Lab 11: Semantic Parsing with SippyCup

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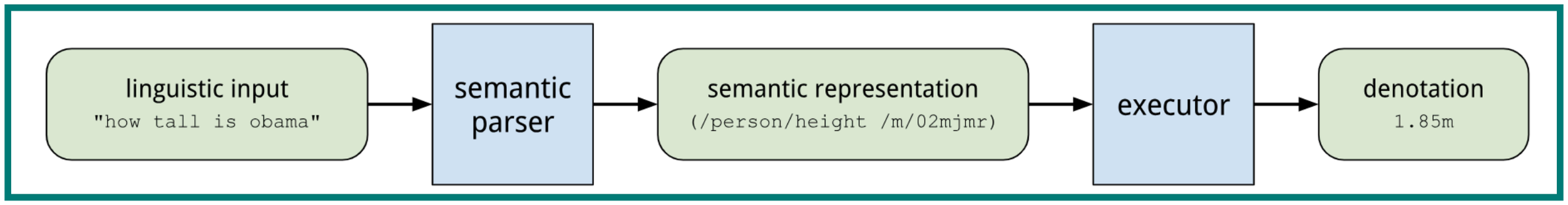
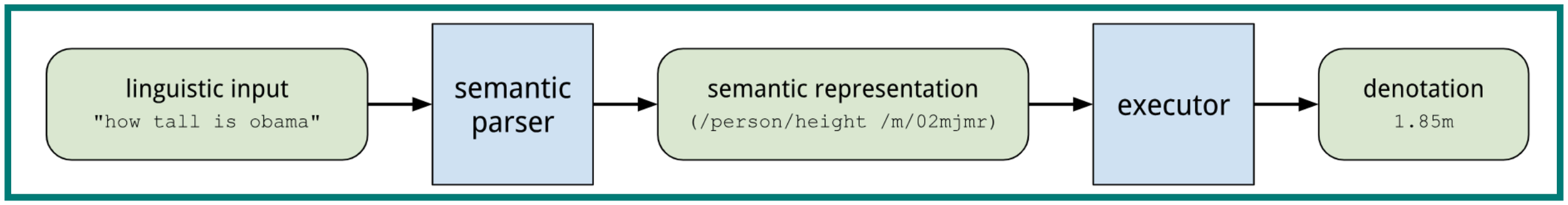
Semantic Parsing



Good semantic representations that are **machine readable.**

Figure taken from SippyCup tutorial by Mccartney (2015)

Semantic Parsing



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Ambiguity resolution: single input with multiple possible semantics representation

Canonicalization: multiple inputs with a shared semantic representation

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Semantic Parsing Data

Want **linguistic diversity!**

- There many *many* ways to say a single thing.
- Your data sample should reflect the diversity of real-world usage.

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However… toy problems are useful tools for learning and testing.

Natural Language Arithmetic

- Our toy problem is directly inspired by Liang & Potts (2015).
- Interpreting expressions of natural language arithmetic, such as:
  - "one plus one”
  - "three plus three minus two”
  - "two times two plus three”
- Has a **small**, **closed**, **vocabulary**, and the **syntax is simple**.

Method Overview

- Make some data (the input)
- Choose a semantic representation (the target)
- Syntactic parsing: write a CFG and an algorithm that will enumerate all possible parses of an input text
- Adding semantics in our grammar! Lexical and compositional rules. (eg, “one” is 1)

Voila!

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Jupyter notebook!