

Applying Peirce

INTERNATIONAL CONFERENCE on CHARLES SANDERS PEIRCE'S Thought and
Its Applications Arranged by the HELSINKI PEIRCE RESEARCH CENTRE

ABSTRACTS

In alphabetical order



Apel defends his own Peircean transcendental semiotics by way of a performative contradiction, derived from Hintikka's work on Descartes's Cogito. I argue that we may transcendently deduce—relying on this idea of a performative contradiction—several ideas central to any successful project of transcendental semiotics. These include apperception as a unity of consistency in semiosis, as Peirce argued for it in his “New List”; the structure of the category of the triadic logical relative; the schematism; and the futuristic time dimension of semiosis.

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TELEOLOGY, EMERGENCE, AND POETICS
VICTORIA R. ALEXANDER (DACTYL FOUNDATION FOR THE ARTS & HUMANITIES)

A primary criticism of teleology is its supposed anthropomorphism. For Peirce purpose is “that form of final cause which is most familiar to our experience” (EP 120; 1902). Whether teleology is anthropomorphic or not, obviously the definitions of human characteristics are never constant. One's understanding of human intentionality may be used to revise one's understanding of teleological phenomena and vice-versa. I argue that the complexity sciences invite us to see teleological phenomena and intentional behavior as specific instances of the more general phenomenon of emergence. It has been noted, though insufficiently, that emergents have two distinct aspects: Directionality leads to archetypes, self-maintenance, self-organization and homeostasis, that is, emergent dynamical stability. Originality involves functional adaptations, accidental functionality, or fortunate change. As a literary theorist, I am primarily interested in the creation of new meaning. Thus for me semiosis (directionality) is important as a background against which poesis (originality) can exist.

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THE LOGIC OF ABDUCTION IN THE LIGHT OF PEIRCE'S PRAGMATISM
ATOCHA ALISEDA (UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO)

In this talk I explore the connection between Peirce's logic of abduction and his epistemology on the one hand, and his pragmatism on the other. Regarding the former, the abductive logical formulation naturally relates to the view of cognition as a logical method of inquiry, based on an endless doubt—belief cycle. Regarding the latter, the testability criterion for an abductive hypothesis,

raises the significance of the pragmatic dimension of this type of logical inference.

A consequence of this analysis is that the interpretation of Peirce's abductive formulation goes beyond that of a logical argument and is better modelled as a process of belief revision, as that found in artificial intelligence, with an additional pragmatic dimension.

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ICONICITY AS HOMOMORPHISM: THE CASE OF PICASSO'S GUERNICA

CHIARA AMBROSIO (UNIVERSITY COLLEGE LONDON)

Charles S. Peirce's formulation of iconicity has been the object of conventionalist and nominalist arguments (Eco, 1975; Eco, 1997; Bierman, 1963; Goodman, 1962), which described it as a weak representative relation based upon a similarity or likeness.

I propose to overcome such critiques by interpreting iconicity as a structural relation established by a mind between certain representing facts and the states of affairs they represent. This relation is more accurately expressed through the mathematical concept of homomorphism (Shin, 2000; Norman, 1999). Homomorphism is a mapping between two algebraic structures or sets in which elements, properties and relations are preserved.

A theory of iconicity as homomorphism can be used as a theoretical device to overcome mimetic accounts of artistic representation. Pablo Picasso's *Guernica* (1937) exemplifies this. The representative relation governing *Guernica* is not given by a photographic coincidence between representing facts and represented events. Picasso aimed to obtain a conceptual representation of war, which he achieved through geometry. Geometry allowed Picasso to represent objects and characters in space as abstractions from experience.

This feature of *Guernica* conforms to Peirce's definition of icons as “composite photograph[s] of images” (CP 2.317) of their objects. Iconic representations such as *Guernica* are by their own nature cognitively fertile, as they evoke mental icons, or what Peirce called “pure dreams” (CP 3.362) – mental representations that amount to generalizations from experience (Bergman, 2006).

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CHARLES S. PEIRCE AND GEOLOGICAL REASONING
VICTOR R. BAKER (UNIVERSITY OF ARIZONA)

Charles S. Peirce (1839-1914) encountered geological reasoning in 1860, when he received 6 months of college tutorage, classifying fossils for his

father's friend, Louis Agassiz. During his professional career in geodesy and subsequently as a consultant, Peirce interacted with, and sometimes advised, many of the leading American geologists of the late 19th century. He classified geology as an "abductive science," and in his Cambridge Conference Lectures of 1998 Peirce credited the geologist/polymath-philosopher William Whewell with anticipating some of his views on scientific method.

It is especially unfortunate that modern geology has received little attention from contemporary philosophers of science, because geology retains many elements of critical commonsensism, fallibilism, and realism that accord well with Peirce's elucidation of these doctrines. Geology is an interpretive science; the geologist interprets Earth's signs, not as mere objects of thought or language, but rather as vital indices in a web of signification, a geosemiosis that is continuous from rock outcrops through the human reasoning process and onwards. This type of science is most essential for understanding and coping with modern environmental problems.

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WIKIPEDIA AND PEIRCEAN SEMEIOTICS: ENCYCLOPEDIA, EPISTEMOLOGY, AND THE COMMUNITY OF INQUIRY
JOE BALAY (SEATTLE UNIVERSITY)

Recently, online open-source databases and social knowledge applications have fueled controversy for their tension with traditional closed-source models. At the forefront of this debate is Wikipedia, whose bottom-up design allows open access and editorship, versus Encyclopedia Britannica, whose subscription-based model maintains expert-authored entries. The two broad epistemological models represented here speak to an ongoing historical debate ranging from Aristotelian logic and the possibility for essential definitions to more socially constructed understandings of meaning. Thus far, most contemporary treatments of encyclopedia-dictionary theory have taken one side or the other, upholding the search for essentialist models or invoking alternative postmodern positions for local decentralized knowledge(s). However, open-source projects like Wikipedia challenge these theorists' understanding of encyclopedia as an either/or hardbound static artifact, and calls for a functionalist middle ground. This paper seeks then to update the discussion, positing Peirce's inherent interplay of intersubjective generality and intrasubjective tychism to explain Wikipedia's successful bridging of the general and local. Specifically, this analysis examines how Peirce's categories, semeiotics, and pragmatic maxim constitute principles and parameters for inclusion and entry/edit processes of the open-source design.

EDITING PEIRCE'S CORRESPONDENCE
MATS BERGMAN AND AHTI-VEIKKO PIETARINEN
(UNIVERSITY OF HELSINKI)

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SERVING TWO MASTERS - APPLYING PEIRCE IN COMMUNICATION STUDIES
MATS BERGMAN (UNIVERSITY OF HELSINKI)

Over the years, scholars of various stripes have tried to adopt C. S. Peirce's complex philosophical ideas for diverse uses with varying success. Given Peirce's great interest in semeiotic, communication studies – or at least communication theory – would seem to provide a natural arena for such applications. However, the facts belie this; with a few notable exceptions, Peirce remains a marginal figure in the core literature of contemporary communication studies.

In this article, I examine some of the reasons for this situation. Setting out from the sweeping criticisms of Jürgen Habermas, I proceed to the more ominous neglect displayed by contemporary communication theorists of a pragmatistic inclination. Furthermore, I argue that we should avoid the easy way out: just putting the blame on the ignorant communication scholars, tainted as they are by relativism and Rortyism. It seems only fair to ask whether a part of the problem might not stem from Peirce's conception of inquiry, and the view of the relationship between theory and practice it seems to entail. A critic of Peirce might, not unreasonably, maintain that the separation of the two domains renders Peirce's semeiotic too formalistic to be of any use in real-life research. Fortunately, this is not the only way to read Peirce. In conclusion, I will outline a different, rhetorical approach to Peirce's semeiotic and pragmatism, a path I believe to provide the most promising platform for applying Peirce's ideas in communication studies.

