Psychosemiotics – Neurosemiotics: What could/should it be?

(Introduction)

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The desire to integrate psychological and neuropsychological data and hypotheses into the construction of semiotic models has been formulated by semioticians many a time. Likewise psychologists, neuropsychologists, and cognitive scientists repeatedly have pointed to the usefulness of a semiotic approach to the explanation of cognitive processes and to the modelling of cognition.

To give but one example, cognitive scientist Pearson (1982), who speaks of a 'semiotic paradigm' for the cognitive sciences, has made this point most explicitly: Similarly to Stillings et al. (1987: 2f.) in their introduction in *Cognitive Science*, Pearson (1982) also considers 'representation' the key concept and, in fact, a unifying concept, of the cognitive sciences. Since representation, in turn, is an essentially semiotic concept, Pearson (1982: 225) claims, that "semiotics may not only provide a unifying viewpoint, but empirical semiotics may even offer our first hope of a unifying methodology for the cognitive sciences".

At a closer analysis of these promising reflexions, however, one should be well aware of at least two facts: firstly, there is no unitary and generally accepted notion or definition of 'representation' in semiotics; therefore, one has to agree with Pearson (1982: 238), "that the way is open for developing a common language for discussing problems within any of the disciplines presently recognized as impacting cognitive science". And secondly, as Pearson rightly stresses, we would have to be

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concerned with *empirical* semiotics in such an attempt "to integrate and unify the individual cognitive sciences" (Pearson 1982: 238).

Over the past decades, however, despite its flourishing development, semiotics has not been particularly empirically oriented; rather, it has been (or become) a more or less self–contained discipline. Furthermore, as Nöth (1990: 3) correctly points out, it is true that semiotics has become neither that unified science nor that 'unifying point of view' which Morris (1938) had in mind when he delineated 'the contours of the science of signs'. The way Morris (1938) understood the discipline of semiotics, it can be understood both as one discipline among others, and as a meta–discipline interpreting others, among them, of course, semiotics itself. For our purposes, semiotics should therefore not be understood only as a meta–discipline, making available a common descriptive and integrative apparatus for the results of various disciplines dealing with a particular subject (or object). Semiotics must also be understood as an instrument, as a complex analytical tool, which deals with the same objects as other disciplines do, and which should therefore integrate its results with the achievements of these neighboring (cognitive) disciplines.

In other words, the desirable interaction between semiotics and psychology or neuropsychology should not be understood as unidirectional; semiotics should not, by way of a meta–discipline, serve as an all–encompassing instrument for the systematic description, construction or reconstruction of other disciplines, as Bentele and Byström (1978) claim. Rather, in the given case, should the disciplines of psychology and neuropsychology also have an effect upon semiotics, optimize and correct semiotic models, whenever this seems necessary or reasonable.

Within the 'semiotic field', there are only few concrete attempts to relate empirical data (i.e., psychological or neuropsychological) back to theoretical questions focusing on the concept of sign and the process of its generation. This deplorable state of affairs becomes apparent in characteristic statements of scholars who complain about the lack of relevant interdisciplinary approaches, such as Ullmann (1975: 736), according to whom "the general investigation of sign behavior should be the task of psychosemiotics, which would have to be newly founded", or Stockinger (1983: 180), who calls psychosemiotics "a discipline that still has to be constituted".

Rare relevant attempts in the field of psychology are characterized by the endeavor "to analyze particular psychological questions from a semiotic perspective" (Engelkamp 1981: 289). It is more than obvious that the results of this kind of "semiotics within the field of psychology" (Engelkamp 1986: 776) are not reflected on semiotic concepts proper.

Still, a more neutral, "bi–directional" understanding of psychosemiotics can also be found; Watt (1984: 3), in a first approximation, understands psychosemiotics as an "intersection of psychology and semiotics proper". He then defines it in a more detailed manner as follows:

> It should cover all aspects of semiotic theory whose validation must ultimately appeal to psychological findings (whether experimental or observational), as well as all aspects of psychology inspired by or designed to test semiotic research.

