive context) becomes a provocation for more inquiry, gathering of collateral observations, increased scrutiny of similarities and differences. Peirce called such ill-formulations “pseudo-symbols”—“pseudo” because of their quantitative deficiencies: they are “totally wanting in *information*” (W1: 288).^[4] What Vogel observes (not Nöth 2013: 158) is that this want constitutes a tension prone to solicit an informative symbol (dissertation p. 160). For a pseudo-symbol does consist of symbols, and symbols cannot but appeal to interpretants: that is their inalienable nature.^[5] Even deficient symbols have heuristic power.

Information’s Heuristic Power

The latter point is of great import. Information promotes the continuance of inquiry, in several ways. One of these ways concerns the sphere of a given set of interpretants, some of which may already be versed in what a piece of new information is stating denotatively and connotatively, but others may not have acquired that information yet. Inherent to information’s heuristic power is thus its capacity to spread from inquirers to inquirers to the extent of its inner relevance for their quest, thus expanding the sphere of interpretants.

Another heuristic capacity lies in the power to suggest further denotative or connotative inquiry. Example: “This early version of a new COVID vaccine provides strong immunity to the majority of five-to-eight-year-old children in our test.” That information alone elicits further questions worth inquiring into. *Denotatively*: “What’s the precise percentage attached to the word “majority”?” How many children were involved in the test? How many were five, six, seven, or eight years old? What about other segments of the population? What about other tests conducted by other researchers? (etc.)” *Connotatively*: “What is meant by “strong” immunity? What symptoms did or did not develop? What level of resistance was displayed, through what sort of biochemical or generic engineering? (etc.)” We sometimes seek information to close an inquiry (such as in a criminal investigation), and sometimes to launch or redirect an inquiry. Information is therefore an instrument of inquiry. Its main logical function is to express or reformulate its content whenever the occasion arises for correction and

enhancement, thus for the double sake of buttressing knowledge and stimulating its expansion through further inquiry.

Second Intentionality

The heuristic power of information relies importantly on a third essential property embedded in Peirce's conception of information, one that few scholars have emphasized. It stems from the second of the two essential functions interpretants fulfill within a triadic sign relation. An interpretant's first function is to respond to a solicitation coming from one or more symbolical signs that are busy standing for, and thus representing, some puzzling object. Unlike iconic qualisigns that are agents of presentation and unlike indexical sinsigns that are anchoring agents of monstration, symbolical legisigns are agents of intelligibility that trigger inquiry about the puzzling object that has attracted attention. The role of symbols is to engineer a flow of representations, called interpretants, each of which will strive to contribute some modicum of sense regarding some aspect of the object under investigation. That response to the initial symbol—often shaped in the form of a question, such as “What is that thing that just fell on the sidewalk and is slowly creeping toward me?”—is the primordial role of interpretants. Every symbol must call for additional interpretants (failing to do so means that the symbol is not a real symbol) capable of increasing information regarding something that calls for identification. But that is not the only thing that interpretants do. The second function is critical, literally so. Richard Parmentier attempted to underline it in 1985 after discussing a distinction between the two basic vectors in the general sign relation: the “vector of representation” exercised by sign and interpretants toward the object, and the “vector of determination,” which points from the object toward the sign and the interpretants. Parmentier maintained that there was an asymmetry in the level of semiosis between the two vectors. The vector of determination (the Object determines the Sign which in turn determines the Interpretant) follows its course within the same plane of semiosis. The vector of representation, on the other hand, and specifically when the sign is a symbol, deploys itself at two distinct levels of semiosis: one of first intention and one of second intention. On the one hand, a symbolic interpretant does need to stand for the same object as the sign does. From that standpoint, its exercise of the *standing*

for representational relation occurs on the same plane of semiosis, which is necessary since an inquiry about an object conducted through a network of concatenated signs must maintain its focus on that object and not lose track of it. In the case of symbolic legisigns, however, their own ability to stand for an object depends neither on their own symbolical makeup nor on their object, but on their interpretants. A symbol can only represent its object if it successfully solicits an interpretant that represents the two of them, symbol and object, as related. As Parmentier put it, “the second vector introduces a *metasemiotic* level at which the interpretant represents its object only by virtue of having formed a conception of the *relation* between the initial representation and the object.” Parmentier added, “Because the interpretant is determined not just to represent the same object that the [sign] represents but also to represent that object in the ‘same respect’ and with the ‘same meaning’ (although more determined), it must first form a representation of ‘second intention’ in order to form a representation of first intention.” (Parmentier 1985: 28–29; 1994: 28).[\[6\]](#)

