A NOTION OF RECURSIVE SATURATION FOR MODELS OF ARITHMETIC WITH THE STANDARD PREDICATE

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The standard predicate, st, in a model of arithmetic is the predicate of standard natural numbers. A model of arithmetic with the standard predicate is not recursively saturated since the type

$$p(x) = \{x \neq n \wedge \mathrm{st}(x) \mid n \in \omega\}$$

is omitted.

We define a notion of recursive saturation which is more useful in this context: a model M is *standard recursively saturated* if every recursive type, with the standard predicate, over M realized in an ω-saturated elementary extension of M, is realized in M. For countable models, we characterise standard recursive saturation in terms of standard systems.

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