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A TRIPARTITE ANALYSIS OF DEPICTION
NOEL E. BOULTING (NOBOSS, KENT)

Three conceptions of interpretation are distinguished in *On Interpretive Activity*. Without completely unpacking these three again, deriving as they do from Peirce's semiotic theory – the Iconic, Indexical and Intellective – lessons learnt from their use can be applied to the present issue: 'What is Depiction?'

In this paper depiction is characterized in terms of three criteria: image, resemblance and representation, the weakest of which – so it is said – is resemblance. If what has been claimed so far is valid, the lessons, intimated within *On Interpretive Activity*, can be applied. Having employed Peircian

distinctions in this way, arguments against these three criteria are considered within the paper.

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ABDUCTION, PRAGMATISM, AND THE SCIENTIFIC IMAGINATION
H.G. CALLAWAY (UNIVERSITÄT MAINZ)

Peirce claims (Lectures on Pragmatism [CP 1.196]) that “If you carefully consider the question of pragmatism you will see that it is nothing else than the question of the logic of abduction;” and further “no effect of pragmatism which is consequent upon its effect on abduction can go to show that pragmatism is anything more than a doctrine concerning the logic of abduction.” Plausibly, there is, at best, a quasi-logic of abduction, which properly issues in our best means for the methodological evaluation and ordering of (yet untested) hypotheses or theories. There is always a range of innovations that may be proposed, ranging from more conservative to less conservative, and it is important, in light of what Peirce has to say of the relation of abduction to pragmatism, that in ruling out “wild guessing,” attention be initially directed to more conservative proposals. Still conservatism, which we might understand in terms of Peircean continuity, is sometimes justly sacrificed for greater comprehension or overall simplicity of approach. This paper explores the relationships among Peircean abduction and pragmatism, the “theoretical virtues” approach to the evaluation of hypotheses, and contextual constraint on the scientific imagination.

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THE EVOLUTION OF INTERPRETANTS: ORIGINS AND LOCI OF MEANING
VINCENT COLAPIETRO (PENNSYLVANIA STATE UNIVERSITY)

It is remarkable that Peirce’s theory of evolution has not been used by his expositors to illuminate his understanding of the interpretant, in particular, the complex processes by which interpretants are actually generated in such paradigmatic instances of anthroposemiosis as ordinary conversations, scientific investigations, and artistic innovations. Accordingly, I will, first, draw upon the Peircean account of the three forms of evolutionary development (especially as these are put forth in “Evolutionary Love”) as a way of illuminating the generation of interpretants; and, then, illustrate this approach in reference to everyday exchanges, experimental inquiries, and artistic innovations. In doing so, I hope to show how Peirce’s theory of signs, interpreted in light of his own evolutionary position, is even more suggestive and applicable than most of his sympathetic and imaginative commentators realize. Hence, this paper applies Peirce’s evolutionism to his semeiotic and, then, shows how his theory of signs so explicated applies to such diverse phenomena as everyday

conversations, scientific inquiry, and artistic developments.

Interpretants evolve, not in the etymological sense of unfolding but in the truly dynamic sense of emergence. Uniquely novel forms come into being in an ongoing process of interwoven transmutations, a process shot through with chance and contingency as well as continuity and regularity. The loci of meaning are arguably phases in this process, above all, the moments of irreversible transition and (to an even greater extent) the integration of disparate tendencies. The significance of the origin of any process is continually being modified in the ongoing course of any actual process, while the emergence of meaning is itself comprehensible only in reference to a history of transmutations. Peircean evolutionism enables us to bring into sharp focus the most salient features of human semiosis. Examples of such semiosis in turn help us to make such ideas clear, by rendering them pragmatic.

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THE FUNCTION OF ERROR IN KNOWLEDGE AND MEANING:
PEIRCE, APEL, AND DAVIDSON
ELIZABETH F. COOKE (CREIGHTON UNIVERSITY)

In their pragmatic epistemologies, Peirce and Davidson accord an important role to the function of error. I will argue that the importance of error is overlooked in Apel’s account of Peirce’s transcendental semiotics, which argues for a transcendental groundwork in semiosis to serve as the condition for error. Against this view, I will argue that a recognition of the possibility of error is a condition for meaning because all assertions, according to Apel’s own view, requires seeing the meaning of one’s beliefs as partly constituted by the future responses of others. But both Peirce and Davidson face an additional problem of how to make sense of individual error. Here I will argue that Peirce’s theory is better able to handle this problem, because it articulates the phenomenological and ontological aspects of error.

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APPLYING PEIRCE’S PRAGMATISTIC SIGN THEORY TO THE SCIENCE OF CRITICAL EDITING
ANDRÉ DE TIENNE (IUPUI)

The act of editing may be said to consist in an intervention upon signs that seeks to optimize their capacity to solicit their own interpretation for the sake of their object. Over the years, a textual practice has taken root at the Peirce Edition Project that has guided the formulation of many editing policies. These policies rest in part on a certain American tradition of critical editing, in part on particular applications of Peirce’s pragmatic maxim. I intend to present several working hypotheses that

suggest how a theory of critical editing that effectively optimizes the conditions of semiosis from author to reader through the editor can be derived from Peirce's maxim that "the true meaning of any product of the intellect lies in whatever unitary determination it would impart to practical conduct under any conceivable circumstance, supposing such conduct to be guided by reflection carried to an ultimate limit."

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THE ABSOLUTE ARITHMETIC CONTINUUM AND ITS PEIRCEAN COUNTERPART
PHILIP EHRLICH (OHIO UNIVERSITY)

J. H. Conway introduced a real-closed field containing the reals and the ordinals as well as a great many less familiar numbers including $-\omega$, $\omega/2$, $1/\omega$, $\sqrt{\omega}$ and $\omega-\pi$ to name only a few. Indeed, this particular real-closed field, which Conway calls *No*, is so remarkably inclusive that, subject to the proviso that numbers – construed here as members of ordered "number" fields– be individually definable in terms of sets of von Neumann-Bernays-Gödel set theory with Global Choice (NBG), it may be said to contain "All Numbers Great and Small." In a number of earlier works I suggested that *whereas the real number system should merely be regarded as constituting an arithmetic continuum modulo the Archimedean axiom, No may be regarded as a sort of absolute arithmetic continuum (modulo NBG)*. In the present paper I introduce a formal replacement for the intriguing linear continuum sketched by Charles Sanders Peirce at the turn of the twentieth century, and point out that by limiting *No* to its substructure consisting of its finite and infinitesimal members one obtains a realization of this *Peircean Linear Continuum*, as I call it, whose remarkable properties mimic those of *No*.

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A PEIRCEAN CONTRIBUTION TO THE CONTEMPORARY DEBATE ON PERCEPTION: THE SENSORIMOTOR THEORY AND DIAGRAMS
RICCARDO FUSAROLI (UNIVERSITY OF BOLOGNA)

Can a Peircean approach help solving some of the contemporary debates on representation in perception? Refusing the idea of mental images, the sensorimotor theory of perception (Noë, O'Regan, Thompson) claims that what we perceive is based on "what we are ready to do" in the course of the perceptual activities.

Taking into account the numerous critiques and additional data (Gestalt school of Leipzig, Rosenthal), I propose a Peircean re-reading of this theory of perception. Perception emerges as an event (Firstness and Secondness) but it is already constitutively structured by enacted practices (concatenations of habits). The perceptual form that emerges is a diagram in the sense that it is already

and constitutively projected to further potentialities to be explored. We can perceive a table in the room only in order to walk around it without bumping. We can perceptually define sizes in a landscape in order to reach the different elements (thus the perspective effect). The perceptual forms constituted enable us to manipulate them through our extensive sensorimotor and semiotic skills.

