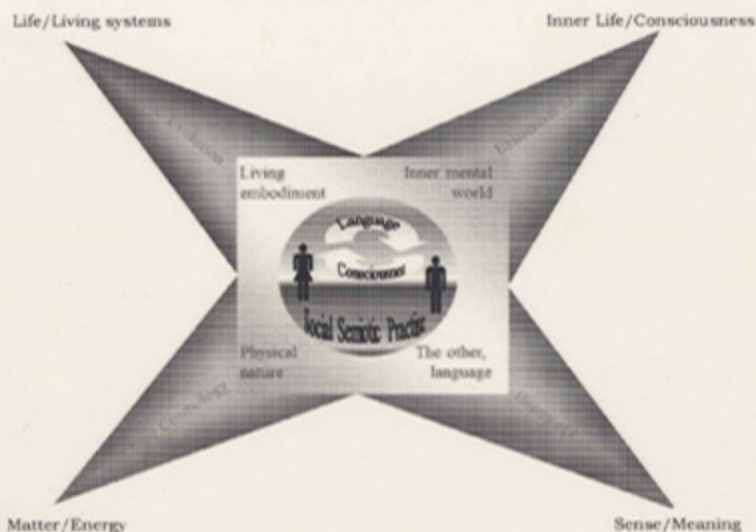


Edited by Torkild Thellefsen, Bent Sørensen and Paul Cobley

From First to Third via Cybersemiotics



A Festschrift honoring
professor Søren Brier
on the occasion of his 60th birthday

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Foreword

On 12 July 2011, the cybersemiotician Professor Søren Brier (born in Copenhagen 1951) turned 60. We think this occasion calls for a *festschrift*. Now, the genre of the *festschrift* can be very troublesome, since the articles may be very diverse. However, diversity in interests - yet deeply related interests - is not bad at all when it comes to Søren Brier. Indeed, he is a transdisciplinary researcher par excellence. His concept of cybersemiotics, which is his academic tour de force, consists of many different yet related scientific areas. Brier has written articles within the areas of semeiotic, semiotics, Library and Information Science, cybernetics, psychology, cybersemiotics, biosemiotics, second order cybernetics to name a few. The many scientific interests of Brier are shown in the *festschrift*.

But why is it necessary to publish a *festschrift* about Søren Brier? Well, Brier is in many ways what we understand as a true scholar. First, he is an idealist in the sense that it is the idea of science that has chosen him: he pursues truth without worrying too much about personal success and fame. We simply do not think Brier can cease his pursuit of truth. Second, he has, during the last 25 years, developed his theory of cybersemiotics, which has obtained international recognition; he has stubbornly remained committed to cybersemiotics' central concepts, no matter how hard the resistance has been. Thirdly, Søren Brier has played, and continues to play, a major role in defining the concept of biosemiotics both in Denmark and at a high international level.

The articles in this *festschrift* - or more correctly, the diversity of the themes in this *festschrift* - show the breadth of Brier's catholic embrace: from his thoughts regarding scientific freedom, to his work within Library and

Information Science, to his Peirce studies, biosemiotics, and, of course, and most importantly, his development of cybersemiotics. We have arranged the articles in a way that shows this diversity: Brier's work has implications for education (Bopry, Scott), for the organization of knowledge (Emmeche, Dodig-Crnkovic, Sørensen/Thellefsen/Thellefsen), for language and communication (Krippendorf, Thomsen), information retrieval (M. Thellefsen, T. Thellefsen, Sørensen), self-reference (Kauffman, Danesi, Guddemi), observership (Bopry, Cobley) Peircean metaphysics (Sørensen, Thellefsen & Thellefsen), semiotics (Nöth & Santaella, Cobley), biosemiotics (Emmeche, Danesi) and so forth.

The first article in the festschrift takes the baton from this foreword. It is an intellectual biography of Brier, which goes into details with his development of cybersemiotics. It shows the many ingredients that go to make cybersemiotics. The intellectual biography is written by Don Favareau and has the suitable title of "The Cybersemiotic project of Søren Brier".