I have formerly also insisted on the second-intentional role of the interpretant (De Tienne 2005: 155-56), although for a different reason in the context of information, for I partly disagree with Parmentier. I think that the fact that the interpretant of a symbol is the ground on which that symbol can stand for an object is a matter of first intentionality and not of second intentionality despite how it looks. What grounds the capacity for an *iconic sign* to stand for an object is itself qua sign, as the bearer of some iconic form. An *indexical sign* may stand for an object on the ground not of itself but of the object to which it is reacting. And a *symbolic sign* may stand for an object neither on its own account or that of its object but on the ground of the rule afforded it by an interpretant. That triple “grounding” distinction is done on the same first-intentional logical plane of a triadic relation. The symbol-governing rule is a general and as such is not being determined by the ongoing symbol/object relation in its particularity; there is thus no second-intentionality at this stage. It is enough for the rule (as interpretant) to be generally hovering over the symbol’s standing for its object for that standing to occur. But that is not all. When Peirce stated (EP2: 273, 1903) that “the Third must have a *second* triadic relation in which the Representamen, or rather the relation thereof to its Object, shall be its own (the Third’s) Object, and must be

capable of determining a Third to this relation,” he meant that the interpretant must also “stand for” the Sign’s own “standing for,” and submit that very representational relation to subsequent interpretants for the latter to continue representing that representation as representation to other interpretants as well. This is where the real second intentionality resides: the interpretant carries an awareness not only of the object, but also of the inquiry that is focusing on that object. By representing that inquiry to subsequent interpretants, an interpretant is essentially assenting to that inquiry’s (or ‘chain of thoughts’) worthiness and seeking to prolong, sometimes even encourage, its investigation. That assent is critical. It manifests itself whenever we turn the tongue seven times before saying something, whenever we say “uh” while pondering whether something that was said or was about to being said made any sense, or whenever we pause in the middle of a sentence (while reading or writing it) and revisit it to test its cogency or get a sense of what it might be leading to next. That second-intentional interpretant will decide whether to pursue a line of thought or continue to listen to some rambling, or to interrupt it because of a sudden realization that the ongoing representation or “standing for” is shaky, need correction, or need not solicit any more semiosis.

Assessing Informedness and Continuity

In the context of Peirce’s early information theory, one of his exigencies was to ensure that a candidate term could become a propositional predicate only if it had “informed breadth” (or extension or denotation), thus that it could be predicated of real things, “with logical truth on the whole in a supposed state of information” (W2: 79 or W3: 100). What needed to be ascertained was whether all the information at hand had been taken into account and that no doubt remained that the candidate term could be predicated of every part of the informed breadth without exception. Attribution of a predicate to a set of subjects cannot be arbitrary. Logic demands that verified experience—the set of all synthetic propositions previously formed and expressed about the subject—not only vouch for the real predicability of the candidate term regarding a subject, but moreover usher in that predicability through settled correlations.

Peirce's second exigency was to ensure that a candidate term could become a propositional subject only if it had "informed depth", thus real characters that were predicable of that subject again "with logical truth on the whole in a supposed state of information." For the depth (or comprehension or connotation) of a term to be "informed," what is needed is a rigorous inductive investigation of a sample set of subjects whose assiduous observation identifies the regular common presence of distinct attributes and properties. Only then can the latter be attributed, not only to that set, but also to the generalized subject of a proposition.

Assessing the optimal informedness of subjects and predicates is part of an interpretant's second-intentional job—its job as "meta-agent." As "agent," the interpretant is a sign invited by a prior sign to broaden or deepen the ongoing representation of an object. As "meta-agent," the interpretant assesses the semiotic stream's consistency: it needs to confirm that the requested representation stands on good ground, due account having been taken of all the information at hand. Peirce showed that induction, by enlarging the breadth of predicate terms, actually increases the depth of subject terms—by boldly generalizing the attribution of a character from selected objects to their collection—while hypothesis, by enlarging the depth of subject terms, actually increases the breadth of predicate terms—by boldly enlarging their attribution to new individuals. Both types of ampliative inferences generate information, and that is indeed the prerequisite: information is fundamentally ampliative. Put another way, information is not deductive. Once one knows that all men are mortal, one learns nothing by inferring deductively that Socrates is mortal. What matters is that what is here involved is the core of the inferential process as such, thus what Peirce called the "ground of inference" in 1865 and the "leading principle" in 1867 (which varies according to the type of inference, deductive, inductive, or abductive). A leading inferential principle governs the second-intentional mission of warranting the passage from premises to conclusion, thus the passage from the information already at hand to new information. The inference needs to comply with that leading principle, the whole point of which is to spell out the rule that governs the drawing of a conclusion.^[7] If the inference fails to comply, it is faulty and its conclusion loses the right to enter a subsequent inference.

The significance of this is deep: complying with the leading principle guarantees the *logical continuity* and thus the consistency of the chain of inferences. This is not merely a matter of formal validity within a given inference. More significant is to ensure that connotative and denotative quantities at play never decrease across the flow of inferences while the area of information yielded by their multiplications keeps expanding (if the inferences are ampliative).

