Artificial Intelligence: Questions to Exercise 8

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1. Give a simple top level ontology of the following structures, represent the concepts using relations, and attributes.

   - University system—consisting of faculties, departments, teachers, classes, students, courses, etc.
   - Organizational ontology of a project based software company.

   With a top level ontology we mean a taxonomy with simple "is-a" relations. An example is given in Fig. 1

2. With the following (false) argument, one could claim that PL1 is decidable: We take a complete proof calculus for first order predicate logic (PL1). With it we can find a proof for any true formula in finite time. For every other formula Φ I proceed as follows: I apply the calculus to $\neg\Phi$ and show that $\neg\Phi$ is true. Thus Φ is false. Thus I can prove or refute every formula in PL1. Find the mistake in the argument and change it so it becomes correct.
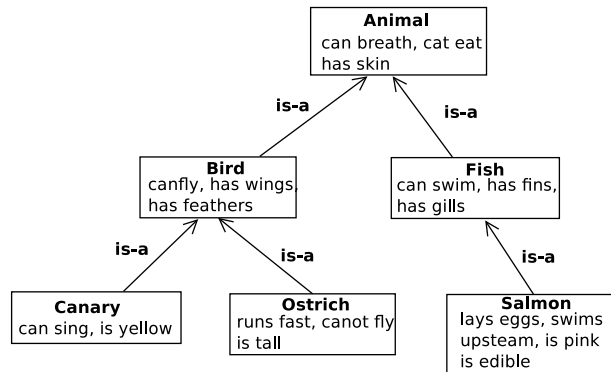
Figure 1: Part of a top level ontology for birds with simple concepts and classes including attributes. The concepts are related via simple "is-a" relations.