
Abstracts

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Andrzej Indrzejczak, Discovery and Evolution of Natural Deduction

In 1934 Jaśkowski and Gentzen independently published the first work on natural deduction. Since then a lot of work has been done on both practical and theoretical aspects of natural deduction, but the original ideas of both authors are still alive and involved in recent work. In this survey paper we characterize the general idea of natural deduction, briefly compare the original systems of Jaśkowski and Gentzen, and sketch the main lines of later developments.

Keywords: natural deduction, Jaśkowski, Gentzen, proof theory

Roman Murawski, Philosophy of Logic and Mathematics in the Cracow Circle

The paper is devoted to the presentation and analysis of the philosophical views concerning logic and mathematics put forward by the leading members of the Cracow Circle, i.e., of Jan Salamucha, Jan Franciszek Drewnowski, and Józef (Innocenty) Maria Bocheński. It also discusses their views on the problem of applicability of logical tools in metaphysical and theological research.

Keywords: Cracow Circle, philosophy, mathematics, theology

Zbigniew Tworak, Logic of Conditional Beliefs

In this paper I present a simple logic for conditional beliefs in a multi-agent doxastic context (CDL). Conditional beliefs $B_i(\alpha/\beta)$ encode beliefs in α we would have if we were to learn new information β . The account of this notion is close to the classical theory of belief revision (AGM) and the standard conditional logic, as developed by Stalnaker and Lewis. I give both semantic and axiomatic characterization of conditional beliefs. They are interpreted in terms of plausibility or preference ordering on worlds. I also investigate the relation between notions of belief and knowledge.

The logic may be used, for example, for epistemic analysis of some extensive form games.

Keywords: epistemic logic, conditional belief, plausibility relation, knowledge, belief revision, counterfactuals

Eugeniusz Żabski, Beth's Semantic Tables for Some Non-Classical Sentential Calculus

In the paper the author presents a slightly modified Beth's method that helps to prove if a formula is or is not a tautology of the following non-classical sentential calculi: Łukasiewicz's three valued sentential calculus (L_3), Priest's paradox logic (LP), and nihilistic sentential calculi: n'1, n'3, n'4, n'5.

Keywords: Beth's semantic tables, tautology, Łukasiewicz's three valued sentential calculus, Priest's paradox logic, nihilistic sentential calculus, transformation rules

Katarzyna Paprzycka, A Solution to Butler's Problem and an Explanation of the Knobe Effect

Butler's and Knobe's cases appear to show that our attributions of intentional actions are sensitive to moral considerations. The puzzles can be solved if (a) we reject the assumption that the puzzling attributions of intentionality are attributions of intentional actions, (b) we further reject the assumption that the concepts of intentional action and of intentional omission have a common genus, (c) we adopt certain (not unprecedented) assumptions about each concept, in particular about the relation to the notions of intention and of ability. The presented solution makes use of a reconstruction of the notion of what is within the agent's power to do. I argue that the characteristic asymmetry in attributions of intentionality in Butler's and Knobe's cases is derivative from the asymmetry in intentional omissions. Since the intentional omissions in question are omissions to fulfill negative duties, they are easily mistaken for intentional actions.

Keywords: ability, agentive powers, Butler's problem, intention, intentional action, intentional omission, Knobe effect, knowledge, Lowe

Elżbieta Łukasiewicz, Obligatory Grammatical Evidentials in Natural Languages and Their Epistemological Consequences

The paper is concerned with evidentials, i.e. information-source markers, in natural languages and their influence on our cognition, communication, and justification of our beliefs. In the first part, we present the functioning of different systems of evidentials in the world's languages and discuss in brief how the grammatical structure of different non-Indo-European languages compels their speakers to code the source of information (visual perception, non-visual sensory perception, inference, hearsay, etc.) in practically every declarative sentence. The second part of the paper addresses the issue of how some epistemological ideas connected with the problem of justification of our beliefs, such as internalism, externalism, justified basic beliefs, and

epistemology of testimony, could be reinterpreted in the light of obligatory grammatical evidentiality.

Keywords: evidentials, information-source markers, justification of beliefs, internalism, externalism, basic beliefs, epistemology of testimony

Morteza Sedaghat Ahangari Hossein Zadeh, Triangulation and the Causal Theory of Reference

In his causal theory of reference, Kripke holds that for the causal chain between the name dubbing ceremony and its current use to be maintained, every name borrower should intend to use the borrowed name to refer to the same thing to which the lender used that name to refer. Evans's Madagascar objection shows that merely having such an intention does not explain cases of referent change. I think that the problem can be solved by requiring that the borrower fix her intended referent with the lender's (or with that of the linguistic community to which the lender belongs). For this requirement to be satisfied, I argue, the borrower must triangulate with the lender to determine the common referent, much in the way Davidson suggests in the case of determining the common content. I claim that a similar strategy is adopted by Kroon in his epistemic warrant theory of reference.

Keywords: the causal theory of reference, intention, triangulation, epistemic warrant

Michal Nakoneczny, The Bundle Theory of Particulars and Accidental Properties

In this paper I evaluate four arguments formulated against the Bundle Theory of Particulars: the argument from tautologous subject-predicate discourse, the argument from essentialism, the argument from the impossibility of diachronic change, and the argument from the Principle of Identity of Indiscernibles. I propose a general strategy to deal with those and structurally similar problems and show how this strategy solves the four objections. The offered solution consists in analysing subject-predicate discourse in terms of coexemplification of properties rather than set-inclusion and in postulating that ordinary particulars are not bundles of properties but bundles of higher-order: either bundles of temporal parts (that are bundles of properties), which allows us to escape the problem of impossibility of change over time; or bundles of modal parts, which enables us to refute the argument from essentialism; or bundles of modal parts that are bundles of temporal parts that are bundles of tropes — which clears up both difficulties.

Keywords: the Bundle Theory of Particulars, trope theory, essentialism

Piotr Bulka, Nonlocal Transmission of Information and the Principle of Causality

The quantum mechanical tunneling effect was theoretically described in the first half of the last century, which witnessed the rise of quantum theory and groundbreaking experimental results in nuclear physics. A similar tunneling effect also takes place in the case of EM waves. The wave account (in the case of evanescent waves),

the quantum-mechanical formalism, as well as the electrodynamical one, revealed a phenomenon that is counterintuitive and possibly even inconsistent with the special relativity theory paradigm. In the quantum formalism, the time of wave propagation within a photonic barrier is expressed as an imaginary number, which can be interpreted as the zero speed of propagation. In the nineties, scientists offered further experimental proofs of the theory; in experimental systems constructed for testing EM-waves tunneling, superluminal speed of propagation has been recorded. In the article, I introduce the problem of photon tunneling in the experimental context of the possibility of nonlocal wave propagation and superluminal transmission of information.

Keywords: quantum mechanics, non-locality, principle of causality, information, quantum information, superluminal speed, special theory of relativity