Our lab works heavily with how natural language can be interpreted and handled for more seamless Human Robot Interaction. This project deals specifically with interaction regarding the management of medication and health care for elderly, who may use language that is not direct enough to be as easily parsed and needs to be handled in a more delicate manner.

**Goal**

Build a robotic system to be used by a robot for taking in natural language commands about medication and caregiving, preform necessary safety checks, and then execute the commands as deemed appropriate.

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**Implicative Language as input**

Given an abstract statement, the system will classify the statement as either a command, a statement or a non-medical sentence.

- A sentence will be considered a **command** if it contains a verb implying action from the robot onto the user.
- A sentence will be a **statement** if it contains a symptom adjective, or some implication of need for care that should prompt for the robot to act.
- A sentence will be classified as **unrelated** if there is no implication of the robot or medical need but still needs to be addressed.

**System Architecture**

- **Natural language sentence**
  - Syntactic Parser
    - Verb qualifiers
      - WordNet
        - Synonyms
        - Semantic parser
  - Drug database
  - Alternative drug prompt
  - User Profile
  - Action decided upon
  - Robot

**Mapping Implied Verbs to Grounded Action**

Given verb qualifiers from the natural language sentence, a group of synonyms is found from WordNet for that verb along with other syntactic features, that are then used as features for the semantic parser. The semantic parse is then used to choose actions for the system to preform.