

## Abstract

The thesis follows on Petr Vopěnka's alternative theory of sets and semisets by extending notions of infinite closeness and monad for real spaces of several variables. It specifies and explains on examples the basic terminology of this theory, namely notions of sets, semisets and domains. It brings up two worlds — an ancient and a classical one — by which it shows a dual way of looking at real functions of several variables. That is used for examining local properties like continuity, limit or derivative of a function at a point. The peak of the thesis is an alternative formulation of the implicit function theorem and the inverse function theorem. The thesis also contains translation rules, which allow us to reformulate all these results from an alternative into a traditional formulation used in mathematical analysis.