As can be seen, Watt speaks of an *inter*relationship between semiotics and psychology — although he does so in an optative form, thus ascribing psychosemiotics a desirable status and rendering it a future or perhaps only a possible discipline. This fact becomes even more apparent when Watt (1984: 4) continues:

> Psychosemiotics, then, is rather neatly bound at either end by two other disciplines: i.e., by semiotics as usually thought of and by the future science of 'neurosemiotics', which will study how the cognitive realities demonstrated by psychosemiotics are physically represented in the brain, with implications for yet further disciplines (e.g., aphasiology and neurology).

Neurosemiotics is thus understood as a logical continuation of psychosemiotics, and accordingly would have to be at one end of a spectrum, at the other end of which 'semiotics proper' is to be placed. Consequently, the concrete understanding of neurosemiotics depends on the definition of neuropsychology. On the basis of an understanding of neuropsychology as the discipline studying "the relationship between the brain and behaviour", that is, which "attempts to explain the way in which the activity of the brain is expressed in observable behaviour" (Beaumont 1983: 3), one is given the possibility of consequently defining the status of neurosemiotics: in very much the same way as neuropsychology analyzes observable behavior (cf. Perret 1973: 11), semiotics, among others, focuses on the semiotic aspects of behavior.

Consequently, neurosemiotics thus defined seems to be, similarly to neuropsychology (Beaumont 1983: 7), of a mainly *inferential* orientation: it would have to analyze signs and sign systems as well as the conditions of their generation, development and usage, on the basis of the neuronal structures involved, in so far as they can be deduced from *observable* behavior.

A slightly different, even more ambitious and more far–reaching suggestion has recently been made by Bouissac (1985: 223). In his attempt to define neurosemiotics, he favors neurophysiology, not neuropsychology, as the reference discipline for neurosemiotics studies. Consequently, according to him, neurosemiotics "refers to the investigation of the neurophysiological substrata of semiotic behaviour", and it "attempts to correlate neurophysiological processes with well defined aspects of semiotic behaviour". Thus, depending on the perspective taken, either neurophysiology or neuropsychology may serve as reference disciplines for complex neurosemiotic studies.

In any case, irrespective of an exact (i.e. more or less comprehensive) definition, both psychosemiotics and neurosemiotics should be able to deal with diachronic questions as well, and it should not be confined to synchronic and systematic studies. Psychosemiotics and neurosemiotics should, in other words, also be a first step towards gaining insight into the evolution of signs and sign systems, i.e., it should also consider ontogenetic and phylogenetic aspects of semiosis.

Most probably, for many a semiotician, the attempt to establish neurosemiotics as a discipline must sound even more daring than the attempt to realize psychosemiotic studies. What sounds like "future" in the above–mentioned definitions, however, has been postulated and partially realized by Russian semioticians as early as in the early 1960s. In his essay *Linguistics and the investigation of aphasia*, Vjač.Vs. Ivanov (1962: 86), for example, a leading figure of the influential Moscow–Tartu school of semiotics, claimed:

> The investigation of aphasia as a general destruction of different semiotic systems can be of great interest for the general theory of sign systems, i.e., semiotics.

In fact, Ivanov may be credited for having coined the term 'neurosemiotics'. He himself defines it only vaguely and sketchily as "the discipline

which studies the semiotic functions of the brain" (Ivanov 1983: 12). It would not be wrong, however, to call his book *Even and Uneven – The Asymmetry of the Brain and of Sign Systems* (Ivanov 1978) a general foundation for neurosemiotics, with both a synchronical and a diachronical orientation. In it, Ivanov attempts to relate the duality of the human brain to the duality (asymmetry) of sign systems, in general. In this sense, Ivanov's book has to be appraised as an inspiring source and starting–point for any semiotic and neurosemiotic study.

Still, when carefully reading Ivanov's book, it becomes very clear how much semiotic terminology and related semiotic concepts influence the interpretation of neuropsychological findings. Regardless of the overall inspiring tendency of Ivanov's book, one of its apparent characteristics is its "unidirectionality", i.e., the fact that there is no feedback to the employed semiotic concepts. Rather, when different neuropsychological findings cannot be explained with recourse to one concept, different semiotic categories are applied to explain the phenomena in question (for an extensive discussion on this issue, cf. Grzybek 1991a).[1]

Still, without a doubt, Ivanov is one of the outstanding exceptions to the rule, as far as interdisciplinary studies relevant to semiotics are concerned.[2] This is not to say that there have not always been parallels between psychology, or neuropsychology, and semiotics — after all, these disciplines are all concerned with the investigation of human behavior, viz., sign behavior. Yet, such an integrative investigation of signs or sign processes has actually never been achieved.

