

Relations between assumption-based approaches in non-monotonic logic and formal argumentation

Jesse Heyninck and Christian Straßer

In this talk we make a contribution to the unification of formal models of defeasible reasoning. We present several translations between formal argumentation frameworks and non-monotonic logics for reasoning with plausible assumptions. More specifically, we translate:

- 1) adaptive logics into assumption-based argumentation and ASPIC+
- 2) ASPIC+ into assumption-based argumentation and
- 3) (a fragment of) assumption-based argumentation into adaptive logics.

Adaptive logics are closely related to Makinson's default assumptions and to a significant class of systems within the preferential semantics in the vein of KLM and Shoham. Thus, our results also provide close links between formal argumentation and the latter approaches. Furthermore, we show that ASPIC+, which allows arguments to be derived from defeasible assumptions, and defeasible rules that have a preference ordering, can be translated into assumption-based argumentation, an argumentation system that only allows for defeasible assumptions without preferences.