

ABSTRACTS FROM SYNTHESE

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THE LOGIC OF INEXACT CONCEPTS

J. A. GOGUEN

A logical system for the manipulation of inexact concepts is developed and illustrated by examples from philosophy, pattern recognition, natural language, and everyday mathematics, including number theory. A semantic representation of inexact concepts by fuzzy sets is employed, and it is argued that clog's are appropriate truth sets. Generalized notions of implication and negation are introduced, and a method for treating context is given. The problem of experimentally measuring inexact concepts is discussed, and a new inexact inclusion relation is introduced and applied to the inexact quantifiers.

THE PROBLEM OF ANALYTICITY

MARIAN PRZELECKI AND RYSZARD WOJCIKI

Let $P(a_1, \dots, a_n, b_1, \dots, b_m)$ (we shall write P for short) be, in a given language L , a set of postulates stipulating meanings of the extralogical terms b_1, \dots, b_m . The meanings of the extralogical terms a_1, \dots, a_n are assumed to be fixed. The set P may, in general, entail some sentences which do not contain the terms b_1, \dots, b_m and at the same time are not logically true. According to many authors such sentences should be considered as synthetical (factual) consequences of P . This observation leads to the problem of "splitting out" the set of postulates P into two sets of sentences P_S and P_A , the former representing a "synthetical component" and the latter an "analytical component" of P . (These two concepts correspond to the concepts of factual postulate and analytical postulate known from Carnap's works.) The paper contains a detailed discussion both of the issue, and the related problem of defining the concept of analyticity in an adequate way. The results obtained recently in the field in question by Polish authors (Maria Kokoszyńska, Adam Nowaczyk, Marian Przelecki, Ryszard Wójcicki) are presented.

GIBSON'S REALISM

JOHN W. YOLTON

J. J. Gibson's recent work on perception is of special significance for philosophers in its stress upon the *informational* features of perception. Gibson sees the stress upon what he calls the 'ecological' (as opposed to the physical) features of the environment as providing new reasons for realism. Those new reasons emerge once we consider the senses as a system of information-extraction rather than as sensation-production, for then sensations become much less important—even irrelevant, he thinks—to perception. Having rid ourselves of reliance upon sensations and sense-qualities as the source for our knowledge of body, the usual arguments against realism can be avoided. Whether Gibson is right in thinking that realism has been vindicated, he has done philosophers a service by freeing them from a too heavy dependence upon sense qualities. But *object* sense qualities, as opposed to *subject* sense qualities (sensations), are an important, perhaps fundamental, source of information about the environment. Gibson tends to overlook sensory-quality information. We can reinstate object sense qualities in the account of our knowledge of body without forsaking the valuable contribution to perception made by Gibson. Then we should be in a position to examine afresh the concepts of realism, phenomenism, scepticism, etc.

ARE THERE SENSORY QUALITIES OF OBJECTS?

JAMES J. GIBSON

In reply to one of the points made by Yolton it is argued that there are qualities of sense impressions and that there are qualities of objects but that there is no special class of the

qualities of objects to be designated as *sensory* qualities. The qualities of sense impressions do not constitute information about objects.

COMMENTS ON LINGUISTIC COMPETENCE AND LANGUAGE ACQUISITION

RONALD ARBINI

In this article the author wishes to do two things:

- (1) Defend the *literal* interpretation of Noam Chomsky's rationalistic account of language acquisition against Gilbert Harman's recent criticisms, and
- (2) Show that Harman's reconstructions of empiricist alternatives inadequately explain what is known about language acquisition.

The first of those goals is accomplished by showing that when interpreted literally Chomsky's rationalism does *not* constitute a "vicious circle" as Harman believes. The second goal is achieved by showing that Harman's empiricist alternative is inconsistent with what he himself maintains in arguing that rationalism cannot be taken literally. Finally it is argued against Harman's alternative that his proposed "inductive procedures" cannot explain the intuitions exercised by the competent speaker because these intuitions must be exercised in the identification of what counts as data for any proposed induction.

REPLY TO ARBINI

GILBERT HARMAN

I have argued against Chomsky for the following two claims: (a) There is no reason to suppose a speaker of a language has knowledge of the rules of grammar in the sense that he has internally represented them. (b) Even if I am wrong in my first claim, there is no plausible way to define rationalism and empiricism such that transformational grammar supports rationalism. Arbin ignores my argument for (a) and fails to note that my argument for (b) is a dilemma (in avoiding one horn he impales himself on the other).

CORRECTIONS TO BUNGE'S *FOUNDATIONS OF PHYSICS* (1967)

M. STRAUSS

A number of mistakes in logic, mathematics, and physics occurring in B's book are pointed out and corrected. In addition, the presentation of quantum mechanics given in the book is shown to be fundamentally wrong both in mathematics and physical semantics. The required corrections are given.

CORRECTIONS TO *FOUNDATIONS OF PHYSICS*: CORRECT AND INCORRECT

MARIO BUNGE

A reply to M. Strauss' criticisms of the author's book *Foundations of Physics* (1967). Five out of the twenty-one critical remarks are found correct. However, these five points are rather minor technical ones without philosophical significance. Some of the philosophically interesting questions that come up are these: (a) whether probability statements are derivable from propositions that are not manifestly probabilistic; (b) whether one and the same symbol can be assigned more than one meaning in a given theory; (c) whether the probability of a state makes sense in quantum theory; and (d) whether the quantum-mechanical densities are physically meaningful. A score of exercises and open problems complete the note.