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
\[ p(x) = \{ x \neq n \land st(x) \mid n \in \omega \} \]
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 \( \omega \)-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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