

Editorial Preface

What is the present state of semiotics in the age of cognitive science? Which dialogue can be established between semiotics and cognitive science? After three issues investigating specific topics (namely agency, consciousness and cognitive poetics), *Cognitive Semiotics* returns to this basic question on the occasion of Claude Lévi-Strauss' 100th birthday – to celebrate it and the lasting influence of anthropologist's theoretical contributions to the issues here developed.

Cognitive sciences reveal an increasing awareness of the role of semiotic systems and processes and of the concepts developed in their analysis. The importance of schematism (characterizing for example much of cognitive semantics), and the strong focus on the role of symbols and language for the development of human cognition, in phylogenesis, ontogenesis and everyday cognition are good evidences of this.

The articles here collected aim at further developing this dialogue in two closely interrelated directions. First, the relevance of semiotic approaches for contemporary cognitive sciences is explored: the focus on non-propositional forms of representation; the heuristic of certain structuralist insights, such as actantiality, transformations and communicative functions. Second, the integration of semiotic structures in cognitive processes is argued for and displayed.

Elmar Holenstein – with a seminal paper from 1988 – describes the epistemological development in cognitive sciences from “what human beings observably do” to “what human beings know and how knowledge is represented in them”. The author emphasizes the importance of going beyond a purely propositional model, adding for instance image-like representations, much studied in semiotics.

As homage to Lévi-Strauss, two articles discuss the actuality of his models. *Marcel Hénaff* highlights the transformational dynamics of his musical model for myths: as with music, myths are in a relation of transformation, they consist of variations that organize the world for their practitioners, rather than they represent static knowledge or states of the world. *Robert E. Haskell* reconsiders traditional critiques to Lévi-Strauss' structuralist approach, and instead

proposes to conceptualize this approach in algebraic and cognitive terms, thus enabling mathematical modelization and verifiability.

A similar historical operation is conducted by *Claudio Paolucci*. He argues that a structuralist approach can be traced in Peirce's Logic of Relatives, and – through Tesnière's actantial syntax – it can be seen as informing dynamic and cognitive semiotics. This approach is considered essential for cognitive semantics, since it grounds conceptualization processes on a case grammar.

Jesper Sørensen argues for an application of cognitive mechanisms for the analysis of magic rituals, showing how social roles, different languages, and other semiotic elements play a role in the emergence of the meaning and the transformational power of these rituals. *Svend Østergaard* articulates the relations between the neuroaesthetic morphological principles – as hypothesized by Ramachandran and Hirstein – and the materiality of paintings. He shows the crucial role of structures like canvas and brush-strokes in the conceptual integrations involved in making sense of paintings. Finally, *Peter Vuust & Andreas Roepstorff* use Roman Jakobson's model of communication to highlight certain features of (jazz) music and its interactive performance, explaining the specificity of two different kinds of polyrhythms and their role in structuring the interactions of jazz music performers. This investigation also leads to the design of promising neuroscientific experiments.

Additionally, with this issue, *Cognitive Semiotics* inaugurates a new feature online: in a special section of the journal's website (www.cognitivesemiotics.com), printed papers can now be further discussed and commented, and authors can reply to the comments posted. This way, the scientific debate on the topics developed in each issue can now be extended beyond the printed page.

For more information on upcoming issues, calls for submissions, etc., please visit our website at <http://www.cognitivesemiotics.com>.

Elmar Holenstein

Semiotics as a Cognitive Science

The explanatory turn in the human sciences as well as research in “artificial intelligence” have led to a little discussed revival of the classical Lockean sub-discipline of semiotics dealing with mental representations – aka “ideas” – under the heading of “cognitive science”. Intelligent behaviour is best explained by returning to such obviously semiotic categories as *representation*, *symbol*, *code*, *program*, etc. and by investigations of the format of the mental representations. Pictorial and other “sub-linguistic” representations might be more appropriate than linguistic ones.

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The intra-semiotic cognitive turn

Noam Chomsky’s declaration that linguistics is a branch of psychology was understood by traditional linguists as an attack on the autonomous status of their science, a status which older structuralism endorsed by incorporating language (as a special sign system) into semiotics. Semiotics seemed to assure that genuinely linguistic relationships (grammatical and semantic relationships) were not rashly reduced to psychological or biological relationships (such as associations or adaptations). If it is looked at more closely in conjunction with the general development of the sciences in the 20th century, the difference between Chomsky (1972: 28), who regards linguistics as a subfield of psychology, and Ferdinand de Saussure (1916: 33), for whom it is primarily a branch of “semiology”, comes down to the fact that Saussure assigns linguistics in a descriptive perspective to *universal* semiotics, whereas Chomsky assigns it in an *explanatory* perspective to a *special* semiotics. Chomsky founds linguistics in the sub-discipline of semiotics dealing with mental representations (*alias* “ideas”) which was prominent in classical times and which has since had a revival under the title “cognitive science”.

