

## The last mile: Integration of language, reasoning and planning

The last assignment is a set of integration steps for the end of the quarter. The end game is a complete integration of:

- Language understanding for asserting facts
- A knowledge base that supports inference
- A means/ends analysis planner that is directed using natural language requests
- Language generation that can answer questions and report on progress in taking actions.

We will explore this system in a simple blocks world environment.

In theory, the only component that you do not have in place is the language generation piece, which we will discuss in class on 11/22.

The step will be as follows:

### Step one: Connecting language to KB (Due 11/29)

- Connect the natural language understanding component to our KB so that we can **Assert** and **Ask**.
- Build out the fact layer of the KB using language input.
- Build out the rules by defining them directly.

### Step 2: Building out the Planner (Due 12/01)

- Define a set of Blocks world actions that impact the KB. It will have:
  - Preconditions or statements that have to be true for an action to run.
  - Statements that can be **Asserted** when an action is run.
  - Statements that are **Retracted** when an action is run.

### Step 3: Integrating language with the planner (Due 12/06)

- Connecting the output of the NLU system with the Planner.

### Step 4: Generating language from true facts (Due 12/08)

- Build a simple generator for the production of language from statements in the KB.