

Artificial Intelligence for Robotics – Lab

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Assignment 11

Due Date: Sunday, 28.1.2017, 23:59

1. Answer the following questions:

- What is the main disadvantage of Propositional Logic (PL)?
- What are quantifiers?
- What are the three basic entities in First Order Logic (FOL)?
- What is a model in FOL?
- What is the domain of a model?
- What is interpretation?
- What is the difference between predicate symbols and function symbols?
- When is an atomic sentence true in a model?
- What is substitution?
- How to represent the Universal Quantifier in PL?
- How to represent the Existential Quantifier in PL?
- What is quantifier duality?
- What are assertions?
- What is a query?
- What is the diagnosis rule?
- What is the casual rule?

2. Represent the following sentences in FOL, using a consistent vocabulary (which you must define first):
- Some students took French in spring 2001.
 - Every student who takes French passes it.
 - Only one student took Greek in spring 2001.
 - The best score in Greek is always higher than the best score in French.
 - Every person who buys a policy is smart.
 - No person buys an expensive policy.
3. Consider a knowledge base containing just two sentences: $P(a)$ and $P(b)$. Does this KB entail $\forall x P(x)$? Explain your answer in terms of models.