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THE PHENOMENON OF THE ARTISTIC IMAGE AS A LIMIT CASE OF THE SCIENTIFIC IMAGE?
ALEXANDER GERNER (CFCUL-FCT)

The semiotic and phenomenological approach will be put into dialog, seen as complementary perspectives to understand how an image may perform.

Excessive elements of (artistic) images are pointing towards the selective attentional character and interpretation-dependency dealing with pre- and sub-linguistic structures in the emergence of knowledge with the image also in science practices. Abductive strategies in generative reasoning with images are often neglected, when images are just seen as illustrative proof of already existing knowledge, instead of using images in developing knowledge.

Artistic images- as well as scientific visualizations- may not be entirely "readable" in an objective way, but may represent an epistemic limit that redirects attention towards the difficulty in orientating visibility, irritating and surprising intended expectations of readability. The image-term however, should not be excluded as epistemically unvaluable, as it may point towards uncontrolled (aesthetic) knowledge, mediated by the image.

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A PEIRCEAN ANALYSIS OF THE BANGLADESH CAPITOL, EPITOME OF KAHN'S ARCHITECTURE OR THE MYSTERY OF KAHN'S LOGICAL WISDOM

CLAUDIO F. GUERRI (UNIVERSIDAD DE BUENOS AIRES) AND
WILLIAM S. HUFF (STATE UNIVERSITY OF NEW YORK AT BUFFALO)

Short of miraculous, the Capitol was built at Dhaka —commissioned as a second Capitol for Pakistan. Bangladesh seceded; turmoil ensued. The nation was dirt-poor; Kahn continued to design on his own; contracts were made and construction began; Kahn died; construction stalled. Bangladeshis had the will, however, to finish it. This epic invites analysis. A systemized effort at applying peircean theory was undertaken, utilizing the *Semiotic Nonagon* (Guerra 1999; 2003). The Nonagon is a nine-box matrix that accommodates the nine peircean subsigns, disposed in three columns and three rows—in Peirce's specific order. Kahn saw his task as serving democracy—expressed, in part, by bold geometry. His principal statement shows along the

N-S axis: Prayer Hall, members' entrance (Firstness), Assembly Hall, members' workshop (Secondness), and Ceremonial Entrance Hall, stage for receiving ambassadors and the people (Thirdness).

Kahn is noted for two-liners. A paraphrase: Nothing can Be that does not entail both the Possibility to Be and the Will to Be. There seems to be correspondence between Kahn's and Peirce's philosophies. Paul Weiss, co-editor of the Collected Papers, was Kahn's colleague at Yale. There can be another source, the Kabbalah, which Weiss knew. A mystery.

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ABDUCTION IN PRACTICAL REASONING
RISTO HILPINEN (UNIVERSITY OF MIAMI)

In this paper practical reasoning is understood in the Aristotelian sense as reasoning leading to action or to an intention to do something. Philosophers have often tried to assimilate such reasoning to deductive reasoning, but many examples of practical reasoning, including some examples given by Aristotle, do not fit a deductive or quasi-deductive model. It is argued that instances of good practical reasoning often resemble abductive rather than deductive or inductive reasoning, and the principles of Peirce's logic of abduction, including the Principle of Economy, are applicable to practical reasoning.

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RECONSIDERING PEIRCE'S RELEVANCE
NATHAN HOUSER (IUPUI)

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REFLECTIONS ON PRACTICAL OTHERNESS: PEIRCE AND APPLIED SCIENCES
IVO ASSAD IBRI (PONTIFICAL CATHOLIC UNIVERSITY OF SÃO PAULO)

I am calling here by practical otherness the real experience of a theoretical model or a belief, which also has a theoretical frame that can be revealed pragmatically through a theoretical analysis, being denied by real phenomena. This experience is one of the most important to the growth of knowledge and, at the same time, the phenomenological basis to relevance criteria for the choice of the theory that can better represent some sort of phenomena.

Applied sciences like engineering, particularly when it deals with design and monitoring of physical objects, shows in its activities how practical consequences, the so famous expression which belongs to the pragmatism maxim, can be understood, totally based on the possibility of practical otherness.

It is interesting to realize that applied sciences have a kind of advantage over theoretical sciences: its experimental field is entirely open to observation, as its objects need to work anyway. Their performance affects theories, and even normal technology, as extended from normal science, here and there deals with surprising facts, demanding an effort to guess what is going on with the possible disagreement between prediction and experimental data.

It could be said that the engineer keeps a kind of dialogue with the objects of design through the necessary analysis of its performances, and this dialogue, essentially semiotic and pragmatic, is possible due to the potential practical otherness of these objects.

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A SEMIOTIC DEFINITION OF LITERATURE
JØRGEN DINES JOHANSEN (UNIVERSITY OF SOUTHERN DENMARK)

The point of departure is Peircean semiotics and my own rendering of sign production and sign interpretation in the so-called semiotic pyramid. It is attempted to systematically to contrast literary discourse from other kinds of discourse, namely the theoretical, technical, practical, and historical discourses. Furthermore it is claimed that literature most often is characterized by the following five features: fictionality, poeticity, inquisitoriality, license, and contemplation. It is further claimed that these five features are describable both from a structural and a functional point of view. In addition to Peircean semiotics the claim for the special status of literature is being substantiated by reference to the so-called universal-pragmatic validity claims proposed by Habermas, i.e., understandability, truth, normative rightness, and sincerity. I attempt to show that, although literary discourse cannot break with these claims altogether, they are both attenuated and acquiring new dimensions

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CHARACTERIZING THE TEXT-READER ENGAGEMENT IN VISUAL CONCRETE POETRY: THE ROLE OF "ICONIC ACTS"
AMRITA JOSHI (INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY)

This paper is based on an ongoing study of the interaction between the visual concrete poem and its reader. It is proposed that the articulation of the text-reader engagement i.e. the verbal data can be analyzed by viewing this interaction phenomenologically. Peircean semiotics and perceptual syntactic organization can be used as analytic tools for the study of the verbal responses.

In this paper, we will specifically look at a Peircean understanding of iconicity and what contemporary

art theoreticians Mieke Bal and Norman Bryson label “iconic acts.” Our study also draws on a parallel position taken by Rudolf Arnheim on the structural similarity seen in the ordering of perceptual experience.

We begin by accepting the basic premise argued by Ericsson and Simon that verbal data reflects mediating cognitive processes in the subject-stimulus interaction. It is here that Peirce’s semiotics can be used to understand the processes at work. The verbal protocols and the use of specific words which are sign-vehicles can be used to illustrate the various modes of signification that the viewer responds to and uses to convey an interpretation in what is the ongoing semiosis of the work. We aim to show how the sign generated or used by the reader/perceiver of signs not only creates a parallel decoding text but partakes of the text’s signifying processes.

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REVELATOR: GAME OF INQUIRY
MARY KEELER (UNIVERSITY OF WASHINGTON, SEATTLE)

The Revelator game applies Peirce’s ideas to create a framework for collaborative inquiry. Revelator’s design combines Peirce’s late theory of “Conditional Idealism” with his work on improving “the economy of research,” in a game format that somewhat resembles familiar intellectual games, such as bridge, chess, and crossword puzzles. Revelator’s purpose is to reveal complex relations among conditional propositions, by which players represent their conjectures as plays in the game, and to enforce evidence checking. The game design provides a context for computer agent technology (including Semantic Web, Conceptual Graphs, ISO Common Logic, and other approaches) to evolve in ongoing cycles of empirical testing and advancement. Plays in Revelator become players’ “logical agents,” which must attempt to adapt in complex conceptual environments, to promote the emergence of model-driven multi-agents as collaboratively formulated robust hypotheses. J. H. Holland’s agent-based mechanisms can be correlated with Peirce’s logical mechanisms to represent the complex logical behavior of the conditional propositions contributed as plays in the game. In Revelator’s game context, Peirce’s full vision of a dynamic, semiotic logic will continue to challenge us to improve the engine of inquiry, for continuing exploration and application of his ideas.

