

CREATIVE DEFINITIONS IN PROPOSITIONAL CALCULI

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Leśniewski felt that definitions were most naturally stated as equivalences in the object language and as such a rule of procedure governing their introduction is necessary. This view will be accepted here in our investigation of the role played by definitions in propositional calculi. In this paper* we construct propositional calculi wherein some of the definitions play a creative role; i.e., they do not function as mere abbreviations and are not, even theoretically, superfluous.

A definition will be said to be *creative* for a thesis T in a given presentation of a deductive theory iff T does not contain the defined term (nor any defined via it) and is provable using the definition, but not without it.

The usual approach to definitions is to attempt to prescribe conditions which prevent the creativity of definitions. In trying to understand the role that definitions play in deductive theories we approach the subject from the opposite direction and attempt to construct systems which contain creative definitions. In 3 we give axiomatizations of propositional calculi which contain a single creative definition, a finite number of creative definitions, and also examples which contain an unlimited number of creative definitions.

In 1 the history of the problem is presented as best it is known, including a review of the literature. The rules of procedure for propositional calculi and especially the rule of definition are presented informally in 2 and precisely in the appendix. Several metalogical remarks are presented in 4 including our proof of a hitherto unpublished theorem of A. Lindenbaum which shows that if $C\phi\phi$ is a thesis of a propositional calculus, then that calculus contains no creative definitions.

1 History. Leśniewski recognized that definitions can be creative and, as far as is known, was the first to do so. He also defined this concept and

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