Universal Logic: Towards a General Theory of Logics

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By universal logic, we mean here a general theory of logics considered as fundamental mathematical structures in the sense of Bourbaki (cf. [4]). The aim of this paper is to explain the philosophical and historical background of such a theory and to give some examples of technical problems that are dealt with.

We use the expression *universal logic* by analogy with the expression *universal algebra* : universal algebra was developed as a very general theory of algebras considered as abstract structures. As Birkhoff explains (cf.[3]), he was led to the now standard notion of abstract algebra (a set with a family of operators) by the need of systematization of heterogeneous structures.

During the XXth century, numerous logics were developed (intuitionistic logic, many-valued logic, relevant logic, paraconsistent logic, quantum logic, modal logic, polar logic, non monotonic logic, linear logic, etc.). The basic idea of universal logic is to consider logics as structures and study general properties of these structures and their relationships (cf. [1] [2]).

References

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