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APPLYING PEIRCE TO SOCIAL SCIENCES - SOME DO’S AND DON’TS
ERKKI KILPINEN (UNIVERSITY OF HELSINKI)

Charles S. Peirce’s fame seems to spread like radiation, in recent years it has made headway even into social thought and the discipline of sociology. It is easy to understand that Peirce, for whom “individualism and falsity are one and the same,” and who consistently praises humanity’s “social instinct,” will arouse expectations among sociologists or social psychologists. There have also been attempts to apply his thought for systematic theorizing in these fields, but so far with more or less inconsistent results. The present presentation approaches Peirce in this respect by switching the perspective, by first relating his thought to another social discipline, viz. economics. The reasons for doing so are the following: (i) economics is the social discipline that Peirce has studied most; (ii) it was also, since the late 18th century, at the latest, the first systematic social discipline; (iii) and there prevails agreement among historians of sociology that this discipline has come about as a (positive and constructive) critique of economics. The thesis of this paper is that Peirce has considerable relevance for social theorizing, but that relevance cannot be found straight from his social observations. It is to be found indirectly, from those logical and action-theoretic conclusions that he draws while considering the validity of economic thought.

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IT IS NOT JUST THE UNDERLYING STRUCTURE THAT MATTERS -
TOWARDS A SEMIOTIC APPROACH TO SCIENTIFIC
REPRESENTATION
TARJA KNUUTTILA (UNIVERSITY OF HELSINKI)

Philosophers of science have recently become engaged in offering different analyses of representation. These analyses have been presented in the context of modelling and motivated by the problem of “how do models represent the world”—given that models typically contain idealizations, approximations and fictional entities. I will study these different conceptions of scientific representation and argue that a door is opened for semiotic analysis, if instead of considering models as abstract structures we approached them as sign-vehicles that make use of different media and have also a material dimension. C.S. Peirce’s semiotics offers several tools that that could fruitfully be used in analysing scientific representation, but as yet no such work has been done in the philosophy of science. For such work to emerge, I claim, we need an approach that in addition to focusing on the relation of representation takes also into account the actual medium of representation.

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EDITING PEIRCE
DAVID LACHANCE AND FRANÇOIS LATRAVERSE
(UNIVERSITÉ DU QUÉBEC À MONTRÉAL)

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THE AGENT OF VIRTUAL COMMUNICATIONS: DISTRIBUTED INTENTIONALITY

MAXIM LEBEDEV (SCIENTIFIC COUNCIL ON THE METHODOLOGY OF AI OF THE RUSSIAN ACADEMY OF SCIENCES)

It will be argued that the virtual agent (VA) can be characterized using phenomenological descriptive tools and other conceptual means within related paradigms of the analysis of subjectivity. From such a point of view, the main features of VA are:

- VA is constituted by its communicative valencies;
- VA is intentionally active in perception, and it is the case also at the intersubjective level;
- VA establishes and supports the truth of its statements, which come out as a creative boundary, an “unquestionable point of contact” between virtual “I” and virtual reality;
- communicative intersubjectivity in cyberspace is better described through recursive ontologies.

Peirce’s conception of the Subject as a species of semiosis can be helpful to clarify these points. Unlike the traditional concept of subject where communication stands at a level resting on an underlying level of being, for Peirce communication is inherent in mind itself. Along these lines, I argue for the open multivalence of the signified as overdetermined by communicative acts.

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PEIRCE, MEANING AND THE SEMANTIC WEB
CATHERINE LEGG (UNIVERSITY OF WAIKATO)

The so-called ‘Semantic Web’ is phase II of Tim Berners-Lee’s original vision for the WWW, whereby resources would no longer be indexed merely ‘syntactically’, via opaque character-strings, but via their meanings. We argue that one roadblock to Semantic Web development has been researchers’ adherence to a Cartesian, ‘private’ account of meaning, which has been dominant for the last 400 years, and which understands the meanings of signs as what their producers intend them to mean. It thus strives to build ‘silos of meaning’ which explicitly and antecedently determine what signs on the Web will mean in all possible situations. By contrast, the field is moving forward insofar as it embraces Peirce’s ‘public’, evolutionary account of meaning, according to which the meaning of signs just is the way they are interpreted and used to produce further signs. Given the extreme interconnectivity of the Web, it is argued that silos of meaning are unnecessary as plentiful machine-

understandable data about the meaning of Web resources exists already in the form of those resources themselves, for applications that are able to leverage it, and it is Peirce’s account of meaning which can best make sense of the recent explosion in ‘user-defined content’ on the Web, and its relevance to achieving Semantic Web goals.

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THE EXTENT OF SEMIOSIS: THE COSMOLOGY OF LIFE AFTER PEIRCE

OTTO LEHTO (UNIVERSITY OF HELSINKI)

I propose a semiotic model for philosophically sound ethics and aesthetics of scientific inquiry. I argue that a (neo-)Peircean semiotic cosmology is not mere “speculative” paper exercise, but a basis for scientific-philosophical ethics of praxis: Peirce’s pragmatics is based on the conjunction of Reason and Love. Peirce is a fragmentary and open-ended thinker; sadly his methodology and concepts have been turned into unwarranted dogma. One can unravel a unitary-unified repertoire of “sign-wielding tactics” in Peirce, but purely as ethical-aesthetic *principia actionis mentisque*. I will present some thought-provoking (and ultimately action-provoking) hypotheses essential to a new ethics of praxis at the intersection of biology, psychology and technology – all found and grounded, whether explicitly or implicitly, in Peirce. These centre on the topoi of consciousness, evolutionary continuity, interconnectedness and regulatory self-unfolding in organisms and the biosphere. I propose a move towards an ethics of allowance, openness and compassion via pragmatism. The issue of aesthetics in ethics (the beautiful in what is right) is finally taken to be the best ideological counterbalance to unethical and short-sighted conduct in the sciences of the polis.

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PEIRCE’S REVOLUTIONARY CONCEPT OF RHETORIC
J.J. LISZKA (UNIVERSITY OF ALASKA ANCHORAGE)

Rhetoric is traditionally understood as Aristotle understood it: a practical study concerned with persuasion (1355a3). By the time of the 16th and 17th centuries, however, the concept of rhetoric had reached a critical juncture. As with Descartes, the authors of the Port-Royal logic had assigned rhetoric a peripheral, ornamental role, with a strong emphasis on the centrality of logic in matters of knowledge. Descartes’s goal in part was to create a method of inquiry for attaining certain knowledge, and rhetoric played no real part in that effort. This was contrasted with the humanists, such as Vico, who emphasized the dependence of knowledge and logic on discourse, dialogue, and community, and rhetoric as concerned primarily with these matters—thus giving rhetoric a communitarian character and a place of prominence in inquiry. A third path was

outlined by Francis Bacon, one that looked to an integration of logic and rhetoric. Logic for Bacon is composed of four intellectual arts: Inquiry or Invention, Examination or Judgment, Memory, and Transmission (De aug. V.1. Works, III, 384-5), which mirror the traditional divisions of rhetoric. Thus, Bacon seems to advocate a rhetoricized logic. The concern of Rhetoric, in his famous definition, is to apply reason to imagination to move the will (Adv. learn. Works, III, 409). Importantly for Bacon, like the humanists, rhetoric should be understood in a communitarian way, not just as an art of persuasion.