Moving from premises (the existing stock of inferred information) to the expression of new hypotheses or general rules is a triadic semiotic process. After all, conclusions are interpretants of the colligated premises (their soliciting signs) and stand for the same objects that those premises stand for. Wherever a genuine triadic relation governs a process, that process is bound to be continuous. The reason is that the sign's triadic relation is the foremost fundamental form of what Peirce called a "continuous predicate." Francesco Bellucci published a groundbreaking paper in that connection in 2013, where he provides an excellent study of "continuous predicates," demonstrating that all of them are triadic, and showing in particular that Peirce's "leading principles" in logic are clear illustrations of such predicates—for the very reason that they spell out procedures to draw an inferential conclusion, the third stem of a triadic relation. The leading principles of inferences are principles from which no more general principles can be extracted. Once they are stated (as Peirce did), their analysis comes to an end because their pure logical form cannot be further broken down: each is effectively unanalyzable, and therefore ultimate—not an ultimate part of anything, but an ultimate general—and thus, as Peirce argued in later writings, continuous. It happens that the simplest form of Peirce's definition of a sign, *The interpretant of a sign is a sign of the same object of which the first sign is a sign*, follows the same pattern as the general pattern of any leading principle, which is *nota notae est nota rei ipsius*. Bellucci concluded that the relation between a sign, its object, and its interpretant was "the most important genuinely triadic relation of logic."[\[8\]](#) This confirms that the triadic sign relation is a fundamental continuous predicate. It is itself indecomposable, unanalyzable, elementary, indispensable, and thus ultimate.[\[9\]](#)

Much more could be said about Peirce's remarkable theory of information, especially regarding the many degrees and kinds of logical indeterminacies that characterize information (indefiniteness, generality, vagueness, ambiguity, imprecision, and elasticity), all of which are natural features of the symbolical.^[10] What follows from the above discussion is that the core of semiosis is so constituted that, in governing the passage from signs to interpretants, it constantly seeks to ensure a well warranted continuous transition. That transition also defines the intersection between information and communication, which we are now going to address.

Communicative Information

The first evident remark is that such an intersection cannot but be a blurry borderland. One could object that the distinction between information and communication is clear-cut: first gather the data (about any subject of inquiry) and turn them into an informative text, then edit that text until it achieves syntactical and rhetorical felicity. Then move on to the next stage: share it with others, make it public, communicate it, in short, press the Send button. Wait for emoticonic reactions, tabulate them into numeric data, turn those pseudo-symbols into a report full of genuine symbols, edit it, and then press the Send button again so that everyone knows how many people appreciated the information you shared. Wait again for emoticonic reactions, basking in the fact that second set of reactions would be, not merely semiotic as in the first instance, but metasemiotic.

The tongue-in-cheek tone of the previous paragraph is meant to warn against the attractive clarity of simple dual distinctions. Embedded within semiosis, and thus notably within the process of seeking, finding, and formulating information, is a logical structure that is at bottom dialogical. Indeed, the very adjective "informative" is uttered by recipients of information to indicate their appreciation for having learned something valuable they hadn't known before. The work of gathering information is not only directed toward inquiry but also toward its own dissemination through all sorts of media. Information is meant to be communicated, if only to oneself. Most of all, information is meant first to be interpreted.

I have so far focused on the “standing for” representational relation, which may seem to be paramount in the concept of information, especially when it is reduced to the representation of so-called “facts.” But facts are abstractions far removed from experience: any reported “fact” is the result of an excision that discards millions of elements in favor of just a few selected predicates about some singled out generalized or particularized objects—it is the logical nature of facts to be manufactured into short propositions. Debrock makes a compelling case that information cannot, semiotically speaking, be reduced to facts.[\[11\]](#) Information had better be understood as a processual, event-driven, activity. Semiosis is an activity that has the structure of inquiry. The thing that fell on the sidewalk and is crawling toward me is a dynamic object urging for identification and investigation. It is a huge concern in need of representation and interpretation. What are the signs competent to stand for it in such a way that they can call up interpretants, thus other symbolical agents, most likely to help shed light on the creepy intruder? There is a great need to accumulate information, gather predicates capable of describing the slow-moving creature, call up people with relevant expertise that can assist the inquiry with whatever pertinent information they may already have at hand. The crawling object is triggering plenty of informational activity—a whole chain of semiotic events is taking place, some of which are geared toward the “standing for”, and some toward the other relation of note, the “standing to.” Let us now focus on the latter relation.

Suppositio and Significatio: Medieval Detour

Peirce’s 1865-67 study of the variations of breadth and depth that occur across the semiotic triad according to distinct types of inferential inquiry drew much of its analysis from medieval writings. Peirce was well informed of medieval treatises addressing such denotative and connotative quantities. As far as the denotative is concerned, it is worth remembering the deep interest medieval logicians had for the logic of “supposition” where the latter word, *suppositio*, meant specifically the capacity of substantive or predicate terms to *stand for* something not outside but within a propositional context, where a term is either taken for itself, or for some corresponding thing, or for some suppositum under its corresponding thing (as Lambert of Auxerre put it). More generally, as Walter Burley put it, it is a

property of a term relative to another term in a proposition.^[12] The theory of supposition (or theory of reference in today's terms) was extensively studied in medieval times, giving rise to a multitude of distinctions. Peirce himself did not dwell in the multiple modalities of manifestations of the "standing for" relation. A fuller-fledged theory of information, however, would do well to take stock of the medieval contribution to that study, for it was thorough and dealt with distinctions between proper and improper suppositions that might be quite helpful when the need to ferret out the genealogy of logical or semantic fallacies arises.

