

ON LOGICAL THEORY OF STRUCTURES

JACEK WALDMAJER

Abstract. In the paper certain criteria of adequacy of representation of knowledge are presented. The criteria refer to situations in which some objects are cognized by means of other objects. The formulation of the criteria of adequacy of representation of knowledge is made within two formal-logical, axiomatic theories: *theory of cognitive tuples T* and *theory of structures TS* built over the former.

The primitive notions of T are the concepts: a *cognitive tuple* and *holding (occurrence) of a cognitive tuple*. Introduction of the notions requires adapting the following two postulates: 1) certain objects are available for cognition, 2) certain objects that are available for cognition make it possible to cognize other objects.

A *cognitive tuple* is, at the same time, intuitively understood as a tuple of objects by means of which we want to cognize something. If objects of these tuples are connected with one another, so that information (knowledge) of the cognized objects is transferred by their means, then we can say about the cognitive tuples that they *hold (occur)*, and their description is called *adequate representation of knowledge*.

Since cognition of a given object often occurs by means of more than one cognitive tuple, representation of knowledge usually refers to a certain set of cognitive tuples. This leads to taking into account, in theoretical considerations, a notion of *structure* - indispensable in scientific research [1]. This concept is introduced in the theory TS . TS describes these properties of the structures which point out some criteria of adequacy of representation of knowledge (cf. [2]). An important notion of this theory is the one of *adequate structure*. Such a structure is characterized by that all of its cognitive tuples are holding (occurring) tuples, and the knowledge, which is transferred by them is *adequate*.

The theory TS has its interpretation in ZF set theory and as such is consistent.

REFERENCES

- [1] NICOLAS BOURBAKI, *The architecture of mathematics*, *American Mathematical Monthly*, (1950), no. 57, pp. 221–231.
- [2] JACEK WALDMAJER, *On structures and their adequacy*, *Directions in universal logic*, Polimetrica, International Scientific Publisher, (to appear).

SECTION OF LOGIC AND METHODOLOGY OF SCIENCE

DEPARTMENT OF PHILOSOPHY, UNIVERSITY OF OPOLE, POLAND

E-mail: jwaldmajer@uni.opole.pl

Logic Colloquium 2007

Edited by Unknown

© 2000, ASSOCIATION FOR SYMBOLIC LOGIC