Peirce seemed to be aware of these three trends, and his remarks on them suggest he favors the Baconian and humanist lines (CP 4.30; 3.384; W3:3). This makes sense, since he is a strong critic of Descartes. Instead of Descartes's analytic method—with its emphasis on deductive certainty, Peirce wants to replace it by the pragmatic or experimental one (CP 7.666), which as Peirce thinks, is more characteristic of science. But what he realizes of course is that the pragmatic method engenders public, intersubjective, dialogic and communal procedures for inquiry, as opposed to Descartes' intuitive, subjective and monologic method. It is for this reason, I will argue, that Peirce begins to consider the importance of rhetoric in the context of his semiotic. By revamping logic as semiotic, and placing (a more formalized) rhetoric within the semiotic trivium, he also changes the sense of logic and rhetoric, and their relation. Rhetoric is now about a comprehensive theory of inquiry, understood within a community of inquiry, a way of life, bound by certain sentiments, norms, and appropriate processes of communication. Pure reason or pure logic alone is not enough to discover knowledge, it requires the effort of a community of inquirers, cooperating in the right sort of community.

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PEIRCE'S THEORY OF ASSENT
GIOVANNI MADDALENA (UNIVERSITY OF MOLISE)

What's assent and which is its role in knowledge in general and in belief in particular? Both Newman and Wittgenstein theories of assent refuse the psychological view of a power which presides over the task of assenting to things. Newman proposes a radical explanation of assent and belief in terms of apprehension of reality. The late Wittgenstein tries to understand belief as an attempted answer to a radical scepticism. Not finding any justification for our beliefs, Wittgenstein stresses the role of rules and use.

In this paper I will try to face the problems of assent applying Peirce's semiotics. But Peirce did not hold any specific and definite theory about it. Many topics are involved in a plausible Peircean account of assent: occurrences, facts, collateral experience,

syllogistic recollection. But from a pure semiotic point of view assent is involved in the emergence of dynamical interpretant and its following developments.

Moreover, the late Peirce was trying to map Interpretants on degrees of clearness, so that assent turns out to be the beginning of a more profound pragmatic verification of beliefs. Applying Peirce both to Newman and Wittgenstein views we can say that their nominalistic turn doesn't allow any acknowledgment of the role of assent within a continuity between reality and our apprehension of it in representations. That's why their explanation of assent and belief results always incomplete or partial.

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MINDLESS ABDUCTION – FROM ANIMAL GUESSES TO ARTIFACTUAL MEDIATORS
LORENZO MAGNANI (UNIVERSITY OF PAVIA)

Many animals – traditionally considered “mindless” organisms – make up a series of signs and are engaged in making, manifesting or reacting to a series of signs: through this semiotic activity – which is fundamentally *model-based* – they are at the same time engaged in “being cognitive agents” and therefore in thinking intelligently. An important effect of this semiotic activity is a continuous process of “hypothesis generation” that can be seen at the level of both instinctual behavior, as a kind of “wired” cognition, and representation-oriented behavior, where nonlinguistic pseudothoughts drive a plastic model-based cognitive role. This activity is at the root of a variety of *abductive* performances, which are also analyzed in the light of the concept of affordance. Another important character of the model-based cognitive activity above is the externalization of artifacts that play the role of mediators in animal languageless reflexive thinking. The interplay between internal and external representation exhibits a new cognitive perspective on the mechanisms underlying the semiotic emergence of abductive processes in important areas of model-based thinking of mindless organisms. To illustrate this process I will take advantage of the case of affect attunement which exhibits an impressive case of model-based communication. A considerable part of abductive cognition occurs through an activity consisting in a kind of reification in the external environment and a subsequent re-projection and reinterpretation through new configurations of neural networks and of their chemical processes. Analysis of the central problems of abduction and hypothesis generation helps to address the problems of other related topics in model-based reasoning, like pseudological and reflexive thinking, the role of pseudoexplanatory guesses in plastic cognition, the role of reification and beliefs, the problem of the

relationship between abduction and perception, and of rationality and instincts.

RELATIVISM, NORMATIVITY, AND PEIRCE

ROSA MAYORGA (VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY)

Pragmatism in its very nature is committed to taking seriously the experience of others and endorsing debate, deliberation, and reflection as conducive towards possible resolution (or dissolution) of moral, political, or intellectual disagreements. This pragmatist agenda of progress, discovery, and possible ultimate resolution of conflict through inquiry seems to be directly at odds with the pluralist conviction that goods or values are by nature incommensurable, that there is no one best way of ranking competing options, and that therefore resulting conflicts are by nature irresolvable. Some have argued that pragmatism's only opportunity for a fresh manifestation in this new century lies in embracing relativism. An attempt is made to resolve these conflicting claims regarding pluralism, relativism, and their role in a robust pragmatism by focusing on the interplay of Peirce's notions of truth, scholastic realism, fallibilism, and synechism with what he said on the normative science of ethics.

THE TRANSITIVITY OF THE RELATION OF SIGNIFICATION: TWO PUZZLES IN PEIRCE'S SEMEIOTICS

WILLIAM JAMES McCURDY (IDAHO STATE UNIVERSITY)

C. S. Peirce subscribed to the Principle of *Nota Notae* as a principle of semeiotics, that is, to the principle that signification is a transitive relation. He also propounded the thesis that signification is a genuine triadic relation among three relata – a sign, that sign's object of which there are two kinds, and that sign's interpretant of which there are three kinds. The first puzzle is how a genuine triadic relation such as signification can be transitive since transitivity is a property of dyadic relations. This puzzle is solved by the discovery in the logic of relations of a triadic counterpart to dyadic transitivity to be called tritransitivity. The second puzzle is how the six kinds of relata of the relation of signification interrelate. This puzzle is solved by appropriately utilizing the tritransitive nature of signification. These solutions reinforce the necessity of applying Peirce's conception of a mathematical logic of relations to his formal semeiotics. An unanticipated bonus accompanying these solutions is that they illumine semeiotically what Peirce meant by the end of inquiry.

THE LOGICALITY OF ABDUCTION, DEDUCTION AND INDUCTION - RECONSTRUCTION AND EXTENSION TOWARDS "THEOREMATIC" INFERENCES

GERHARD MINNAMEIER (AACHEN UNIVERSITY)

For Peirce "logic is, in the main, criticism of reasoning as good or bad" (CP 2.144 [1902]). Therefore, if abduction, deduction and induction are all "logical" inferences, each of them has to follow a specific rationale on which their validity in terms of correctness of reasoning depends.

The present paper aims at revealing those principles and thus the specific logicality of each type of inference. This is done by a formal analysis of the inferential process, which incorporates Peirce's distinction of three sub-processes of inferences in general, i.e. colligation, observation and judgement (MS 595, 35; CP 2.444).

Another consequence is that this system enables us to distinguish three other types of inferences, one of which is claimed to be what Peirce termed "theorematic deduction". In other words, not only does theorematic deduction receive its proper place in an overall system of logical inferences, but also two further inferences that are systematically entailed and that could be labelled "theorematic abduction" and "theorematic induction".

PEIRCE AND VIRTUAL REALITY

RODERICK A. MUNDAY

Peirce's ideas are applicable both to the epistemological and the ontological study of virtual reality. The epistemological problem is succinctly stated in the film *The Matrix* (1999). The film's protagonist, Neo, somewhat shell-shocked after being told that his whole life is a computer-generated lie, grips the back of a chair and exclaims, "So none of this is real?" to which Morpheus replies, "What is real? If real is something you can hear, see, taste, touch, smell, then real is simply electrical signals interpreted by your brain." Peirce distinguishes between existence and reality thus: Existence is a mode of being which is absolutely determinate, while reality is mode of being which exists independently of any assertion we can make about it (7.349). Applying Peirce's rules to virtual reality, we can say, while everything before the senses has a kind of reality, whether it is physical, psychical or even phantasmagorical, the only way we are going to distinguish between these realities, is on the basis of the resistance each offers. However, defining virtual reality in terms of resistances does not answer the ontological question, "What is before the senses?" Peirce's semiotic provides a possible clue, because it is not just epistemological, but ontological also. Peirce envisages a universe perfuse with signs, (4.539) arguing semiotic principles underpin natural

processes, from the growth of crystals, to the hive-building of bees, (4.551) and the migration patterns of birds. (7.379) In this way, much of Peirce's philosophy is in harmony with recent thinking in the fields of emergence and complexity theory. Therefore I argue Peirce has a particular relevance to recent attempts to grasp and understand the world.

