Modules with Few Models over a Serial Ring

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An R-module M is called *uniserial* if the lattice of submodules of M is a chain. A module that is a direct sum of uniserial modules is called *serial*. A ring R is called *serial* if both R_R and ${}_RR$ are (serial) modules. A module (over a countable ring) is said to have *few types* if its theory has only countably many n-types for every natural number n. A module is said to have *few models* if its theory has less than continuum many countable models.

It is proved

Theorem. Let M be a right module over a countable serial ring R. The following conditions are equivalent:

1. M has few types;

2. M has few models;

3. M is Σ-pure–injective.

It gives a generalisation of the previous result of the author [1] that every module with few models over a countable serial ring is Σ-pure–injective.

[1] V. A. Puninskaya, Vaught's conjecture for modules over a serial ring, J. Symb. Logic, to appear.

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