From here on the articles take different starting points within Søren Brier's world of interests. In "A Functional Discourse Pragmatics contribution to the Cybersemiotic star", Ole Nedergaard Thomsen offers some functional pragmatic revisions to the current version of Cybersemiotics (Brier 2008 ff) as a sign of gratitude to the impressive contributions to the arts and sciences that Brier has made for the scientific world. Thomsen mainly focus on the low level phenomenon of the physiology of speech and the lofty levels of 'total' integrative evolutionary communication that is multimodal and multimedial. An understanding of the multimodality of the language game level is crucial to be able to characterize the biosemiotics of human language and its evolution. As a side effect, Ole Nedergaard Thomsen gives a Peircean semiotic revision of

the Cybersemiotic concept of individual vs. cultural 'signification sphere', i.e. the world of semiotic objects "we live by".

The article "Education for Enlightenment", by Bernard Scott highlights the need for education that is truly enlightening, an education that provides reflexive awareness of what it is to be a human social actor in the context of the many problems facing mankind. Arguably, such an education is a necessary part of any solutions for dealing in a holistic way with global problems. The article draws on concepts from cybernetics and sociocybernetics to develop both the form and content of the required curriculum. It also includes a discussion of "What is enlightenment?" from an historical perspective. After further elaboration of the proposed curriculum, the article concludes with some brief considerations of what would be required for education for enlightenment to be recognized as a global need and about what would be entailed by the implementation of such a curriculum.

In the article "Info-Computational Philosophy Of Nature: An Informational Universe With Computational Dynamics" Gordana Dodig-Crnkovic takes as his starting point Søren Brier's cybersemiotic critique of the existing practice of Wissenschaft. The article develops the argument for an alternative naturalization of knowledge production. It presents the framework of natural info-computationalism, ICON, as a new Natural Philosophy based on concepts of information (structure) and computation (process). In this approach, which is a synthesis of informationalism (the view that nature is informational) and computationalism (the view that nature computes its own time development), computation is in general not a substrate-independent disembodied symbol manipulation. Based on the informational character of nature, where matter and informational structure are equivalent, information

processing in general is embodied and in general substrate specific. With this generalized idea of Natural computing and Informational Structural Realism, Info-computationalism (ICON), adopting a scientific third-person account, covers the entire list of requirements for naturalist knowledge production framework from Brier (2010) except for qualia as experienced in a first-person mode.

In his article “Conversation and its Erosion into Discourse and Computation”, Klaus Krippendorff offers a theory of conversation. But because conversation is common, mundane, locally managed (self-organizing), and at its root open to address everything, including its own process, it defies being theorized as such, especially not by outside observers – except where it begins to deviate from its ideal, when participants cannot or do not care to restore it and accept constraints on verbal interactions for largely extra-conversational reasons. The article explores several conversational moves that are likely to transform authentic conversation into something else, here called discourse. As constrained conversations, discourses are ongoing language games as well. However, Krippendorff is critical of this Wittgensteinian conception: conversational participants are not willing to address everything, accept rules of interaction, operate on their own artifacts – texts, objects, and discursive practices – and protect the realities they collectively construct from external challenges. One can locate discourses between two extremes, authentic conversation on the one side, and computation on the other. Computation accepts some complexity but is strictly deterministic. It is the preferred mode of explanation by scientists who are unwilling or conceptually unable to consider their own discourse as constituting the realities their theories articulate.

In their article “Scientific Knowledge, Fallibilism, Agapasm and the Ethics of Inquiry According to C. S. Peirce”, by Bent Sørensen, Torkild Thellefsen and Martin Thellefsen, discusses Peirce’s perspective on scientific knowledge. Following Dewey, the authors find Peirce to be optimistic about the prospects for scientific knowledge; yet, as they reveal, Peirce’s perspective on knowledge must take into account his insistence on fallibilism. From there, the authors reveal a complex web concerning an ‘ethics of enquiry’ and ‘aesthetic finality’ which both impinge on the production of scientific knowledge.

