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   Collana   Studies in universal logic

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   Soggetti   Completeness theorem

   Lingua di pubblicazione   Inglese

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   Note generali   Description based upon print version of record.

   Nota di bibliografia   Includes bibliographical references (p. [165]-174) and indexes.

   Nota di contenuto   Introduction -- 1. Basic notions: Propositional languages -- Abstract
                             algebras -- Preliminary lattice-theoretical notions -- Propositional
                             logics -- Brief exposition of the most important propositional logics --
                             2. Semantic methods in propositional logic: Preordered sets --
                             Preordered algebras -- Logical matrices -- Adequacy -- Propositional
                             logic and lattice theory -- 3. Completeness of propositional logic:
                             Generalized completeness -- Post-completeness -- The problem of
                             uniqueness of Lindenbaum extensions -- Some related concepts -- 4.
                             Characterization of propositional connectives: Cn-definitions -- The
                             system (D) -- Variants -- The system (I) -- Classical logic -- Appendix:
                             The fundamental metatheorem for the classical propositional logic -- A
                             proof system for the classical logic.

   Sommario/riassunto   Completeness is one of the most important notions in logic and the
                             foundations of mathematics. Many variants of the notion have been de?
                             ned in literature. We shallconcentrateonthesevariants,andaspects,of
                             completenesswhicharede?ned in propositional logic. Completeness
                             means the possibility of getting all correct and reliable sc- mata of
                             inference by use of logical methods. The word 'all', seemingly neutral,
                             is here a crucial point of distinction. Assuming the de?nition as given
                             by E. Post we get, say, a global notion of completeness in which the
                             reliability refers only to syntactic means of logic and outside the correct
                             schemata of inference there are only inconsistent ones. It is impossible,

however, to leave aside local aspects of the notion when we want to make it relative to some given or invented notion of truth. Completeness understood in this sense is the adequacy of logic in relation to some semantics, and the change of the logic is accompanied by the change of its semantics. Such completeness was e?ectively used by J. ?ukasiewicz and investigated in general terms by A. Tarski and A. Lindenbaum, which gave strong foundations for research in logic and, in particular, for the notion of consequence operation determined by a logical system. The choice of logical means, by use of which we intend to represent logical inferences, is also important. Most of the de?nitions and results in completeness theory were originally developed in terms of propositional logic. Propositional formal systems ?nd many applications in logic and theoretical computer science.