W. STASZEK

ON THE CLASSICAL LOGIC OF NAMES

(Summary)

The paper contains a calculus of names with negation sign and quantifiers. This calculus is called the system S. Its primitive terms are: $\in$ (is) and $'$ (negation sign).

The system S has the following axioms:

A1. $\vdash x \in x$

A2. $\vdash x \in X' \equiv \sim (x \in X)$

A3. $\vdash \left(\prod_x (x \in X \equiv x \in S) \cdot S \in P\right) \to X \in P$

A4. $\dashv \prod_x (x \in S \to x \in P) \to \prod_x (x \in P \to x \in S).$

The sign "$\vdash$" is to be read "is a theorem of the system S", whereas the constant "$\dashv$" abbreviates the locution "is a rejected formula of the system S".

The well known two-termed predicates of Aristotle's syllogistic as well as the sign of equality are defined in usual way by means of the constant "$\in$" and quantifiers. Use is made of two kinds of proofs: the proofs of theorems of the system S and, in addition, some special proofs of rejected formulae of S.

The following theorem is proved in the paper: Aristotle's syllogistic with the negation sign "$'$" is a decidable subsystem of the system S in the following sense: for each well formed formula of Aristotle's syllogistic (with or without the sign "$'$") there exists a proof of the first or of the second kind.