What is relevant here is that the same medieval thinkers made a distinction between supposition and signification, a distinction that evolved in a most interesting way. At first, *significatio* was taken to be, not the meaning of a term inside a proposition, but outside it. Any term, before being used within a proposition in conjunction with other terms, must have first a meaning assigned to it independently of its propositional use. That independent assignment is that term's *significatio*. In essence, *significatio* would essentially be the basic lexical definition of the term. As Spade put it, "the first difference between signification and supposition is that terms supposit only in the context of a proposition, whereas they signify whether they occur in a proposition or in isolation."^[13] The second difference is that terms used in regular speech are often used to stand (or supposit) for something entirely different than what they ordinarily signify (notably in figures of speech), which is the reason why a referential or suppositional theory is needed.

The medieval notion of *significatio*, however, soon escaped its narrow lexical usage, in great part because what became the focus of logical semantics, already in Ockham and Burley, was the *mental* sign, not merely the natural nor the inscribed or spoken sign. As Stephan Meier-Oeser has shown in his *Stanford Encyclopedia of Philosophy* entry devoted to "Medieval semiotics," that development, which started in the 14th century, culminated with the Paris school of John Mair in the early sixteenth century, when "to signify" came to mean "to make someone know something." Instead of referring to a lexical *significatum*, the act of signifying emphasized the sign's relation to a cognitive power. The function of signs shifted from their fulfilling a semantic function in the context of

a proposition to their ability to influence effectively a cognitive power, thereby “vitaly changing it” (as Peter of Ailly put it). Meier-Oeser strikingly exclaims that “it should be clear that the widespread opinion according to which in medieval philosophy the sign was characterized by the ‘classical definition’ or the ‘famous formula of *aliquid stat pro aliquo*’ (something stands for something) is mistaken. It is *suppositio*, not *significatio*, that is characterized by that formula. . . . In no case has the sign or act of signifying been conceived as a simple two-term relation of ‘something standing for something.’” In other words, the triadic relation, even if not characterized as such, was already well conceived in the fifteenth and early sixteenth century, thus long before John Poinso’s 1632 *Tractatus de signis*. The difference Poinso made was to convert the pair of dual relations (*standing for* and *standing to*) into one single (thus triadic) relation (*standing for ... to ...*).^[14] Poinso managed to do so when he realized that it was the very act of representing and substituting for an object that turned the sign into an intermediary meant to address that representation to a cognitive power. It was not a concurrent pair of actions, but just one action.

Information as Semio-Ethical Preparation toward Communication

Within the context of the present paper, it is precisely the intentional drive that originates in the *suppositio* and traverses the activity of *significatio* within the *standing to* relation that needs analysis. To better understand this, the first matter to clarify is the status of the Peircean notion of information in such a context. We have intimated that information is not a reductive statement of a fact excised from experience but an ampliative inferential process that leads to the production of new knowledge. Reducing information to data or to singular propositions detached from their inferential origin will oversimplify the needed analysis counterproductively. As Winfried Nöth (2013: 148) remarks, Peirce realized in 1893 that the whole 1867 doctrine of breadth and depth was equally applicable to propositions and arguments (in truth, Peirce was unfair to his former self, for he had clearly seen that increases of depth were abductive and those of breadth were inductive). Peirce wrote:

The breadth of a proposition is the aggregate of possible states of things in which it is true; the breadth of an argument is the aggregate of possible cases to which it applies. The depth of a proposition is the total of fact which it asserts of the state of things to which it is applied; the depth of an argument is the importance of the conclusions which it draws. In fact, every proposition and every argument can be regarded as a term. (CP 2.407n, MS 421, 1893)

It follows that every type of sign conveys information, wholly or fragmentarily, effectually or virtually. The fundamental reason is that every sign, simple or complex, is the result of a long semiotic history coursing through a sea of utterances. Every piece of information carries with it that history, but not only that history: it also carries its intentionality, and the latter in the form of anticipation. Information is a process turned toward the future, a future it helps clarify and predict. As Peirce put it in 1906, “that the thought should have *some* possible expression to some possible interpreter is the very being of its being” (R 298: 8). That echoes the fifteenth century belief. Inquiry seeks to anticipate what might come next and seeks even to influence and fashion it in desirable ways. Inquiry thus stands itself *for* all the information at hand *to* the world of the permanent yet impermanent tomorrow, a world that is home to the indefinite community of inquirers.

It is at this juncture that communication is crucial. Communication is at the heart of inquiry because it is at the heart of the *standing to* relation within inquiry, and at the heart of what the late medieval thinkers called *significatio*. By inquirer is meant, not necessarily one or more researching person, but the logical ingredient within the researching actant: the *quaerens* or querant—the investigative interpretant. Poincaré’s realization that *suppositio* and *significatio* are not a sequence, nor even a concurrence, of two distinct activities but just one continuous triadic activity leads to the hypothesis that information and communication similarly constitute one continuous triadic activity. Extending Poincaré’s understanding of the sign to semiosis in order to capture the experiential dynamic of an enduring semiotic event, we may say that semiosis is a process that mediates between representation/substitution (the *standing for* activity) and signification (the *standing to* activity that influences the mind). If so, then somehow, also by extension, we may conjecture that some form of semiosis takes place at the intersection of information and communication, and if so, describing

it would uncover the semiotics of that intersection (the aim of this paper). That conjecture must keep in mind the logical blurriness of the borderland (the fact that that intersection is a boiling logical cauldron), the anticipatory power of inquisitive interpretants, and especially the special responsibility that is embedded within the second-intentional activity of interpretance: caring for the future is the ethical imperative that governs and enwraps semiosis.

