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What is semiotics, really?

1. Semiotics is the science of the signs. A sign is a triadic relation between a 1-valued medium relation, a 2-valued object relation, and a 3-valued interpretant relation. The definition of the sign as a relation means more exactly that the sign is a connection from three relations, where the first is included in the second, and the first and the second are included in the third. The word interpretant, coined by Charles Sanders Peirce (1839-1914), the American founder of semiotics, is either someone who declares something as a sign or interprets something as a sign for something. Therefore, a sign always substitutes an object, which is transcendent to the sign. We need a special semiotic theory to cross the borders between a Here and a Beyond, which we call polycontextural semiotics in opposition to monocontextural semiotics.

2. The relational definition of the sign leads to the logic and the algebra of relations and from there to general algebra, order theory and topology, so that at the end we have a mathematical semiotics, or better: semiotics as a discipline of mathematics. Thus, semiotics is not just a method, but a mathematical discipline like set theory, model theory, proof theory, etc. However, the historical situation with semiotics has been a little comparable to that of logic: During centuries, logic has been studied and taught almost independently in philosophy on the one side and in mathematics on the other side. Semiotics has been studied and taught by different philosophical schools since Aristotle up to now as a kind of hermeneutic method, but it has also been conceived as a universal, i.e. both quantitative and qualitative *Lingua Universalis* between Ramón Lull and Leibniz, with a few aftermath.

3. Therefore, whoever wants to study semiotics needs the thorough knowledge of a mathematical basis (“Grundlagenwissenschaften”): Algebra, linear algebra, geometry, matrix theory, model theory, proof theory, recursion theory, set theory, topology, mathematics of computer sciences. As best idea I suggest that somebody studies mathematics as major and computer science as first minor. As second minor he should either specialize in topics of engineer sciences or architecture, or cognitive sciences. Nobody needs philosophy, literature theory, art history or the like to understand a scientific discipline, which is a part of mathematics, but through the fact, that semiotics “counts” with sense and meaning, it is also strongly related to concepts of environmental engineering.

4. The basic aims are to further investigate mathematical formalizations of the intuitive concepts of semiotics and to put them into a form that can be used in computer technology. For that, it is also necessary that everybody, who studies semiotics, has a thorough knowledge of mathematical logic, especially predicate and higher calculi. A special effort is the study of polycontextural logic, which is seldom offered at a university and must therefore be studied out of books. Since the intuitive notion of “sign” is known to everybody one can start as early as possible with getting the students acquainted with signs, for example in semiotic proofs (e.g., Pythagoras) as well as in mathematical proofs (e.g. comparison of different proofs in connection with the semiotic adequacy of the way of the proof).

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