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Mês de: JUNHO 2013

SEMINÁRIO DE LÓGICA MATEMÁTICA

(Please note the new time!!!!)

Dia 6 de Junho (quinta-feira), às 15h30, na Sala A2-25

Computing Bounds from Arithmetical Proofs.

Stan Wainer

(University of Leeds)

Abstract:

We explore the role of the function $a + 2^x$, and its fast-growing generalizations to higher number classes, in

(i) analysing and measuring the computational content of a broad spectrum of arithmetical theories, and

(ii) providing direct connections to well-known independence results, eg. for PA and Π^1_1 -CA_0.

The fast-growing hierarchy is introduced via Goodstein sequences and the Kirby-Paris independence result for Peano arithmetic. New formalizations of arithmetical theories are introduced, based on the well-known normal/safe variable separation of Bellantoni-Cook. These enable uniform proof-theoretical bounding results, in terms of the fast-growing functions, for a broad spectrum of theories between poly-time arithmetics, PA, and finitely iterated inductive definitions. At the top of this range, the fast-growing function is so large that its natural computation sequence is "bad for gap-embeddability", and therefore it gives the independence, from Π^1_1-CA_0, of Friedman's Miniaturized Kruskal Theorem for labelled trees.

Reference: Schwichtenberg and Wainer, "Proofs and Computations", ASL Perspectives in Logic, CUP 2012.

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