▸ EMIL JEŘÁBEK, *Admissible rules of Łukasiewicz logic.*

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An inference rule

$$\varrho = \frac{\varphi_1, \ldots, \varphi_n}{\psi}$$

is admissible in a logic L if the set of theorems of L is closed under substitution instances of ϱ, and it is derivable in L if it belongs to the usual consequence relation of L. In classical logic, admissible and derivable rules coincide, but nonclassical logics often admit rules which are not derivable. This leads to many natural problems: description of admissible rules of L, decidability of admissibility in L, bases of admissible rules (i.e., axiomatization of admissible rules as a consequence relation), etc.

Admissible rules have been intensively studied for some modal and superintuitionistic logics (see e.g. [4, 1, 2, 3, 5]), but not much is known for other nonclassical logics. In this talk, we will consider admissibility in Łukasiewicz propositional logic (**Ł**). We will provide a characterization of admissible rules of **Ł**, which shows that admissibility in **Ł** is decidable. We show a *PSPACE* upper bound on its computational complexity. We find a simple basis of admissible rules of **Ł**, and prove that there is no finite basis. All our results apply more generally to admissibility of multiple-conclusion rules

$$\frac{\varphi_1, \ldots, \varphi_n}{\psi_1, \ldots, \psi_m}.$$

Consequently, we also obtain decidability (in *PSPACE*) of the universal theory of free MV-algebras.

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