But although inquiry into the cognitive underpinnings of the use of signs is a matter of course from a classical point of view and in the context of the development of the cognitive sciences since the end of the 1950s, in view of the

Marcel Hénaff

The *Mythologiques*: Between linguistics and music¹

When Claude Lévi-Strauss decided to use the metaphoric model and a certain vocabulary of music in his analysis of myths, he implicitly considered the mythical narrative, like music, as a symbolic device. Myth does not belong to the order of signs, which can be interpreted as having and conveying an encoded, signified meaning. Instead, it organizes the world for its practitioners; its performance is each time an act of organization of things and beings. Like music, myths are in a relation of transformation: since myths – according to Lévi-Strauss – belong to the order of symbolism, they can be ‘translated’ only within that order. Thus translating means generating new symbolic elements, i.e. producing a transformation. Myths are reinterpreted from one variation to another, just like variations on themes in a piece of music. The task of the mythologist is thus comparable to that of a music performer, whose interpretation is itself part of the system to which the interpreted structure belongs – so mythological analysis is an extension of the network to which mythical narratives belong.

The underlying and groundbreaking implication of this music-myth relation proposed by Lévi-Strauss is of a semiotic nature: in that myths, as facts of language, cannot be translated but only transformed into variations within the same system, the symbolic nature of language is challenged and redefined as independent from and unique with respect to other symbolic systems.

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The greatest surprise caused by the publication of the first volume of Lévi-Strauss’ *Mythologiques*² in 1964 was not first and foremost the apparently

1 Published in Japanese “SHINWA-RONRI: gengogaku to ongaku no aida de”, transl. by Katsunori Izumi, in LEVI-STRAUSS “SHINWA- RONRI” NO MORI [*Through the forest of Lévi-Strauss’ Mythologiques*]; Ed. Watanabe Kozo & Kimura Hideo, Misuzu Shobo Publisher (2006), Tokyo, pp. 30–57.

2 Translator’s note: The series *Mythologiques* was translated by John and Doreen Weightman and published by Harper and Row, New York under the heading *Introduction to a Science of Mythology*. It includes *The Raw and the Cooked* (transl. of *Le Cru et le Cuit* 1969); *From Honey to Ashes*

Jesper Sørensen

Magic among the Trobrianders: Conceptual mapping in magical rituals

How are magical rituals conceptually structured and how do these structures relate to both the general conceptual systems of a culture and to the cognition of individual participants? This paper will approach these and related questions through an analysis based on the theory of conceptual mappings and mental spaces developed by cognitive scientists Gilles Fauconnier and Mark Turner. Ritual structures are constructed through the process of conceptually blending separate cognitive domains; they are marked off from ordinary discourse as a specific cultural genre; and links based on identity, analogy, metaphor and metonymy facilitate the projection of both ritual efficacy and inferential structure into the ritual space. I will propose an open list of mappings in magical rituals consisting of the *genetic*, *linguistic*, and *sympathetic* blends. Subsequently, this cognitive approach will be applied to a classic area of research on magic, namely the Trobriand garden magic, as described by anthropologist Bronislaw Malinowski. In the conclusion, results from this analysis will be related to long-standing problems and theoretical positions in the study of magic outlined in the introduction to the paper.

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Introduction

Magic always has been and continues to be a controversial subject in both anthropology and the study of religion. The concept has a long tradition as a polemical term in the Western Hemisphere. At first as a concept to designate unfamiliar religions (they are ‘magical’, whereas our religion is a proper ‘religion’) and later used to condemn certain practices inside Western Christianity, in particular the Protestant view of the Roman Catholic Sacraments as “magical” and therefore “satanic” (Thomas 1991). At the time when cultural anthropology, sociology, philosophy and the study of religion started using the term in the mid 19th century, magic carried a heavy semantic ballast related to such concepts as primitivism, savagery, childish conception or even satanic

Robert E. Haskell

Claude Lévi-Strauss Reconsidered: Cognitive science, epistemology, and the (not so savage) algebraic mind

Reconsidering Lévi-Strauss' work – on the eve of his 100th year of life – that the structure of cognition is algebraic and analogical as indicated by his analysis of preliterate myths, along with a brief review and analysis of mathematics and cognition, structuralism, and epistemology, the paper suggests that critics of his work (a) were only partially correct, (b) approached his material from an inappropriate epistemology, and (c) while, in application his structural method is problematic, (d) being a pioneer his value is to have posited a novel conceptualization that merits further research. Finally, (e) based on related findings, it is suggested that his notion of an algebraic/analogical mind, which allowed him to illustrate a novel mathematical framework in his structuralist project, can be modeled and tested.