In his article “A Gnostic Cybersemiotic Gospel: Gregory Bateson, Pleroma, Creatura, Jung, Peirce, and Brier”, Phillip Guddemi presents Bateson as a fully second-order cybernetician whose concept of mind is, as Jesper Hoffmeyer says, a precursor to biosemiotics, and inherently cybersemiotic in the sense Brier uses in his landmark synthesis. Thus, Guddemi counters Brier’s depiction of Bateson’s concept of mind as mechanistic or physicalistic, while understanding how this perception can arise. A key to unraveling this perplexity is Bateson’s Pleroma-Creatura distinction, with its origins in Carl Jung’s Gnostic Seven Sermons to the Dead, a document with surprising affinities with cybernetics, particularly Spencer Brown’s Laws of Form and some of Varela’s work. By emphasizing a progression from formless unity via distinction, the Seven Sermons parallels Peirce’s movement from Firstness to Secondness, and especially (as Bateson sees) from Secondness, which is Bateson’s Pleroma, to Thirdness, Bateson’s Creatura. Addressing another sometimes misunderstood point, Guddemi shows that Bateson’s concept of entropy is a second-order one involving the observer, particularly in its earliest formulations. The “mechanistic” examples of Batesonian mind which Brier notes are late in Bateson’s work and Guddemi shows that they represent

degenerate examples which serve less as type cases and more as indications of how mind may have developed from the inorganic. Bateson's greater interest was in the organic world and in systems which include organisms.

In "Meanings and the vagueness of their embodiments", Winfried Nöth and Lucia Santaella examine the locus of meaning in the framework of Peirce's semiotics, particularly the vagueness of meaning's embodiments in the sign. 'Meaning' pertains to the immediate object of the sign as well as to its interpretants. As they show, the very definition of the sign is affected by vagueness and indeterminacy; yet they are keen to demonstrate that vagueness should be distinguished from generality and indeterminacy. Peirce's theory of vagueness has its foundation in his doctrines of synechism and fallibilism: all signs are localized on a continuum between indeterminacy and precision, and it is never guaranteed that they may not fail in being true. Nöth and Santaella therefore go on to show the consequences of this fact for Peirce's typology of signs.

In the article "Enaction and Semiotics: Implications for Educational Design", Jeanette Bopry discusses aspects of second-order cybernetics and semiotics that are particularly relevant for educators. Attention is paid to the rejection of the representational hypothesis, the metaphor of transmission in communication, and the related rejection of prescription. Jeanette Bopry discusses the implications for theorists and practitioners concerned with teaching, learning, and cognition, opposing Observership in pedagogy to mere observation. Tellingly, she describes the efficacy of framing educational tasks in terms of proscription rather than prescription – i.e. delineating what is outside or at the boundary of systems as opposed to focusing on what is 'inside'.

In “The Cybersemiotic Turn in Semiotics: A Note on Søren Brier’s New Paradigm for the Study of Semiosis” Marcel Danesi investigates one of the most intransigent problems of semiotics: that is to understand how raw information becomes interpretation through semiosis. As a scientific discipline, semiotics has been successful in providing a typology of the forms of meaning (interpretation) that characterize human knowledge and expressive systems. However, outside of philosophically-based frameworks (Augustinian, Peircean) or linguistic ones (Saussure, Jakobson), semiotics has never really come up with a methodology for investigating how information becomes meaning, other than utilizing biological ideas and propositions (biosemiotics). Cybersemiotics, a disciplinary offshoot of cybernetics, promises to change all this by extending the purview of semiotics to encompass the study of semiosis across systems (organic and mechanical). Based on Peircean, second-order cybernetic, and biosemiotic concepts, the goal of cybersemiotics is to transform semiotic analysis into a truly interdisciplinary science aiming to investigate how human semiosis emerges and how it is unique.