That semiosis is an ethical activity and not “merely” a logical activity follows from Peirce’s timeless demonstration that logic’s normativity derives from ethics’ normativity, which in turn derives from esthetics’ normativity. Here is not the place to expound on the fundamental philosophical and metaphysical reasoning that cemented that demonstration. Peirce’s pragmatic maxim, fully permeated with semiotics, defined meaning in terms of an inquiry into the set of all conceivable practical consequences that might ensue from adopting any conduct, including a conduct of communicative interpretation. In the human sphere, semiosis is no abstraction: it is the stuff our life is made of. We inquire ceaselessly from morning to night, moved by curiosity, anxiety, and expectancy. For the most part we wish to do good, to get things right, to speak truthfully, for all sorts of transcendent reasons. Where does such a drive come from? That drive is like a coiled spring under tension: it is found within the forward directionality of the “to” in “standing to.” Semiosis needs to get itself right. Fallibility is its lot and therein lies danger and thus the need for correction. The wondrous thing about semiosis is that it is naturally self-corrective: the pressure of reality will see to it. Semiosis has thus learned to be cautious and to anticipate. Successful anticipation requires a stock of trustworthy ampliative propositions and arguments open to verification, testing, refinement, rejection, each of which was once itself an object of anticipation that survived the vicissitudes of continued inference. It follows that informative propositions and arguments are those that carry a second-intentional stamp all over them, one that testifies to their validity and fruitfulness within the ongoing semiotic continuum. They bear the second-intentional sign of being the non-arbitrary product of first-intentional quantities. That second-intentional sign needs to be communicated as much as those that are first-intentional—hence the two parallel continua: that of interpretants focused on standing for their soliciting signs’ objects, and that of interpretants in charge of standing for those signs’ own

ways of representing their objects. The truth or soundness or cogency of informative propositions and arguments results from second-intentional assessments. Far easier it is for subsequent derivative informative propositions and arguments to secure their own truth, soundness, or cogency by deriving from proven reliable ancestors. Maintaining the integrity of chains of inferences or associations of ideas is thus a vital part of semiotic economy (and thus of the economy of research in general).

To become and remain informative, propositions need to be evaluated or monitored regarding the trustworthiness of their source, their past inferential history, the purpose and strategy governing their expression, the strength of their coherence, their usefulness for future inferences, and their general intelligibility. The quality of information becomes the argument for their communication—whether that communication is limited to the mere continuation of research or whether it takes the form of publication or oration. Logically speaking, a thought gets communicated when it reaches itself the point of communicating itself to another thought, privately or publicly. Whether that other thought is the subsequent sentence about to be written or a large audience of listeners makes no difference. What makes a difference is whether the utterer will be ready to interrupt communication the moment a cause for hesitation rises. For instance, the writing of this paragraph has been through many significant pauses, deletions, corrections, fingers descending toward the keyboard but ascending again before pressing any key, sensing unreadiness, letting the inner mulling go on. That is caring semiosis at work. Each sentence cares as much for the preceding ones as it does the next ones. And each one cares for the putative readership, an invisible assembly of future peering eyes. And surely this entire article will have been reread many times for further polishing before it got sent out to the editor. And then the editor will likely find all sorts of infelicities and suggest further improvements for the same sake, that of the community of inquirers: a telic horizon at once general and vague, yet most real and potent.

Editorial Semiosis

It follows that the semiotics at the intersection of information and communication cannot but be editorial, but editorial in a broad and deep, even metaphysical, sense. This is not about correcting mere typographical or syntactical mistakes (many software come with style-, grammar-, and spell-check). It is about checking whether every move made throughout the formulation of some piece of information was made with esthetic, ethical, and logical integrity. Was plenty of reliable information taken into account? Was the prospective audience taken into due consideration? Has there been an effort at contemplating the set of plausible practical consequences of what is being planned to be communicated and of the manner of its delivery? Is the activity driven by transcendent purposes? Such questions and their like amount to an inquiry about the purported informative inquiry, thus a meta-inquiry.^[15] That meta-inquiry is driven by a whole gamut of normative concerns. Onto whose shoulders does the responsibility of its conduct fall? With a wink to Peirce's notion of quasi-mind, let us answer, onto a quasi-editor's shoulders. Who can be that quasi-editor? Anyone or any instance that is about to communicate information of the deliberate sort (spontaneous event-triggered vocal reactions are not at stake here).

