Nonmonotonic Reasoning

Winter Semester 2017/18

Exercise Sheet 2

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Exercise 2.1 We consider the example $T = (W, D)$ with $W = \{german\}$ and $D = \{\frac{german \,:\, drinksBeer}{drinksBeer}\}$ again. Verify that $E = Th(german, \neg drinksBeer)$ is a minimal set of formulas which is deductively closed, includes the theory's facts and is closed under the application of the defaults.

Exercise 2.2 We consider again Example 3.3 from the lecture: $T = (W, D)$ with $W = \{a\}$ and the defaults from D:

$$\delta_1 = \frac{a : \neg b}{\neg b}, \quad \delta_2 = \frac{b : c}{c}$$

Why is $\Pi = (\delta_1, \delta_2)$ not a process?

Exercise 2.3 Why is $Out(\Pi)$ not required to be deductively closed?

Exercise 2.4 Show that if all defaults in Π occur in Π', then $In(\Pi) \subseteq In(\Pi')$ and $Out(\Pi) \subseteq Out(\Pi')$.

Exercise 2.5 Prove Lemma 3.9: Let $E' \subseteq E$ and F be a set of formulas closed under some set of defaults D w.r.t. E'. Then F is closed under D w.r.t. E.