In “On the halting problem”, Louis Kauffman discusses the presence of undecidable problems in mathematics, with reference to the halting problem for algorithms, the hypergame paradox and the paradox of the well-founded sets. All these results are curiously related to self-reference and the strange loop by which a self-observing system can indicate its own operations to itself.

In “The organization of biosemiotics and the challenges for academic inquiry”, Claus Emmeche investigates the question: what is the position of fields like biosemiotics and cybersemiotics in the organizational landscape of academia influenced by the major trends towards more entrepreneurial modes of organizing research? A description of what has been called ‘post-

academic science' is given, and the para-institutional nature of biosemiotics as an academic field is explored. Furthermore, the chapter addresses the place and character of biosemiotics in the academic landscape by using the typology of Richard Whitley and finds that even though biosemiotics may come out as a borderline case between a fragmented adhocracy and a polycentric oligarchy, there are some peculiarities for this young area of highly cross-disciplinary research. When seen as a work organization in terms of the issue of building a reputation in science, it is difficult to apply a typology for established and relatively well demarcated fields.

In "Short Views and Hints on Information, Knowledge and Scenarios", Michael Kristiansson discusses selected problems relating to information and knowledge in scenario planning. He identifies the traditions of scenario planning as well as its main methods and techniques. He then discusses what kind of information is included in scenario planning and what type of knowledge the scenario technique produces. In summing up, he argues for a greater number of scenarios based on a multiplicity of different drivers in planning so as to recognize the necessity and quality of continuous innovation in a world in constant change, to spot opportunities in unexpected situations and to be proactive in coping with future situations, increase one's preparedness. In "The Semeiotic of Knowledge Representation – Profiling Conceptual Knowledge", Martin Thellefsen, Torkild Thellefsen and Bent Sørensen introduce the 'knowledge profile', which is a knowledge organizational method developed within the theoretical framework of C. S. Peirce's doctrine of pragmatism. But before introducing the method, they discuss knowledge in relation to several of Peirce's metaphysical claims

involving the social aspect of knowledge, the fallibility and generality of knowledge, knowledge in the light of scholastic realism.

In the article "Observership: the view from semiotics", Paul Cobley asks how future semiotic research, particularly with a biosemiotic orientation, will incorporate a theory of observership. Constructivism, particularly in its radical form (see, for example, Watzlawick 2008, Poerksen 2004) envisages a theory of the observer which amounts to a form of nominalism. Semiotics, Cobley argues, necessitates a theory of observership which differs from that of constructivism while, in fact, having a constructivist tinge akin to Peirce's suggestion of the affinity between realism and an extreme form of nominalism. In particular, this paper will take its cue from Sebeok's (1986, 1991a, 1991b) comments on John Archibald Wheeler's conception of the 'participatory universe' and will try to explicate the relevance of Wheeler's (1994, 1998) philosophy of science for semiotics. The paper will contribute to recent key debates in the field on 'knowing' sciences (Kull 2009), on relation and cybersemiotics (Brier 2008).

With these papers, in all their diversity, the authors try to represent Søren Brier's central interests and pay tribute to his scholarly example.

Torkild Thellefsen, Bent Sørensen and Paul Cobley

The Cybersemiotic Project of Søren Brier¹

Don Favareau

In establishing a new framework, I also hope to create a third culture, one that transcends the incommensurability between C.P. Snow's two cultures: science-technology, and the humanities versus social sciences. I am trying to draw a map onto which a multitude of viewpoints can be plotted and their subject areas characterized and compared with other approaches. By erecting this framework, I hope to expand the dialogue between sciences, the humanities, the social sciences, philosophy, and the existential quest to broaden our concept of reason in accordance with my stance towards making common frames for the open and systematic pursuits of knowledge and meaning. Søren Brier (2008:13)

Because the domain of investigation that biosemiotics encompasses – i.e., the investigation of the sign use observable in any living system, at any level of its organization – is so vast, the accomplishment of interdisciplinary synthesis and the search for unifying explanatory principles have become increasingly pressing tasks. Having devoted over twenty years to a focused attempt at

¹An earlier version of this article appears in the volume *Essential Readings in Biosemiotics: Anthology and Commentary* (Springer Publishers, 2010).

synthesizing insights from first- and second-order cybernetics theory, ethology, sociology, embodied cognitive science and philosophy of mind with Peircean semiotics in order to devise such unifying principles, Danish biosemiotician Søren Brier has articulated a *cybersemiotic* framework for the understanding of animal and human evolution, communication, and cognition.

