Reading 19: A First Look at Prolog

# Exercise 1: Summarize

Prolog is a logic programming language that uses terms, facts, and rules to solve problems declaratively and procedurally, with capabilities for list operations, unification, and handling logical puzzles.

# Exercise 2: Demonstrate & Explain

% Facts

ingredient(tomato).

ingredient(olive\_oil).

ingredient(garlic).

ingredient(salt).

ingredient(pepper).

ingredient(onion).

ingredient(oregano).

ingredient(milk).

ingredient(worcester\_sauce).

ingredient(ground\_beef).

ingredient(bay\_leaf).

ingredient(red\_wine).

ingredient(carrot).

ingredient(celery).

% Rules

prepped(garlic, minced).

prepped(carrot, minced).

prepped(celery, minced).

prepped(tomato, minced).

prepped(onion, minced).

% Steps for cooking Bolognese sauce

step(1, heat(olive\_oil)).

step(2, add(onion, minced)).

step(3, add(carrot, minced)).

step(4, add(celery, minced)).

step(5, cook\_until\_soft(onion, carrot, celery)).

step(6, add(garlic, minced)).

step(7, add(ground\_beef, ground)).

step(8, cook\_until\_browned(ground\_beef)).

step(9, add(milk)).

step(10, simmer\_until\_reduced(milk)).

step(11, add(red\_wine)).

step(12, simmer\_until\_reduced(red\_wine)).

step(13, add(tomato, minced)).

step(14, add(worcester\_sauce)).

step(15, add(bay\_leaf)).

step(16, add(oregano)).

step(17, season\_with(salt, pepper)).

step(18, simmer\_for(two\_hours)).

% Test Queries

% Check the steps

step(1, What);

step(Step, cook\_until\_soft(onion, carrot, celery));

step(Step, add(garlic, minced));

step(Step, add(milk));

step(18, What).

% Output

What = heat(olive\_oil)

Step = 5

Step = 6

Step = 9

What = simmer\_for(two\_hours)

This prolog explains the ingredients and steps to make a Bolognese sauce for a fancy date night dinner.

# Exercise 3: Inquire

Given the code above, explain what prepped/2 means. How can you simplify the Rules by changing the arity.