From a contemporary point of view, this circumstance must seem somewhat odd, since the historical background of the rise of semiotics did not necessarily exclude such integrative projects. Historically speaking, the chances to realize such an integral study right from the beginning of modern semiotics, would not even have been bad; in fact, Swiss linguist Ferdinand de Saussure, one of the pathfinders not only of modern, structural linguistics, but also of semiotics in general, might

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[1] The inconsistencies and the eclecticism of the terminological apparatus of the Moscow–Tartu school of semiotics in general have been studied in detail elsewhere and shall not be pursued here; cf. Grzybek (1989a).

[2] Most recently, Ivanov (1993) has discussed the relation of neurosemiotics and neurobiology at some length.

have served as the authoritative source of such an integration.

In his well–known *Course in general linguistics*, Saussure (1916: 66) defined a 'sign' as an insoluble unity of a 'signifier' and a 'signified'. In Saussure's (ibd., 15) approach, such a unity between a 'signifier' and a 'signified' turns out to be a "two–sided psychological entity"; a sign is thus understood to be "basically psychological".

It is important to pay attention to Saussure's *psychological* definition of the sign — later, many scholars, among them and foremost Roman Jakobson in his influential works, re–defined Saussure's terms and concepts and disregarded the psychological implications of Saussure's definition.[3] In this context, Saussure (ibd., 16) defined the mutual relationship between psychology and semiotics:

> *A science that studies the life of signs within society* is conceivable; it would be a part of social psychology; I shall call it *semiology* (from the Greek sēmeîon 'sign').

For Saussure,[4] semiology was thus part of (social) psychology. Yet, in his analyses, Saussure did not particularly focus on psychological aspects of sign usage. Instead, he postulated a strict autonomy of linguistics (1916: 16):

> To determine the exact place of semiology is the task of the psychologist. The task of the linguist is to find out what makes language a special system within the mass of semiological data.

On the one hand, by postulating the separation, or isolation, of linguistics from related disciplines, Saussure paved the way for modern structural and systemic descriptions of language as a sign system, of

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[3] Jakobson's semiotic ruminations are characterized by a very peculiar combination of various sources, among them Saussure and Peirce, in addition to classical or antique concepts. In doing so, Jakobson modified all of the original sources without making such modifications explicit. For a more detailed analysis of Jakobson's semiotics see: Grzybek (1989a: 104ff.; 1989b).

[4] Historically, it seems likely that is was not so much Saussure himself who argued in favor of this integration of semiotics into psychology, but his disciples Ch. Bally and A. Sechehaye who edited the *Cours* posthumously; obviously, Saussure himself rather preferred the notion of semiotics (or semiology, in his words) as part of sociology, not of psychology.

other sign systems, and of their interrelationship. On the other hand, Saussure's separation of linguistics meant a fatal line of demarcation: from now on, linguistics was in charge of describing "language studied in and for itself" (Saussure 1916: 232).

Linguistics was thus rendered a rather self–contained discipline, with its own well–defined object. The subsequent emergence of semiotics, then, was not realized in terms of a (socio)–psychological discipline, as outlined by Saussure — rather, semiotics also became a more or less self–contained discipline, focusing on the systemic parallels and differences of the sign systems under study. In fact, semiotics developed on the basis of Saussure's ideas, was characterized by the methodological extension of linguistic studies to other sign systems. This extension proved to be important for at least one reason: linguistics was thus understood not only as a part, but also as a prototype of a more broadly conceived (linguo–)semiotics; sign systems other than language came to be analyzed in analogy to language. Consequently, one would metaphorically speak of the 'language' of these other sign systems; and for a long time, one would either not realize or not care about the fact that only those elements of other sign system were studied, which displayed such linguistic analogies: the individual specifics of the sign system under study were neglected.

But not only this kind of 'logocentrism' became an essential trait of Saussurian semiotics; in addition, its de–psychologized status became one of its characteristics, and it thus echoed developments in linguistics.

