

Re: Universal Algebra Question

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- *From:* magidin@xxxxxxxxxxxxxxxxxxxx (Arturo Magidin)
 - *Date:* Sat, 21 Oct 2006 18:13:56 +0000 (UTC)
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In article <1161389505.554263.276710@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, Snis Pilbor <snispilbor@xxxxxxxx> wrote:

Arturo Magidin wrote:

In article <1161370602.184339.216560@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, Snis Pilbor <snispilbor@xxxxxxxx> wrote:

Hello :)

Burris and Sankappanavar define an "equational class" to be a class A of algebras such that A is precisely the class of algebras of some type F satisfying a set Sigma of identities of type F.

My question is, is there a special name for an equational class which is precisely the class of algebras of some type F satisfying a finite set Sigma of identities of type F? Or in English, the algebras that can be axiomatized by finitely many identities?

Thank you very much =)

Such equational classes are said to be "finitely based".

Thank you very much Arturo Magidin =) As always, you are the unchallenged master of UA :)

I wouldn't go that far, though I do seem to know a bit more about it than the average sci.math reader.

Re: Universal Algebra Question

One more question. If we have a variety, by Birkhoff, it is an equational class. If it happily turns out to be a finitely based equational class, is it proper to refer to it as a "finitely based variety"??

Yes; that is the usual terminology.

(For example, a conjecture that was long-standing was whether every variety of groups was finitely based; the study of varieties of groups was inaugurated by Bernhard Neumann, and he, Hanna Neumann, and others proved that the semigroup of varieties of groups (under variety multiplication given by the Mal'cev product) was a cancellation semi-group with zero and identity. It was proven that a number of varieties were indeed finitely based, and one of the neatest theorems was that of Powell and Oates, who proved that the identities satisfied by a finite group are always finitely based. Alas, in the early 70s it was shown that not every variety of groups is finitely based, and in fact that there are uncountably many distinct non-finitely based varieties of solvable groups).

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"It's not denial. I'm just very selective about
what I accept as reality."
--- Calvin ("Calvin and Hobbes" by Bill Watterson)

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