Peirce provides suggestive ideas in this connection. In matters of informative, ampliative reasoning, he consistently draws a parallel with moral conduct. The keyword is "self-control," which we may translate into "self-editing." As far as the production of information is concerned, Peirce's conception of it is mostly confined to the kind that strives to be truthful. He does not have in mind information aiming at persuading people to buy tourist trinkets, nor does he have in mind mendacious propaganda. Artificially manufactured information detached from any anchor in or care for reality, or driven by insincere aims, would not count as information but as mere streams of arbitrary words contrived for purposes other than inquiry. The gathering of information belongs to the activity of reasoned inquiry and is in that regard a matter of self-controlled conduct subject to ethical scrutiny. As Peirce explains:

[A] person who draws a rational conclusion, not only thinks it to be true, but thinks that similar reasoning would be just in every analogous case. If he

fails to think this, the inference is not to be called reasoning. It is merely an idea suggested to his mind and which he cannot resist thinking is true. But not having been subjected to any check or control, it is not deliberately approved and is not to be called reasoning. To call it so would be to ignore a distinction which it ill becomes a rational being to overlook. To be sure, every inference forces itself upon us irresistibly. That is to say, it is irresistible at the instant it first suggests itself. Nevertheless, we all have in our minds certain *norms*, or general patterns of right reasoning, and we can compare the inference with one of those and ask ourselves whether it satisfies that rule. I call it a rule, although the formulation may be somewhat vague, because it has the essential character of a rule of being a general formula applicable to particular cases. If we judge our norm of right reason to be satisfied, we get a feeling of approval, and the inference now not only appears as irresistible as it did before, but it will prove far more unshakable by any doubt. CP 1.606, EP2: 249–50, 1903

Central to Peirce’s second-intentional critical procedure is an act of comparison whereby we move the configuration of a general pattern (such as a leading inferential principle, or some established protocol of investigation) onto a given chain of deliberate ampliative thinking steps (inductive or abductive, but it may also be deductive at times), and then we observe the extent to which the one matches the other in relevant respects. That comparative observation amounts to imagining or actually drawing a diagrammatic reproduction of the structure of one and the other and watching for contrasts and resemblances. Any emerging discrepancy becomes an opportunity for assessment, correction, and experiential learning. The entire operation is an act of self-control, or self-editing, which begins in a self-imposed interruption.

Stopping oneself in our tracks is equivalent to repressing the urge of clicking the Send button when we have just finished writing an email or a text in an app.[\[16\]](#) That may not matter when the message is not consequentially informative. But when it is, the stakes become instantly higher because they include not only the tenor of the message, but also the credibility and integrity of the sender. The button click is a social act, an act often called “sharing” nowadays. Developing the discipline, or reflex, or habit, of pausing opens the door that ushers in the quasi-editor.

The semiotics at the intersection of information and communication is no mere theoretical exercise. It rests on the development of multiple critical-editorial skills and habits. Peirce’s message is that developing them is not that hard: the exercise of self-control does not take long to instill salutary habits such as pausing,

reviewing, and correcting. Verifying the logicity and consistency of inferences may be a bit harder, but Peirce's advice is that we trust instinctual feelings of unease that emerge when coming across passages that may well be under-informed or shaky in other ways. The reason is that semiosis comes with an embedded inner normative structure. That normative structure is at work within the very stuff mind is made of. The inconsistency of an argument is bound to get flagged, maybe not immediately, or perhaps only through an intermediary, but it will be noticed somehow at some point in the recesses of a quasi-editor's mind, as soon as question marks rise over the fog. The quasi-editor will pause the Send button at the slightest hint of malaise, start diagnosing the cause, and ponder felicitous solutions.

As to anticipating the set of plausible practical consequences that might ensue upon the public release of quasi-edited information, that is beyond quasi-editorial overview. Peirce's principle "Do not block the way of inquiry" becomes a paramount maxim, not forgetting the normative esthetic, ethical, and logical bounds set upon inquiry. The indefinite community of subsequent inquisitive and critical interpretants may or may not exercise self-control. The matter, at any rate, is beyond the scope of the present paper.

Closing Question: Artificial Editorial Semiosis?

One of the many ethical debates surrounding the rapid acceleration of artificial intelligence technologies throughout the world concerns the reliability or trustworthiness of answers provided by AI chatbots such as ChatGPT and Bard. The inner mechanisms of the complex algorithms that drive them rely on the constant statistical recalculations of inter-word contiguities based on the proximities successively displayed throughout the word-by-word construction of a reply to some given prompt. The "collateral experience" available to such engines is extremely large, which provides a powerful advantage to a technology that otherwise functions non-semiotically. Patterns of numerically calculated distances and vicinity between words is the principal focus of a vectorized mapping across hundreds of dimensions, a method which has nothing to do with the experience of triadically-driven semiosis even though its results manage to simulate semiosis

quite effectively. The reason of that effectiveness is due to the fact, uncovered by Peirce, that all legisigns (signs whose representational power derives from their generality) need to replicate themselves into sinsigns (actual sign instantiations) in order to realize their governance. By mapping those instantiations through massive databases full of replications, AI algorithms discover what lexical and syntactical patterns tend to occur with what sort of regularities. Those algorithms then take advantage of those coincidences to replicate them and create their replies to prompts. All they do, therefore, is reproduce habitual ways of thinking. Hence the feelings of intelligibility and familiarity that arise when one reads the responses on the screen. The simulation is so successful that it manages to dissimulate itself.

