▶ CEZARY CIEŚLIŃSKI, *On eliminating pathologies in satisfaction classes.*

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By the classical result of Kotlarski, Krajewski and Lachlan (see [3]), pathological satisfaction classes can be constructed in countable, recursively saturated models of Peano arithmetic. Such classes contain nonstandard sentences which are intuitively false (e.g. they are disjunctions of nonstandard length obtained by iterating an obviously false disjunct); but a given model thinks they are true - i.e. they belong to the satisfaction class in this model. We are going to consider the question whether the pathology can be eliminated. The answer depends on the notion of pathology we adopt. It was shown in [1] that pathologies conceived of as sentences disprovable in first order logic are ineliminable - the assumption of closure of truth under first order logic permits us to prove new arithmetical facts, not provable in PA. We are going to show that the same holds also for another natural closure condition which could be imposed on a satisfaction class: closure of truth under sentential proofs generates also a nonconservative extension of PA. Accordingly, a satisfaction class with this property cannot always be constructed.

[1] C. Cieśliński *Truth, conservativeness, and provability*, **Mind**, forthcoming.

[2] F. Engström *Satisfaction classes in nonstandard models of first order arithmetic*, Chalmers University of Technology and Göteborg University, 2002.

[3] H. Kotlarski, S. Krajewski, and A. H. Lachlan *Construction of satisfaction classes for nonstandard models*, **Canadian Mathematical Bulletin** 24 (1981), pp. 283-293.

[4] H. Kotlarski *Bounded induction and satisfaction classes*, **Zeitschrift für Mathematische Logik** 32 (1986), pp. 531-544.