Modeling Error Explanation

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1 Explanation Algorithms

1. Consider ontology $\mathcal{K} = (\{\alpha_1, \alpha_2, \alpha_3, \alpha_4\}, \emptyset)$:

 $\alpha_1 : B \sqsubseteq \forall R^- \cdot \neg A,$

 $\alpha_2 : A \sqsubseteq \forall R \cdot \neg B,$

 $\alpha_3 : C \sqsubseteq A \sqcap \exists R \cdot B.$

 $\alpha_4 : D \sqsubseteq C$

Find all MUPSes for unsatisfiability of the concept C using either the CS-tree algorithm or the Reiter algorithm. How many runs of the tableau algorithm (for \mathcal{ALCI} in this case) were necessary? You can check your results using Protégé explanation functionality.

2 Modeling Error Explanations Practically

- 1. Download and set up the Pellet system (see previous seminar).
- 2. Download the Pizza ontology.
- 3. Find all explanations for unsatisfiability of IceCream using Pellet system (command explain).
- 4. Explanations can be used not only for unsatisfiability, or consistency, but for any entailment. Try to explain selected axioms in the class hierarchy according to your choice (Pellet switch --hierarchy)