From a Peircean logical standpoint (but without venturing to vouch anything regarding what Peirce would say today if he could resurrect for a moment), whether the content of an AI chatbot's replies to prompts would constitute genuine information is dubious. The reason is that replies are not the product of inferences but of complex statistical calculations related to distance patterns among strings of characters across multiple instantiations. The method involves no algorithmic effort in calculating increases or decreases of breath and depth aiming at evaluating information novelty. The aim is less to create a new palatable meal than to serve a reheated dish. One may object that, from the viewer/reader's standpoint, what appears on the screen is experienced as extraordinarily informative. No doubt it is, for the simulation is astoundingly effective, and it is certainly the case that out of those quasi-instantaneous and quite cogent assemblies of strings of words, the experience of meaningfulness and even novelty shall arise in grateful human brains, just as it does when we read anything printed anywhere. The worry, however, is that the information displayed was produced without any critical second-intentional check on whether the text makes any inferential sense backed by a history of well-established premises. That the text will somehow make semantic sense is statistically assured. But it does not follow that it can be trusted automatically because, within the thousandth of a second it took for the chatbot to reply with voluble cleverness, no tongue took the time to turn seven times in a mouth.

A related concern stems from the absence of references to the sources of the “pseudo-information” (introducing here a useful lexical distinction). The inferential history of AI-supplied answers is not retraceable. It is therefore not possible to identify the actual premises (as opposed to displayed pseudo-premises) buttressing some displayed sentence, a sentence that could have been a conclusion to a long chain of sophisticated reasoning in some text written by some human author at some point before it was mined and turned into data (pseudo-symbols) for statistical consumption. Absent that history, the reasoning that led to the pseudo-information disappears, and readers are left with the decision to take it at face value or to dismiss it, without assurance that either option is adequately defensible.

The question becomes whether it would be theoretically and algorithmically feasible to improve AI technology so that critical second intentionality be embedded on the cusp of communicating the result of unfathomable calculations to consumers of pseudo-information. Could there be a metaserver, so to speak, specialized in information verification (along the lines discussed above), that could be somehow inserted between the chatbot’s results and the reader’s monitor? Such a server would have one or more of several metacapabilities, all costly: a way to keep track of the source texts that provide their words to the mining and calculating algorithms (which would imply that every word mined anywhere would be accompanied with a meta-property carrying that source information); a way to convert sets of concatenated sentences into a logical structure that recognizes what leading principle is governing what inference within the displayed conjunctions, disjunctions, negations, implications, causalities, and other logical structural forms; a way to recognize what is presented as fact and what as interpretation, conjecture, trend, and so on; a way to measure the logical validity and factual plausibility of any argument; and multiple ways of flagging visually in distinct colors whatever appears to be groundless, suspicious, illogical, ambiguous, or contradictory.

This is a tall order, no doubt, but that does not mean that the task is impossible. Whether it is impossible or not is currently not demonstrable. There are reasons, however, to think that it is possible. And those reasons sprout from nothing less

than Peirce's own logical research and especially from his semiotic writings. The myriad semiotic patterns Peirce has described more or less tentatively though never on arbitrary ground have a logic to them that is in principle algorithmizable. His semiotic logic, as logic, is by definition more fundamental and robust than linguistics because linguistics has limited its specialization to language while logicians and semioticians have not. For that reason, AI research should be moving from very large language models to ultra large semiotic models, preferably in a Peircean framework. Indeed, Peirce's theory accounts not only for linguistic signs but also for myriads of non-linguistic signs that remain neglected or ignored in current AI models. There lies the real future of "artificial semiotics." How to conduct the attendant research requires the advice of thoroughgoing Peirce semioticians. It also requires that all of Peirce's semiotic and metaphysical writings be published and disseminated worldwide in a reliable critical edition—a necessary small investment that will make way to major investments in the conception of ultra-large semiotic models.

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Notes

[1] Winfried Nöth is another such scholar. The same year Vogel defended his dissertation, Nöth published an important paper on the subject: “Charles S. Peirce’s Theory of Information: A Theory of the Growth of Symbols and of Knowledge” (Nöth 2013). I had myself published much earlier (De Tienne 2005) a foundational article, “Information in Formation: A Peircean Approach,” some key ideas of which are echoed throughout this article.

[2] Guy Debrock published long ago a paper titled “Information and the Metaphysical Status of the Sign” (Debrock 1996). He lists at the outset three different meanings Peirce attached to the term “information” (p. 79) before announcing that he would not be using any of Peirce’s meanings, preferring to apply some of Peirce’s insights to the modern conception of information. Winfried Nöth, by contrast, concluded that Peirce had “a broader concept of information than most contemporary theoreticians of information” (Nöth 2013: 158).

[3] W1: 465–67. See also DE TIENNE 1996: 152–53, 264–65.

[4] Information is often associated with the blurry notion of “data” in different ways: for instance, either as a source of information or as the product of obtained information. The *Wikipedia* “Data” entry exhibits the confused hodge-podge and thus demonstrates indirectly that one had better not use such a loose lexical term in a rigorous discussion. The loosest yet practical description of the term may well be “whatever can be listed in tabular format.” One can list or tabulate denotable entities and connotable entities. It appears that what young Peirce called “information” (a multiplication of denotants by connotants) is not likely to find its

way in a table unless it was thereby reduced to play the role of data, abstracted or detached from their originating inquiry (thus reduced to “pseudo-symbols” in Peirce’s sense).