At the same time when, with the emergence of psycholinguistics, the psychological basis of language processes became an important object of research, 'pure linguists' would increasingly insist on the autonomy of their discipline by rephrasing an old Saussurian postulate: according to it, linguistics now had to describe the "competence" of a phantasy construct called an »ideal speaker–hearer«, whereas related "performance" factors were referred to explanations from psychology. Such a separation is, to our day, still widely accepted: according to this understanding, linguistics or, in a broader sense, semiotics, has to describe *structures*, whereas the *processes* of sign generation and sign usage are to be described by psychology.

Language, in this sense, as well as any other sign system, has become the object of logical analysis, and it was not accidental that Saussure compared language to a chess-board. Of course, regarding language as a chess-board with its well-defined intrinsic rules may be not only a pleasant, but also a useful undertaking, as pleasant and useful as, for instance, observing the behavior of exotic birds in golden cages. But the rules of chess are restricted to the game, and they are not in force outside of it; and no bird-fancier, be s/he amateur or professional, would ever dare letting his or her bird fly freely outside of the cage, assuming that the bird will follow the same pattern of behavior as inside of the cage. Metaphorically speaking, only people who, like Chomsky (1980: 80), explicitly deny the fact "that the essence of language is communication", will do this.

No doubt, it is legitimate and, perhaps, productive to claim the isolation of certain components — 'modules', if one will — of the human mind (language being regarded a part of the mind), in particular, if it is done as brilliantly as by Chomsky and his followers. But the separation of language from its usage must turn out to be fatal, when an *a priori* correspondence is assumed between theoretically described *structures* and psychological *processes*, and when, at the same time, empirical research is not adequately taken into account, ignored, or deliberately excluded.

In this respect, Chomsky's case proves to be prototypical, not only for linguistics. In his recent as well as in his earlier works, Chomsky (1980: 220) deals with the comparability of the language structure to corresponding mental processes:

> We must be careful to distinguish the grammar, regarded as a structure in the mind, from the linguist's grammar, which is an explicitly articulated theory that attempts to express precisely the rules and principles of the grammar in the mind of the ideal speaker-hearer.

The distinction of a 'linguistic grammar' and a 'mental grammar' leads Chomsky (1980: 201f.) to assigning the whole realm of "performance" — i.e. "the processes of production, interpretation, and the like" — to psychology, the whole realm of "competence", on the other hand, to linguistics. This separation would not be so dramatic, per se, would

Chomsky (1980: 201) not define competence as "the system of rules and principles that we assume have, in some manner, been internally represented by the person who knows a language". Consequently, Chomsky does not maintain his juxtaposition of a "linguistic" and a "mental" grammar; instead, he claims psychological validity for the description of linguistic structures. In fact, Chomsky (1980: 4), in a similar way as Saussure several decades before him, regards linguistics as "part of psychology".

It becomes obvious that his position is that of a heuristic chameleon, that of a small pennant which flexibly turns to any side depending on the direction from which the wind of (counter)arguments blows: his postulation of the psychological or mental validity of the described structures remains "justified" as long as its non-existence has been proven. Putting it in elegant philosophical words, we are concerned with the linguistic variant of the principle of falsification in science (cf. Popper 1959); more popularly speaking, this is like stating the existence of small green people on planet Mars and blaming the rest of the world for not finding them...[5]

Ultimately, for Chomsky, the "justification" of such an approach can be found firstly, in separating language and communication (1980: 82, 230), and secondly, in juxtaposing within his »ideal speaker-hearer« a "grammatical competence" and a "pragmatic competence" (1980: 90, 206, 224), to which all (allegedly) external factors of language as a system can be projected.

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[5] In a more recent definition of the reciprocality between linguistics and brain sciences Chomsky (1986: 40) confirmed that "results of this sort are remote in the current state of understanding". Thus, by not taking into account available research from the brain sciences, Chomsky can calmly ignore all existing psychological and neuropsychological (counter)evidences, and he can call the investigation of mental structures (in his understanding) "one of the most exciting frontiers of science in coming years" (Chomsky 1980: 216). And even if such reciprocal results should be found, "the relation of brain and mind, so conceived, is a problem of the natural sciences" (Chomsky 1986: 40).– In this sense, then, shifting the object and strategy of language studies to another discipline, Chomsky cannot, in fact, be attacked, cannot be argued upon, because he retires to a play-ground on which only he himself names the game to be played, dictates the rules, and decides who plays his game and who does not.

