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SEMINÁRIO DE LÓGICA MATEMÁTICA

Dia 12 de Janeiro (sexta-feira), sala 6.2.33 às 15:00

Collection in Proof Mining: a general principle

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Abstract:

Proof mining is the research program that aims to analyse proofs of mathematical theorems in order to extract hidden quantitative information – such as rates of convergence, rates of metastability and rates of asymptotic regularity. Proof theoretical tools like Kohlenbach's monotone functional interpretation ([1]), a variant of Gödel's Dialectica, are of standard use. A newer functional interpretation was introduced by Ferreira and Oliva in 2005 ([2]), dubbed the bounded functional interpretation (BFI). In recent work, a general principle was developed to analyse certain proofs that rely on a weak sequential compactness argument. By using a principle of bounded collection, we are able to consider an alternative simpler proof in a setting suited for an analysis with the BFI.

In this presentation I will explain how the BFI can be used in Proof Mining and present this general principle. We finish with some examples that illustrate the application of this general principle.

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