

Topological Semantics of Modal Logics

Maria Nogin

November 8, 2007

Abstract

We will discuss how different logics describe properties of various topological spaces. Namely, we start with the classical logic which describes the algebra of sets (with no topology): conjunction corresponds to intersection, disjunction corresponds to union, negation corresponds to complement, etc. A modal logic is the classical logic extended with one or more additional operations (with certain axioms), called modalities. These additional operations may have various interpretations in topology. For example, we can interpret a unary logical operation as the interior of a set. In this talk we will describe known correspondences between logics and topological spaces as well as present a few open questions.

This talk and some of the open questions presented will be accessible to graduate and advanced undergraduate students.