One cannot but side with psychologist Hans Hoermann, who, in his important book *To Mean – To Understand*, adequately describes this kind of research strategy (1976: 2):

> The sign has become autonomous — something for which linguistics has to pay a high price today, being compelled to construe a special 'science of the use of signs', that is, pragmatics.

In fact, essentially based on Morris' well–known distinction of three semiotic dimensions, linguistics and semiotics have been concerned with the structure of signs and "their" meanings [semantics], the relationship of signs to other signs [syntactics], and the relationship of signs to sign users [pragmatics].

Many semiotic studies have been classified as being either pragmatic, or semantic, or syntactic by nature. It was Morris himself who, in a way, paved the way for such distinctive approaches. Thus, Morris admitted that it is legitimate and often adequate to refer a particular semiotic investigation to any one of these three semiotic dimensions, and he also stated that "a number of (...) dyadic relations may be abstracted for study". Additionally, the well–known schematic illustration of his tri–dimensional semiotics suggests "a co–ordination of the syntactic, semantic and pragmatic sign dimensions by way of two–sided relations" (Apel 1970: 90). As a consequence, more often than not, signs have been taken as *given*, the cognitive bases underlying the generation of signs have not been studied from a semiotic point of view.

Based on Morris' (1938: 52) characterization of pragmatics, which "deals with the life–related aspect of semiosis, i.e. with all psychological, biological and sociological phenomena which are involved in the sign process", one might therefore be inclined to classify psychosemiotic and neurosemiotic considerations as belonging to the realm of pragmatics.

But it is worthwhile remembering that Morris consistently directed attention to the interrelation of the three dimensions of semiotics, pointing out that semiotics is more than the sum of its three dimensions, and he warned us "to keep in mind the field of semiotics as a whole" (Morris 1946: 219). Paying due attention to the principal interrelation of the semiotic dimensions, i.e., to the "unity of semiotics" postulated by Morris (1938), it seems obvious that one should not ad-

here to such a reduction of psychosemiotics and neurosemiotics to the realm of pragmatics.[6]

In ultimately defining the concept of psychosemiotics and neurosemiotics, it might be useful to pay attention to different kinds of methodological orientation in science, which Jean Piaget (1972) termed multidisciplinarity, interdisciplinarity and transdisciplinarity.[7] According to this distinction, *multidisciplinarity* is the more or less *additive* consideration of a scientific object from two different perspectives (or disciplines), whereas attempts to *integrate* the results of two different disciplines can be called *interdisciplinary. Transdisciplinarity*, finally, means that a particular discipline first of all presents its results within its own framework, but then *extends* them, at least tentatively, to a neighboring field; thus, ultimately, the achievements of different disciplines are integrated into a coherent system without stable borderlines.

Eventually, concrete psychosemiotic and neurosemiotic studies will have to show, in how far they succeed in integrating the objects and results of the related disciplines. In doing so, these studies will have to cover the whole semiotic spectrum. In this sense, psychosemiotic and neurosemiotic approaches might well provide empirical evidence as to whether the theoretically postulated semiotic isomorphy between SIGN – TEXT – CULTURE is more than a metaphor...

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[6] It is important to emphasize the extension of the notion of 'pragmatics' as originally defined by Morris, and as it holds true for the most part in semiotics to our day. In this broader understanding of pragmatics, the latter not only focuses on the relationship between sign and sign user in a particular situation, but also refers to the internalized knowledge about the pragmatic foundations of semiosis, or even to world knowledge, or encyclopedic knowledge, in general. Haiman (1980: 342f.) has best described this extension: "Perhaps unjustifiably, the latter definition has been extended so that pragmatics includes the relationship of signs not only to their users, but to the general nonlinguistic context, and thence to the world at large." – Such an integration of encyclopedic (world) knowledge into the realm of pragmatics can often be found in psychological and neuropsychological works, too. As has been argued elsewhere, it seems reasonable, however, to refer the question of encyclopedic (world) knowledge to the realm of semantics, not to that of pragmatics, since it constitutes an important part of mental semantic representations (cf. Grzybek 1991b, 1993).

[7] Recently, semiotician Walter A. Koch (1986) has discussed this distinction with regard to evolutionary cultural semiotics.

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PSYCHOSEMIOTIK
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