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MELODIES OF FEELING & PATTERNS OF MOVING MEDIATING THE ORIGIN OF UNDERSTANDING IN EARLY INFANCY
KIRSTI MÄÄTTÄNEN (UNIVERSITY OF JYVÄSKYLÄ)

The paper presents outlines of DIALOGICAL BABY DANCE TM, a practical method developed by me, to initiate and engage in a dialogue with infants from the age of 8 weeks on. The method is based on structured use of very simple movement sequences in a playful interaction with the baby. Basically, Baby Dance Method (BDM) is about how to "speak" babyese. In BDM the baby is provided with a consistent opportunity to gain a sense of understanding the intentions of the adult, as they unfold in and by the sequence of jointly performed movements. An extremely regular pattern of change is then revealed in the quality of the responses of the infant.

A theoretical interpretation is presented, based on Peirce's elements of experience. Feeling, Reaction, and Mediation are presented as triadic elements of Experiential Meaning, unfolding in Experiential Time. The elements of Experiential Meaning are conceptualized as melodies of feeling and patterns of moving, mediated by a sense of understanding. The relation of the concepts of experiential meaning and experiential time to Peirce's concept of habit is considered.

The quality of the interaction in Baby Dance is shown to display the basic formal features of ordinary polite conversation. It is shown to be a true dialogue, though not with words, but with moves.

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HABITS AS VEHICLES OF COGNITION
PENTTI MÄÄTTÄNEN (UNIVERSITY OF HELSINKI)

A habit is a tendency actually to behave in a similar way under similar circumstances in the future. A habit exists through its instances, that is, as repeated sequences of acts which are performed in a similar manner in similar circumstances. As a structured sequence of acts a habit is a kind of belief about the structure of the real and objective conditions of action.

Habits are vehicles of cognition in the sense that they are means for anticipation of action. A new occurrence of a familiar situation with similar goals

brings it about that the present situation is associated with the memory of what kind of situation has previously been the outcome of some habitual behaviour.

The Humean principles of connection among ideas are resemblance, contiguity in time or place and cause or effect. What is missing is the principle that ideas about observed situations are associated on the ground that they are connected by habits of action.

From this point of view experience is not about individual states of affairs consisting of individual objects, properties and relations but about how states of affairs are related to each other by virtue of habitual action.

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ABDUCTION AND SCIENTIFIC REALISM
ILKKA NIINILUOTO (UNIVERSITY OF HELSINKI)

Many scientific realists think that the best reasons for scientific theories are abductive, i.e., must appeal to what is also called inference to the best explanation (IBE), while some anti-realists have argued that the use of abduction in defending realism is question-begging, circular, or incoherent. This paper studies the idea that abductive inference can be reformulated by taking its conclusion to concern the truthlikeness of a hypothetical theory on the basis of its success in explanation and prediction. The strength of such arguments is measured by the estimated verisimilitude of its conclusion given the premises. It is argued that this formulation helps to make precise the "ultimate argument for scientific realism": the empirical success of scientific theories would be a miracle unless they are truthlike. Indeed, critical scientific realism seems to give the only viable explanation of the empirical and pragmatic success of science.

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QUESTIONS CONCERNING PEIRCE'S LATE SIGN INTERNAL STRUCTURE: THE PROBLEM OF THE "SAME RELATION"
DOUGLAS NIÑO (UNIVERSIDAD JORGE TADEO LOZANO)

Until 1903 Peirce's notion of sign maintains that an interpretant has 'the same relation' with the object as that the representamen has, being the interpretant a new representamen for the next interpretant, and so on (Eco's thesis of unlimited semeiosis). From 1904 on, Peirce progressively abandoned the 'same relation' issue. The question is why. Here is a guess: the kind of relations that can maintain 'the same relation' is deductive-like (e.g. the nota notae principle). But, abductive-like and inductive-like relations can not, because in them, what it is 'said' of the object by the interpretant is different. If this is so, this can account for, for instance, of both the change of object in conversation and the inclusion of another

kind of objects in research (abduction). And with this, of some additional problems as the explanation of misrepresentation, error, or the growth of the symbols' meaning.

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THE RECEPTION OF PEIRCE IN THE SPANISH-SPEAKING WORLD:
THE EXPERIENCE OF THE GRUPO DE ESTUDIOS PEIRCEANOS
JAIME NUBIOLA (UNIVERSIDAD DE NAVARRA)

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ABDUCTION AND PRACTICES
SAMI PAAVOLA (UNIVERSITY OF HELSINKI)

In Harvard lectures on pragmatism (1903) Peirce connected abduction to the maxim of pragmatism. But how abduction is related to practices and habits of action? Peirce himself emphasized inferential and instinctual aspects of abduction, and the maxim of pragmatism is about analyzing the meaning of (intellectual) concepts. Would it make sense to identify distinct forms of abduction more closely related to practices; not just to “effects, that might conceivably have practical bearings”? It would be an instance of what Magnani has called manipulative abduction. These kinds of abductive practices would concern reflective actions and the formation of habits which are emphasized, e.g. in the Deweyan approach to inquiry, and in activity theory. Human conduct is interpreted through an abductive decision making process and within a more general framework of semeiotic causation. I discuss whether this is a form of abduction, or something which has close structural similarities to abduction.

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ABDUCTION AND THOUGHT EXPERIMENT IN BADUK
WOOSUK PARK (KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY)

In view of the ongoing controversy as to whether abduction is inference to the best explanation, it is by no means clear what abduction is. This situation seems partly due to the lack of clear examples of abduction in history of science. So, I propose to look for better examples of abduction in an oriental board game called “Baduk (Go; Weichi)”. For, at the most crucial stages in the game, Baduk players delve into a sophisticated reasoning that is neither deductive nor inductive. As recent Peirce scholarship has unearthed game theoretic, dialogic, interrogative, and strategic aspects of his thought, it seems a timely project to analyze abductive reasoning in Baduk. I shall show how to interpret Baduk players' abductive reasoning as based on the so-called sequence dissection technique. Then, this technique will be assimilated to the proof theoretic procedure of reduction (contradistinction to deduction) in Aristotle's logical theory. Insofar as sequence dissections can shed light on abductive

reasoning in Baduk, I shall argue, we may improve our understanding of scientific abduction at the same time.

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NEGLECTED ASPECTS OF PEIRCE'S WRITINGS: PEIRCEAN CONTRIBUTIONS TO ETHICS AND HUMANISM
SUSAN PETRILLI (UNIVERSITY OF BARI)

The task of this paper is to reflect on some aspects of Peirce's philosophical and semiotic conception that have been neglected or generally misunderstood. In particular: the question of the relation between semiosis, interpretation and quasi-interpretation; inseparability of knowledge and responsible awareness; interconnection between body and sign; dialogic self and otherness; foundation of anthropology and cosmology on agapastic relations; critique of a monadic and egotistic conception of the social with direct reference to capitalist society and liberal ideology of the time; Peircean metaphysics as an instance of the transcendence of the actual being concerning what human beings know and what they do, in other words, not only from the gnoseological perspective but also the ethical; the idea of procedure by approximation, not only when a question of the cognitive object but also for what concerns a more congruous social system, that is, a society that is more responsive to human capacities and aspirations; opposition of “reasonableness”, which does not separate logic from morality, to absolute and dogmatic reason; Peirce's unconditional refusal of pragmatism founded on the notion and practice of utility, which led him to invent pragmatism in order to distinguish his own position from W. James's. All these aspects correspond to as many sections in my paper, with which the main aim is to propose a reading of Peirce that frees him from a widespread interpretation of his thought system limited to gnoseological aspects.

