



Mês de: Maio 2010

GRUPO DE TRABALHO EM QUESTÕES LÓGICAS (GTQL/WGLQ)

Dia 20 de Maio (quinta-feira), às 14h, na Sala B1-01

“A Topos theoretic model for intuitionistic analysis
(continuation from the GTQL seminar of May 6)

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Abstract:

The concept of Topos originated simultaneously with the work of Lawvere in categorical foundations of set theory and the work of Grothendieck in algebraic geometry concerned with generalizing the notion of a category of sheaves over a given topological space. It was latter shown the toposes are natural models for typed intuitionistic first-order logic and that the particular class of Grothendieck toposes provide a semantics that unifies Cohen's forcing techniques and Kripke's semantics for modal and intuitionistic logics. Grothendieck Toposes are categories of sheaves over an arbitrary category endowed with a generalized notion of topology. In these talks I will first present the basics of topos theory and topos semantics, specializing in the sheaf-theoretic case of Grothendieck toposes. I also will show how natural numbers, rationals and real numbers are seen in this framework, reviewing the construction of the reals by Dedekind cuts. Finally I will present a concrete example of a Grothendieck topos which is a model for intuitionistic analysis. Brouwer's famous 1924 result "all functions are continuous" becomes a valid statement in the internal language of this topos.

General Reference:

S. Maclane, I. Moerdijk - Sheaves in Geometry and Logic, Springer.

(I will give more references in each talk)

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