The resonance of Brier's project can be found throughout both this entire *Festschrift*, and in the biosemiotic, information theoretic, and cybernetic literature more generally. What I would like to do here, instead, is to provide a brief intellectual biography of the man whose insightful thought and dedicated effort this volume is so justifiably honoring.

Graduating with a Master's degree in biology from the University of Copenhagen, Søren Brier supplemented his biology education with courses in comparative psychology, cognitive science, and philosophy, earning his degree with a thesis entitled "A critical and historical examination of ethology's explanatory concepts of perception, motivation and action" (*Adfærdens årsager*) in 1979. Awarded a gold medal in psychology for his essay on "The usefulness of hierarchical and probabilistic models of motivation" Brier was undertaking a research fellowship at the Psychological Laboratory at the University of Copenhagen from 1981 to 1983 that sought to integrate his research into the evolution of human cognition, signification and communication. His participation in the variety of interdisciplinary discussion groups then revolving around such topics led him into the orbit of Jesper Hoffmeyer's nascent biosemiotics community (which was then meeting under the name of the Danish Society for the Semiotics of Nature) in 1986.

In that year also, Brier founded the interdisciplinary journal *Paradigma* with his colleague Ib Ravn, and expanded his interests in second order

cybernetics and autopoiesis theory. Brier edited this transdisciplinary journal, which attained a circulation of over one thousand copies per issue in Denmark, until 1990, when he came in contact with The American Society for Cybernetics through its president, Fred Steier. The overwhelmingly positive reception that his ideas received there led eventually to Brier's founding the peer-reviewed quarterly *Cybernetics and Human Knowing*, also with Fred Steier, in 1992. Supported by such kindred intellectual spirits as Humberto Maturana, Francisco Varela, Heinz von Foerster, Niklas Luhmann, Dirk Baecker, Thomas Sebeok, Claus Emmeche, Jesper Hoffmeyer, Paul Copley and Kalevi Kull, *Cybernetics and Human Knowing*, still edited by Brier, remains the one of the premier journals of its kind today, publishing ground-breaking research and theory from a variety of disciplinary perspectives

In 1994, Brier earned his Ph.D. in Philosophy of Information Science at the Institute for the Study of Mathematics and Physics at Roskilde University, Denmark, where his dissertation was published as a book whose Danish title translates in English as *Information is Silver*. Subsequent to the awarding of his higher doctoral (D. Phil) degree in 2006, Brier has been teaching widely at a variety of Danish universities and educational institutions. He is currently a Professor in the Semiotics of Information, Cognition and Communication Sciences at Department of International Culture and Communication Studies at Copenhagen Business School, and serves on the Editorial Board of the journals *Signs*, *Biosemiotics*, *System Research and Behavioral Sciences*, *The Journal of Trans-person Studies* and *Triple C: The Journal of Cognition Communication and Cooperation*. He also serves on the Board of the Science of Information Institute, the Foundation of Information Science, the Socio-cybernetic Research Group of the International Sociological Association, and the International Society for

Biosemiotic. In 2008, Søren Brier was awarded The Warren McCulloch Award by the American Society for Cybernetics, an organization for which he has been a trustee for many years, in recognition of his outstanding contributions to the field.

Like his editorial and committee work, Brier's scholarly output is prodigious, He has published over 170 scholarly articles, as well as six books in Danish, and one in English (2008). This latter volume is entitled *Cybersemiotics: Why Information is Not Enough!* and is the culmination of his twenty year effort to forge a scientifically viable interface between cybernetic information science, autopoiesis, system theory, epistemology, and a Peircean based biosemiotics.