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«Signs of Logic»
AHTI-VEIKKO PIETARINEN (UNIVERSITY OF HELSINKI)

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CHALLENGES FOR EXISTENTIAL GRAPHS
AHTI-VEIKKO PIETARINEN (UNIVERSITY OF HELSINKI)

What is your favourite agenda for the future research on existential graphs? Here is my wish list: (i) Probe the question of why existential graphs fell into oblivion in the development of modern logic (Historiography). (ii) Explain the role existential graphs play in the proof of pragmatism (Exegesis). (iii) Identify and investigate diagrammatic pragmatism as a novel philosophy of mathematics (Philosophy of Mathematics). (iv) Research new extensions of, and deviations from the basic notions of, alpha, beta and gamma (Logic). (v) Consider the

cognitive relevance (Philosophy). (vi) Establish a theory of continuous computation based of the logic of existential graphs (Computation). This talk recounts the key issues involved in these challenges.

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PEIRCEAN MODAL REALISM?

SAMI PIHLSTRÖM (UNIVERSITY OF JYVÄSKYLÄ)

This paper compares Peirce's synechism and scholastic realism to more recent metaphysics of modalities. This application of Peircean ideas to a contemporary debate yields a critical evaluation of both. There is a variety of views available in the controversy over modalities (e.g., actualism vs. possibilism). Most modal metaphysicians are metaphysical realists. A different treatment of modalities can be derived from Peirce's defense of "real generals" (scholastic realism) and continuity (synechism). The Peircean pragmatist can exploit a Kantian transcendental understanding of the nature and aims of metaphysics, instead of endorsing metaphysical realism, as both Kantianism and pragmatism may be seen as examining the constitutive features of the world as a possible object of (human) experience, cognition, and inquiry. Although Peirce rejected several Kantian ideas, such as the thing in itself, the basic thrust of his metaphysics is close to Kant's. This paper argues that a pragmatic modal realism is possible without metaphysical realism. However, tensions and open issues remain: Can metaphysical realism really be avoided within the Peircean framework? Is transcendental argumentation a proper Peircean method in the metaphysics of modalities?

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READING TOGETHER PEIRCE AND BAKHTIN SINCE THE EARLY 1980S, A BALANCE

AUGUSTO PONZIO (UNIVERSITY OF BARI)

The relation between Charles S. Peirce and Mikhail M. Bakhtin has been at the centre of my attention from the early 1980s. It is a question of reading together two authors who never had any relations between them. On one side this approach allows for a better understanding of Bakhtin's conception of dialogue, on the other, of Peirce's conception of the relation between sign and interpretant. Overall this reading contributes to understanding how discourse and thought work from the perspective of the construction of argumentative function and its dialogic character. Bakhtin affords a better understanding of the workings of Peircean abductive reasoning, and Peirce affords a better understanding of the sense of the Bakhtinian analysis of dialogic discourse. What unites Peirce and Bakhtin is also a relational view of the world that opens out to the whole universe. For what concerns Peirce this open vision is a question of

infinite semiosis whilst in Bakhtin's case it is a question of the unfinalizable character of dialogue which impedes the closure of a totalizing ontology such as Heidegger's for example with reference to contemporaneity. The task of this paper is to make a contribution to a better understanding of logic which it describes as dialogic, and of abduction and rhetoric which are considered to be inseparable from the relation to the other, whether a question of the otherness of self or of the other from self.

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PURSUING THE ROAD NOT TAKEN: NEGLECTED LEGACIES IN COMMUNICATIVE PRAGMATISM

IGNACIO REDONDO (UNIVERSITY OF NAVARRA, SPAIN)

The aim of this paper is to reconsider R. T. Craig's metamodel of communication theory in regard to the legitimate inclusion of classical American pragmatism as an alternative constitutive approach to communicative phenomena. First of all, the various attempts to locate a pragmatist philosophy of communication within Craig's metamodel of communication are reconsidered from the point of view of Charles S. Peirce's version of pragmatism. Setting out from the necessity to construct a constitutive approach to communicative phenomena as opposed to naïve informational theories in the field of communication, the continuity of pragmatism as an original contribution to this debate is discussed from the point of view of some limitations of the better-known versions of pragmatism by James and Dewey on the ground of their respective commitments to subjective experience and individualism. In particular, I would like to draw attention to Peirce's insistence on scientific realism, the irreducible aspect of universal categories in experience applied to communicative intercourses and his synechistic approach to mind, which demands grounding knowledge in the very heart of an ongoing, self-correcting and ever-growing community of inquirers as a better way of dealing with the assumption that communication has to do with the sharing of private contents of consciousness. As a consequence, in order to overcome reductionistic explanations that dominate contemporary discourse in communication theory, I find Peirce's pragmaticism a more valuable path within the blurred boundaries of pragmatism. Especially, I think that Peirce's commitment to semeiotic realism, along with his insistence on the continuity of experience offer a better framework in order to build a non-nominalistic theory of communication.

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APPLYING PEIRCE IN LINGUISTICS – HOW, ACTUALLY?

DANIEL RELLSTAB (UNIVERSITÄT BERN)

Early linguistic approaches to the study of language did hardly take notice of Peirce. Nowadays, the

situation is different. Peirce is cited and applied in, e.g., typology and language universals research, in cognitive linguistics, in linguistic pragmatics, in discourse analysis, and in computational linguistics. But a comparison of the major linguistic applications reveals some general problems: they are based on only little philological spadework. Many linguists do not ask, 'which' Peirce they could apply: the early Peirce, the late Peirce, or, e.g., the Peirce of the 1890s. And they hardly try to find out what ideas of natural language Peirce had, how he analyzed natural languages (cf. e.g., MS 1178, MS 1246), and why he did it. But answers to these questions are preliminary to a consistent application of Peirce in linguistics: they point at where Peirce could be applied, how, and why. And they show that Peirce can be interpreted as a forerunner of one of the most recent developments in linguistics today: formal pragmatics.

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COMPLEMENTARY STRATEGIES IN SCIENTIFIC DISCOVERY:
ABDUCTION AND PREDUCTION
ANDRÉS RIVADULLA (UNIVERSIDAD COMPLUTENSE, MADRID)

In my contribution I am going to show firstly how explanation is achieved by abduction in natural sciences. Some examples from geology and palaeontology, as representative of observational sciences, will show that surprising facts, abduction by hypotheses elimination and selection of the most 'probable' one, revision of hypotheses by novel facts, etc. are common phenomena in empirical sciences.

In a second step I am going to rejoin to Peirce's CP, 5.145 claim that deduction can never originate any idea whatever. I affirm myself that in physical sciences deductive reasoning can be extended to scientific discovery. Thus a new form of reasoning, theoretical preduction, becomes recognizable. I conceive of preduction as the way of reasoning that consists in resorting to accepted principles of the whole of physics, in order to deduce new theoretical results by mathematical combination and manipulation of the used principles. Some examples of theoretical physics will illustrate my viewpoint.

Abduction and preduction complement each other: whereas abduction is a preferred way of reasoning in observational sciences, preduction is the current reasoning form in discovery in theoretical sciences.

Finally I am interested in underlining the intrinsic fallibility both of abduction and preduction. Instead of talking about the method of science I claim that it fits in better with the real procedure in science to talk about different fallible strategies in scientific discovery.

