

I. Tutorial on Substructural Logics (1 hour) Hiroakira Ono

Substructural logics were originally introduced as logics which lack some of structural rules of contraction, weakening and exchange when formulated as sequent systems. Many important nonclassical logics, including relevant logics, linear logic, many-valued logics and fuzzy logics, can be regarded as substructural logics.

In this tutorial, we will give an overview of substructural logics. After giving introductory explanations on Gentzen's sequent systems for intuitionistic and classical logics, and discussing roles of structural rules, we introduce the substructural logic *FL* and the general concept of substructural logics over *FL*.

Then, we will focus on proof-theoretic aspects of substructural logics. We consider cut elimination and its consequences, including decidability and disjunction property. We discuss also deducibility in substructural logics and various forms of deduction theorems.