

CS 6364: Artificial Intelligence

Homework 2: Logic Puzzles (20 points)

Due: 3/9/2020 at 4 pm.

For this assignment, you will use Prover9 - an automated theorem prover for first-order logic.

Consider the sentences given below:

1. Anyone who eats a pizza is a happy character
2. Every foodie eats [something that is] either a pizza or a salad
3. Anyone who eats a salad is healthy
4. Every healthy person goes to the gym
5. Any nice girl does not date anyone who is a happy character
6. Ann is a nice girl, and Peter is a foodie
7. (Conclusion) If Peter does not go to gym, then Ann does not date Peter.

Represent these sentences in first order logic, using only these predicates:

Eats(x,y), Pizza(x), Salad(x), Happy(x), Healthy(x), Foodie(x), Gyms(x), Nice(x), Dated(x,y).

Convert the logic sentences to clause form, skolemizing as necessary.

Using Prover9, show that the conclusion is true by using resolution refutation (i.e. negate the conclusion and show its unsatisfiability with the rest of the knowledge base).

Submit a report with the following details:

- Assumptions and goal
- The input and output of prover9. (Paste as plain text in the report)
- Conclusion

Some useful links:

1. [Installation](#)

For linux users, install python-wxtools also.

2. [Help Manual](#)

3. [Simple tutorial](#)