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A NEW ASPECT OF THE SEMIOSIS AND ITS IMPLICATIONS FOR
THE THEORY OF THE COMMUNICATION
VINICIUS ROMANINI (COS/PUC-SP)

The article brings a short discussion about the aspects (or trichotomies) of the sign Peirce developed after 1905. The expansion of their number from 3 (1903, as in the Syllabus) to 10 (1905-09, as in the letters to Welby) indicates Peirce's analytical effort to develop the relations in which the interpretants play important roles - those related with purpose, self-control and the efficacy of semiosis, object of the third branch of semiotic: rhetoric or communication. We present an analysis of the sign relations revealing an aspect never devised by Peirce, extending their number to 11. This newfound aspect is the triadic relation among sign, dynamic object and dynamic interpretant (S-DO-DI). We show that this new aspect is closely related to the illocutionary force of communication of the Speech Act Theory, while the aspect of the triadic relation of sign, object and final interpretant (S-DO-FI), appears to be linked to its perlocutionary force.

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REPRESENTATION OF DISJUNCTIVE INFORMATION: PEIRCE'S
THEORY OF SIGNS AND HIS LOGICAL DIAGRAMMS
SUN-JOO SHIN (YALE UNIVERSITY)

By exploring the relation between Peirce's semiotics and his logical systems, my project aims not only to show the novelty of Peirce's own logical system but also to suggest applications of Peirce's new and broad concept of formal systems to any discipline in which representation systems play a role. In order to represent a disjunctive piece of information, Peirce extended Venn diagrams by introducing his own device, that is, a line, which (almost) corresponds to a disjunctive connective in a symbolic system, that is, 'v.' However, the new extended Venn diagrams lost much of the original system's visuality or iconicity. Hence, I argue the introduction of disjunction has pushed Venn diagrams from an iconic system toward a symbolic system. On the other hand, Peirce's own Existential Graphs successfully express disjunctive information without introducing any extra icon or symbol. The paper explores how Peirce's EG, unlike his extension of the Venn system, expresses disjunctive information without introducing any extra diagrammatic object. The paper then argues that the treatment of disjunction is a salient feature which is responsible for our intuition that EG is a diagrammatic, not symbolic, system. Peirce's theory of signs explains the theoretical force behind his invention of his own diagrammatic system, moving beyond his extension of Venn diagrams.

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«PEIRCE'S THEORY OF SIGNS»

THOMAS SHORT

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«DIAGRAMMATOLOGY»

FREDERIK STJERNFELT (THE DANISH UNIVERSITY OF EDUCATION)

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PEIRCE'S REMARKABLE RULES OF INFERENCE

JOHN F. SOWA (VIVOMIND INTELLIGENCE, INC.)

The rules of inference that Peirce invented for existential graphs are the simplest, most elegant, and most powerful rules ever proposed for any version of logic. Furthermore, they are so simple that they have a better claim of being close to the "natural logic" that underlies human reasoning than any other formal system ever developed. In fact, they are a simplification and generalization of the rules for natural deduction that Gentzen developed about 38 years later. This paper summarizes Peirce's statement of the rules in MS 514 and generalizes them to a notation-independent form: they can be applied to any syntax ranging from predicate calculus to various graphical notations and stylized versions of natural languages. A remarkable property of Peirce's form of natural deduction is that it can be viewed as the inverse of resolution: when stated in Peirce's form, any proof by resolution can be converted to a proof by natural deduction just by placing a negation in front of each step and reversing the order.

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PEIRCE AND PRAGMATIST DEMOCRATIC THEORY

ROBERT B. TALISSE (VANDERBILT UNIVERSITY)

Pragmatist democratic theory is dominated by John Dewey's conception of "democracy as a way of life." In the paper, the author develops an argument against Deweyan democracy that draws from later Rawlsian considerations regarding the fact of reasonable pluralism; roughly stated, the argument is that where reasonable pluralism obtains, all conceptions of democracy that are morally substantive (including Deweyan democracy) are oppressive. The author then proposes a "political" reading of Peirce's "The Fixation of Belief," and sketches an epistemically substantive conception of democracy rooted in Peirce's epistemology. The resulting Peircian conception is shown to accommodate the fact of reasonable pluralism. The result is a new and viable pragmatist option in democratic theory.

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USING PEIRCIAN THEORY TO BUILD THE SEMANTIC WEB

MARK H. VAN HOLLEBEKE (SEATTLE UNIVERSITY)

Open-collaboration Internet resources exemplify features of the Peircian model of inquiry and intelligence. This paper argues that using aspects of Peirce's philosophy as a guide will assist in developing such resources. Coupling bottom-up content contribution with bottom-up tool formation – that is, software tools that can be user-modified to address specific problems – would result from employing a Peircian approach to knowledge and meaning in IT development, for example. Whereas atomic conceptions of consciousness and intelligence struggle to account for the successes of non-expert knowledge sources and open-source coding, recent developments in web resources, such as aggregate opinion evaluation tools, user and content-provider trust rankings, and user-created "tags" in search tools and file sharing sites are aspects of intelligence and significance that Peirce's philosophy anticipated. Better understanding the theoretical model behind such information technology trends should lead to more intelligent tool development and increase the probability of creating a qualitatively meaningful resource for inquiry and creative collaboration.

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HOW MANY CONCEPTS OF NORMATIVE SIGN ARE NEEDED

TOMMI VEHKAVAARA (UNIVERSITY OF TAMPERE)

What is the proper extension of Peirce's triadic concept of normative sign can be investigated through Peirce's own methodic principles, pragmatism and the ethics of terminology, and in accordance with his hierarchical classification of sciences.

If we look upon Peirce's two derivations (i.e. constructions) of the concept of sign as an irreducibly triadic relation of representamen, object, and interpretant, we can observe that the concept is a representational one and that the quest for truth (about the object of sign) is built in into the triadic structure of sign. This limits the application of Peirce's concept of sign — its principal intended (though not necessarily sole) application is in the logic of rational inquiry. Moreover, it follows that not all thought is in signs, only self-controlled thought, a thought that controls itself.

Besides thoughts, we control also our conduct by thought. Peirce's pre-logical normative science of Practices, seems to employ another, more general kind of thought-sign that need not be a representational one. Conduct is controlled when it is controlled by thought, but this controlling thought does not have to be in itself controlled (i.e. self-controlled). Such construable concept of non-representational sign does not need to have an object because it can seek also practical ends (external to it), and not necessarily just truth. Peircian representational sign would thus be a

special case of such more general concept of sign like Peircean logic/semiotic is a special case of Practices.

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RIVAL LEGAL ABDUCTIONS AND THEIR RELEVANCE FOR THE PROBLEM OF DATA-MODELING

JOHN WOODS (UNIVERSITY OF BRITISH COLUMBIA):

In legal practice, closing arguments are abductions called “theories of the evidence”. The totality of evidence heard in a trial is usually collectively inconsistent: each party offering its own theory of the evidence which, jointly considered, is inconsistent. But opposing theories are those which purport best to explain different sets of the evidence. How then could they be rival theories since “E best explains S” and “~E best explains S*” can both be true? How can the defence’s theory answer the prosecution’s if it does not in some sense contradict it?

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LOGIC NOTEBOOK: TOWARDS A FACSIMILE EDITION

FERNANDO ZALAMEA (UNIVERSIDAD NACIONAL DE COLOMBIA)

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A COMPLEX VARIABLE INTERPRETATION OF PEIRCE'S

EXISTENTIAL GRAPHS

FERNANDO ZALAMEA (UNIVERSIDAD NACIONAL DE COLOMBIA):

Peirce’s existential graphs constitute just one aspect of a wider logic of continuity. Peirce’s topological thinking may be more naturally understood if some intrinsic tools related to deformations of the graphs (complex variable, intuitionistic logic) are considered. We will present in the talk:

1. how α can be interpreted through analytic and meromorphic functions, leading to a calculus of singularities and residues
2. how the beta iteration/deiteration processes of the identity line on the sheet of assertion are related to analytic continuation in the complex plane
3. how gamma cuts in a “book” of sheets of assertion (as Peirce suggested) are related to projections between sheets of a Riemann surface.

On the other hand, we will present Oostra’s new symbol for intuitionistic implication in an extended language ALFA*, along with some genuine intuitionistic ALFA* deductions.

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