Christening this explanatory and investigative framework '*Cybersemiotics*', Brier's work proceeds from a grounding in the cybernetic theory of complex, adaptive systems, as it has developed from Norbert Weiner's (1894-1964) mechanically-inspired feedback models – or 'first-order' cybernetics – through the observer-implicated 'second order cybernetics' of Gregory Bateson (1904-1980) and Heinz von Foerster (1911-2002), and as it has later been extended specifically into the biological realm by Humberto Maturana (1928–) and Francisco J. Varela's (1946-2001)'s concepts of *autopoiesis*, which is an attempt to explicate the ways in which an organism continually self-organizes and self-maintains itself, yet remains *structurally coupled* to its environment. Niklas Luhmann (1827-1998), in turn, built upon Maturana and Varela's ideas in an attempt to understand both social communication and the structure of the individual human psyche as autopoietic systems connected in terms of inter-penetrative autopoietic structural coupling.

After having worked within this broad ‘cybernetic’ tradition for many years, however, Brier has come to the conclusion that – for all of their otherwise critically important explanatory power in addressing the very real phenomena of decentralized, emergent organization in complex systems – neither the existing ‘first-order’ *nor* the ‘second-order’ cybernetic frameworks can satisfactorily account for the phenomena of genuine signification and *subjectivity* in the natural world – much less for that species-specific variety of subjectivity that manifests in the multi-leveled cybernetic organization of human beings as ‘first-person experience’.

Since the biological specificity of animal subjectivity plays such an important role in the co-evolution of species, however – and since the semiotic specificity of human subjectivity is inextricable from even the most ‘objective’ scientific explanations of phenomena – Brier understands that one of cybersemiotics’ most important tasks at this time is to rehabilitate and to restore to the concepts of signification, meaning and ‘subjectivity’ as a naturalistically understandable and scientifically examinable phenomenon.

Accordingly, Brier finds both Charles S. Peirce’s semiotic triadic logic and Jakob von Uexküll’s *Umweltlehre* to be particularly helpful correctives to the explanatorily unsatisfactory ‘two-valued logic’ of organism-environment duality still endemic to much mainstream biological, and even early cybernetic, theory. Maturana and Varela, he notes,

see autopoietic living systems as ‘closed’ in their spatial and temporal organization and reproduction. They are only ‘open’ to the world through their structural couplings with it. Multicellular organisms are second order couplings among cells, and societies are third order

couplings among organisms. Luhmann turns this into a view of social organizations as autopoietic systems created by communication...[Yet, he, too] has conceptualized the three biological, psychological and socio-communicative levels as closed systems. Although they are all present in the human being and functioning between them, there is no direct 'inner connection' between them (2001:798-799).

Understanding what he calls the "inter-penetration" taking place between such multiply embedded and interdependent systems is the project of Brier's *Cybersemiotics*, which weds insights from second-order cybernetic theory with insights from Jakob von Uexküll's *Umweltlehre* and from Charles S. Peirce's systemic logic of sign relations, significantly expanding both. Uexküll's *Umweltlehre*, notes Brier, does not artificially separate organism and environment – and by so not doing, thereby provides the framework for an 'intrasemiotic' understanding whereby *meaning* can and does arise from the interactional 'closure' afforded by the generative functional cycle of perception, action and consequence. Truer to the always subject-implicated processes of biological organization than are the machine-like descriptions of traditional cybernetic theory, Uexküll's *Umweltlehre* insights, claims Brier, constitute a necessary but not sufficient emendation to the very real insights that cybernetics gives us into how complex systems work. Accordingly, Brier updates and expands upon Uexküll's 'cryptosemiotic' concept of *Umwelt* within a Peircean and biosemiotic evolutionary paradigm, rechristening the expanded concept a '*signification sphere*' (2008:32-34 *et passim*).

But because *Umweltlehre* is itself grounded in a Kantian metaphysics, notes Brier, it can no more account for the veridicality of sign relations than