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Introduction

Reminiscent of a bygone era, Lévi-Strauss' anthropology is synoptic in its scope, covering mythology, linguistics, cognition, philosophy, history, and methodology. More specifically, Lévi-Strauss (1963, 1966) saw himself as investigating how the mind works and was thus engaged in cognitive anthropology and psychology. With a near singular exception (see Gardner below), however, cognitive psychology has not been disposed to examine Lévi-Strauss' work. On the other hand, he seems to be held in considerable esteem by some anthropologists, by researchers and theorists outside the discipline's North American boundaries, and by many in the humanities as well as in the field of semiotics.¹ Why he is so esteemed by non mainstream anthropological factions is not entirely clear as most anthropologists, at least, agree that his structural

1 For a view of Lévi-Strauss' relations to the humanities, see Haskell (2008).

Claudio Paolucci

From Logic of Relatives to Cognitive Semiotics: On some unsuspected correspondences between Peirce and Structuralism

This paper investigates the actuality of structuralism in its relationship with cognitive semantics. It does so through a trajectory that begins with Peirce's Logic of Relatives, then Tesnière's and Greimas' actantial syntax are considered with respect to dynamic semiotics and Frege's chemistry of concepts, ending in cognitive semiotics. The article argues for the complete compatibility of Peirce's semiotics with a structuralist epistemology, of which the Logic of Relatives anticipates some fundamental traits. A Peirce-inspired interpretative semiotics has often been opposed to structural and generative semiotics. This is not necessarily the case. Through passages from Peirce, Tesnière, Greimas and dynamic semiotics works, unsuspected echoes and correspondences are unveiled, but a crucial divergence also comes to light. The different authors share a conception of the sentence as grounded on purely relational positions, called relatives or correlates (Peirce), actants (Tesnière) and proto-actants (Greimas). Peirce considers the primitive relatives as triads (the model of "A gives B to C") from which dyads can be generated. Contrarily, the Greimasian development of structuralism decomposes actantial structures into primitive dyads ("A renounces to B" and "C receives B"), thus breaking the structural balance that constitutes the topological and relational *Gestalten* on which the Logic of Relatives and actantial syntax are grounded. Indeed, those *Gestalten* are not reducible to conjunctions and disjunctions of algebraic inspiration, or to a conceptual chemistry inspired by logic (as in Frege): this is the reason why Peirce's and Tesnière's structural theories have prompted a great interest in dynamic semiotics. Moreover, through their semio-linguistic specificity, these models still allow us to investigate the heritage of structuralism, and situate it within a cognitive semiotic perspective.

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Svend Østergaard

Art and Cognition

This paper deals with Ramachandran's & Hirstein's laws for aesthetic experience such as grouping, contrast detection, and the principle of generic viewpoint. These are general morphological principles of how the visual system integrates perceptual input into a coherent representation. This paper analyzes how the materiality of the painting – i.e. the canvas and the brush-strokes – interacts with these morphological principles and thereby modifies the conceptual content. We consider cases. Firstly, how manipulations of the 2D presentation makes the 3D representation ambiguous. This is exemplified by Picasso. Secondly, we examine how Van Gogh uses the dynamics evoked by the stroke patterns to destabilize the 3D representation.

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Introduction

The objects for the considerations in this paper are paintings from the last two centuries. Many paintings from this period represent their content in a way that deviates from normal perception; it is therefore interesting to compare them to the normal perception of objects. Perception takes place automatically and unconsciously and is largely determined by stereotypes and expectations about what we are seeing. The standard wisdom in neuroscience tells us that perception works according to the so-called loop model, this means that the incoming information from the senses in the brain interacts with already established representations of the world and it is the result of this interaction we call perception. In other words our prior knowledge modifies the sensory input so that our perception of the world is a construction that happens to fit reality; for details see Frith (2007), especially the chapter *Our perception of the world is a fantasy that coincides with reality*. Modern paintings often present their objects in a way that violates our standard knowledge of the object: we recognize a beautiful woman painted by Picasso even if we know we could not encounter this woman in reality. The painting is a construction based on a particular knowledge about the object, like in a caricature where a particular knowledge

Listen up! Polyrhythms in Brain and Music

The relationship between music and language is fiercely debated in the modern literature of neuroscience and music. Here, we argue that a musicological study of online communication between jazz musicians in combination with brain imaging studies offers a unique setting for evaluating communicational aspects of music practices that rarely enter the present discourse on the subject. We employ Miles Davis' quintet of the 1960s and its use of polyrhythmic structures as a general example of a jazz group focusing on communication. First, we consider jazz in the light of Roman Jakobson's model of communication in a broad perspective. Next, we analyze polyrhythmic occurrences in Herbie Hancock's solo on the jazz standard "All of You" as an example of how this communication develops as a narrative structuring of tension and relief. We identify two typical types of polyrhythms, metric displacement and re-grouping of subdivisions. Finally, we show how these polyrhythmic structures employ brain areas hitherto associated with linguistic semantic processing, and discuss possible implications.

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Introduction

"Music is a universal language" (Miles Davis-saxophonist George Coleman (Vuust 2000)), yet the meaning of music is of a far more abstract nature than speech (Lévi-Strauss 1969). Nevertheless, musicians constantly communicate auditorially, when playing together, in order to create their musical artwork. This is indeed true in improvisational styles of music such as jazz, where possible communicational parameters include all layers in the musical structure (e.g. melody, harmony, rhythm, dynamics) (Berliner 1994, Levine 1996, Monson 1997, Sadie 2001). In jazz, as in many other musical styles, rhythm is one of the major trajectories for communication, both as a means of establishing and maintaining contact between musicians, and as a device for creating anticipatory patterns of tension and relief, for example between a soloist