1 Goncharov and Millar through Bach

T decidable complete theory with countably many countable models. Is the prime model decidable?

Comments: (Bach): There is a description of all theories with decidable prime models: iff you can enumerate the set of principle types. If the saturated model is decidable, so is the prime model. (Julia): This is what Jessica Millar tried to do in her thesis. (Uri): Yes for ω-stable theories, but small does not imply ω-stable.

2 Bach

Is there a saturated computable structure of computable dimension 2?

Comments: (Bach): For prime, the answer is yes.

3 Uri

Is there a strongly minimal modular group so that $SRM((G, +, R_1, \ldots R_n)) = \{0\}$ where the R_i are subgroups of cartesian powers of G.

Comment: This really has a lot to do with the word problem on a division ring. Someone who knows more about word problems and who is willing to dig in, might be able to do this a lot easier than I could. I've given up, but that's no indication that it's hard. It might just take some tools from word problems that I just don't know.

4 Russell

Is there a low differentially closed field (of characteristic 0) with no computable copy?

Yes for low_2, but not known for low.

5 Julia

Two questions closely related about finitely generated groups: For a computable f.g. group, there is a computable infinitary Σ_3 scott sentence.

Is there a f.g. computable group whose index set is Σ^0_3-complete? Is there a f.g. computable group with no computable infinitary $d-\Sigma_2$ scott sentence?

6 Antonio

If $\mathcal{K}$ is a class of countable structures closed under $\cong$, the *categoricity ordinal* of $\mathcal{K}$ is the least α such that $\mathcal{K}$ contains a Δ_α categorical structure.

Obs.: If $\mathcal{K}$ is Π_2-axiomatized (infinitary language) and $\mathcal{K}$ is Σ-small, then it has a computably categorical structure on a cone. Then, on a cone, the categoricity ordinal is 1. Q: What's the effectiveness of this observation?

Question: If $\mathcal{K}$ is not Σ-small, but Π_2, then can it have $\alpha > 1$?

7 Morozov

In $HF(C)$, does there exists a Σ-definable copy of C which is not Σ-definably-isomorphic to the base-copy of C.

Note: Over the reals, this is known if the copy of R that you have is dimension 1, then it is Σ-isomorphic.

Uri: I'm pretty sure that if you can bound how far up the HF-heierarchy the copy is, you can get the Σ-isomorphism.

8 Iskander

If a structure A has a hyp copy, is the degree spectrum of A Δ^1_1.

Note, it would have to have high scott rank (otherwise the degree spectrum would be Δ^1_1.

9 Downey through Bach through Steffen

Suppose A is a linear order, and in every computable copy there is a computable non-trivial self-embedding. Does A necessarily a strongly η-like interval?

An interval is strongly η-like if the equivalence relation of being finitely far apart has a finite bound on the size of classes.

10 Uri

Is it true that for any atomic theory T, there is a theory T^* so that the degree spectrum of T^* is the union of the degree spectra of the non-prime models of T.

Uri at Ted: No really. This came up naturally. I promise.