

The abstract of the diploma thesis “Positive Formulas for Some Substructural Logics” by Pavel Truhlar

We will examine which distributive substructural logics, as defined in the book of Restall “An Introduction to Substructural Logics” have the same positive fragment with and without the weak excluded middle axiom. The main result of this diploma thesis is that some substructural logics have this property.

We repeat the basic notions as described in the Restall’s book, especially the consecution, natural deduction, frame semantics, Hilbert system. We will use the soundness and completeness theorems. We also will use the equivalence of natural deduction systems and Hilbert systems. All these important theorems are in the above mentioned Restall’s book.

We make the proof of our main result in the next part. We will use the semantics of frames, similarly as de Jongh and Zhao in the article “Positive Formulas in Intuitionistic and Minimal Logic”. We will define the top model. After, we define the construction which converts a model to the top model. We define for each formula the positive part of it; this is the formula, which behaves the same way on the top models as the original formula. We use Hilbert type calculus to formulate our main theorem. We prove our main result using the deduction theorem for certain types of Hilbert type calculus. We list at the end the logics, for which we proved that have the same positive fragment with and without the weak excluded middle axiom.