[5] *The Economist’s Espresso* app proposes a weekly quiz that consists of five disparate questions (one per day), each one of which asks readers to identify the what or the who of some topical or cultural puzzle. Successful readers must find the correct answers to each question, but then they must also figure out the common cryptic theme that connects all five answers—a theme utterly disconnected from the questions themselves. The unrelated answers constitute a pseudo-symbol in Peirce’s sense. Finding their common theme (whether by design, as is the case here, or by accident) is the natural logical effect of their joint symbolicity, which cannot but originate the urge to find and formulate a unifying interpretant.

[6] See Mats Bergman’s exposition and criticism of Parmentier’s analysis in Bergman 2009: 130–36. Bergman notes that while Parmentier did not provide a detailed explication of the metasemiotic level, the latter is “obviously of utmost significance” for Parmentier’s conception of semiotic inquiry. While Bergman subsequently criticizes several of Parmentier’s views, he found the second-intentional approach to “seem plausible” on its own right because it serves to clarify some of Peirce’s “cryptic remarks” while also highlighting the creative role of the interpretant as a synthesizing force (131). Bergman did not pursue that discussion, however.

[7] See Peirce’s explanations in that regard in W1: 183–87, 280–86, 289–90 (1865), W2: 23–25 (1867).

[8] See Bellucci 2013, especially pp. 192–197.

[9] See De Tienne 2015, especially pp. 175–177.

[10] See Bergman 2009: 145–58 where lies a section titled “Indeterminacy and Latitudes of Interpretation” full of clarifying remarks in the context of Peirce’s philosophy of communication.

[11] Guy Debrock usefully distinguishes between three types of metaphysics in history: the classical metaphysics of substance, the nominalistic metaphysics of

fact, and the metaphysics of events, which alone is compatible with the notion of information and is buttressed by Peirce's semiotics. "One usually thinks of information as some thing, some entity that refers to some externality. But this substantification violates both the etymological origin of the term and any cursory analysis of our experience of information. Information is not some thing upon which the form is impressed, nor is it the form which is impressed, nor is it the knowledge of that form, but it is the activity that makes a difference. In short, it is not some entity, but it is an event. It is not an entity about something else, but it is an event by virtue of which something else may be regarded as a part of the realm of what is" (Debrock 1995: 83).

[12] See chapter 8, "Supposition — The Theory of Reference" in Spade 2007. The reference here is to p. 246.

[13] Ibid., p. 248.

[14] John Deely coined the Latin phrase *aliquid alicuique stans pro alio* and believed that John Poincot had been first to define the sign as a triadic relation in the following sentence: "*Si vero consideretur potentia ut terminus in obliquo attactus, sic unica relatione signi attingitur signatum et potentia, et haec est propria et formalis ratio signi.*" Deely's translation: "But if the power is considered as a terminus indirectly attained, then the significate and the cognitive power are attained by the single sign-relation, and this relation is the proper and formal rationale of the sign." (Poincot 1632/2013: 154) That definition occurs in Question 3, titled "Whether the Relation of Sign to Signified Is the Same as the Relation of Sign to Cognitive Power." Poincot appreciated that his predecessors had recognized the two direct relations from sign to object and from sign to the cognitive power, but he objected to their defining the sign in terms of that dual pair of relations. Such a dualism created the insurmountable problem of bridging the gap between the two. Poincot's solution was to hold the relation of sign to object as direct, and of the sign to the cognitive power as indirect, thus through the sign as mediating between that power and the object: "And so, since a sign is acting in the capacity of and representing a significate and substituting for that signified thing determinately (that it may render an object present to a cognitive power), necessarily, in the very innards and intimate rationale of such a

substitution for and representation of a signified, as it is a determinate substitution and representation, some respect toward a cognitive power is involved, because a sign substitutes for this, that it should represent to a cognitive power.” (Poinso 1632/2013: 157)

[15] The present paper has emphasized throughout the leading idea of inquiry. But let’s not misapprehend that perspective. Inquiry is itself a very broad term, not confined to academic and scientific activities. It of course embraces whatever activity elicits publication and communication: editors, journalists, pundits, influencers, politicians, parents, pastors, teachers, students, administrators, industrialists, activists, whistleblowers, advertisers, and so on. All are inquirers and ought to behave as inquirers before opening their mouth, grabbing a pen, or hitting the keyboard. For inquirers will observe, study, read, and reflect, will ask questions, will; infer, deduce, induce, and abduce, will compare, will draw conclusions, will interpret. They will hesitate and doubt, verify, find or ask for confirmation, criticize, delve into archives, interview people, debate, object, argue. And then they will draft and redraft, make corrections, polish up their delivery, ask for second opinions and third-party reviews.

[16] Some software now come with features allowing users to automatically delay the sending of any message, giving temporal room for second thoughts.

Editor’s note

The editor responsible for the publication of this article is Fernando Andacht.

Contribution’s note

André De Tienne is the only author of this paper. There are no other contributors.

Data availability note

Data for this article is not available.