TECHNISCHE UNIVERSITÄT DRESDEN

Faculty of Computer Science Institute of Theoretical Computer Science, Chair of Automata Theory

Introduction to nonmonotonic reasoning

Winter Semester 2019/20

Exercise Sheet 12 – Belief Revision

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Exercise 12.1 We turn to belief revision, more precisely to expansions.
Show that $T^+_{\varphi\wedge\psi} = (T^+_\varphi)^+_\psi$.

Exercise 12.2 Let $^-$ be a contraction function.
Show that either $T^-_{\phi\wedge\psi} = T^-_\varphi$ or $T^-_{\phi\wedge\psi} = T^-_\psi$ or $T^-_{\phi\wedge\psi} = T^-_\varphi \cap T^-_\psi$.

Exercise 12.3 Revision is a kind of nonmonotonic inference.

(a) Rephrase the AGM postulates for revision functions * by a nonmonotonic inference operation C^-_φ.

(b) Which of the basic properties of nonmonotonic inference operations are fulfilled by C^-_φ? Give proofs (or counter examples) for each of them.