

SEMINÁRIO

LÓGICA MATEMÁTICA

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Completeness of the random graph

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ABSTRACT:

A graph with a countably infinite many vertices is said to be random if for every two disjoint sets of vertices A and B , there exists a vertex which is related with every vertex in A and none of the vertices in B . The study of random graphs was motivated by the search of the probability of a certain property occur in a graph. Fixing $p \in [0,1]$, we can think at a random graph as being obtained by starting with a set of isolated vertices and adding edges between them at random, where each edge as probability p of occurring. It might not be immediate that we can use logic to study these structures, especially because the main models for random graphs are based essentially in probability, for example, the binomial random graph or the uniform random graph (S. Janson, A. Rucinski, T. Luczak, 2000), but in fact we can. In this seminar, after describing the set of axioms of the random graph, we will prove its completeness by using the Vaught's test, and take a few conclusions about the set of all sentences true almost surely. For that, several concepts and results in model theory will be recalled.

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