Governors State University
CPSC 4560/6560: A.I. Fundamentals
Project

This project aims to expose you to *Prover9*, an automatic theorem prover that can help you devise your refutations.

Consider the following helpful pointers for downloading Prover9 on Windows:

1. Download the Installer:
    - https://prover9-mace4.software.informer.com/download/downloading
    - Alternatively, you can directly download the executable file from this link: https://www.cs.unm.edu/ mccune/prover9/gui/Prover9-Mace4-v05-setup.exe
2. Install Prover9
    - Run the downloaded executable file to install Prover9.
    - **You will encounter an error when you try to run Prover9**; proceed to the next step.
3. Download the Required File
    - Download the additional required file from the following link, it is *"MSVCP71.DLL"*: https://www.cs.unm.edu/ mccune/prover9/gui/v05.html
4. Move the Downloaded File
    - Locate the folder where Prover9 was installed (likely in 'Program Files (x86)').
    - Move the downloaded file from Step 3 into the Prover9 installation folder.
5. Now, Prover9 should run without any issues!

For this project, you will solve the following two puzzles. For each puzzle:

1. Represent the clauses in first-order logic.
2. Convert the logic sentences to clause form, skolemizing as necessary
3. Use Prover9 to perform automatically the refutation.

Project Submission Guideline
Your report should consist of the following for each puzzle:

1. Predicate Form
2. Clause Form
3. Assumptions and goal
4. Prover9 Proof

Puzzle 1

1. Dogs like bones.
2. Dogs eat everything they like.
3. Max is a dog.
4. (Conclusion) Max eats bones.

Puzzle 2

1. Every bird sleeps in some tree.
2. Every loon is a bird, and every loon is aquatic.
3. Every tree in which any aquatic bird sleeps is beside some lake.
4. Anything that sleeps in anything that is beside any lake eats fish.
5. (Conclusion) Every loon eats fish.