

- DOROTA LESZCZYŃSKA-JASION, *A sequent system for a Boolean non-Fregean logic WB*.

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Logic WB is a Boolean non-Fregean logic introduced to the literature by Roman Suszko [2]. The idea of non-Fregean logics (NFL) stems from Wittgenstein's *Tractatus*, more specifically—the semantics and ontology as suggested by this work [1, 3]. Formally, an NFL is built upon classical propositional logic CPL by adding the identity connective \equiv to the language. Intuitively, ' $\alpha \equiv \beta$ ' is used to express the fact that α and β describe the same situation. The basic NFL proposed by Suszko, sentential calculus with identity (SCI), has a drawback (at least, one may view it as such): hardly anything can be stated about identity of situations in this logic—all SCI-valid equations are of the form ' $\alpha \equiv \alpha$ '.

WB is one of NFLs strengthening SCI by allowing \equiv to have some Boolean properties; for example, ' $(\alpha \wedge \beta) \equiv (\beta \wedge \alpha)$ ' is a validity in WB. Still, \equiv in WB is not truth-functional equivalence.

A little is known about proof-theoretical properties of this logic—the original account is axiomatic. In the talk I present a sequent system for WB (based on idea by Agata Tomczyk) together with a proof procedure by means of which positive decidability of WB is shown. I also introduce a new semantics of truth valuations for WB (as far, only algebraic semantics was available).

[1] ROMAN SUSZKO, *Ontologia w Traktacie L. Wittgensteina (Ontology in the Tractatus of L. Wittgenstein)*, *Studia Filozoficzne*, vol. 1 (1968), pp. 97–121.

[2] ROMAN SUSZKO, *Identity connective and modality*, *Studia Logica*, vol. 27 (1971), pp. 7–39.

[3] ROMAN SUSZKO, *Abolition of the Fregean axiom*, *Logic Colloquium* (Boston 1972–1973), (R. Parikh, editor), vol. 453 of *Lecture Notes in Mathematics*, Springer Verlag, 1975, pp. 169–239.