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Sybil

A Natural Language Librarian

Presentation Outline

- What is a Natural Language Librarian?
- “The Plan”
- Design
- Implementation
- Result
- Planned Work
- Division of Labor

Overview - What is a Natural Language Librarian?

- Advanced personal assistant
- Understands and stores information the user gives it
- Recalls that information when asked by the user
- Recognizes natural language

Challenges

- Be able to differentiate between a question and a new piece of data
- Be able to store the “semantic meaning” of a piece of knowledge
- Comparing the current question and the stored semantics and select the most likely correct answer
- Knowing when Sybil doesn't know the answer

The Plan: “How will we Implement it?”

- NLTK (Natural Language Toolkit)
- Gensim (Topic Modeling for Humans)
- An Android application for easy access
- Learn by Example the difference between a question and new data
- Use Version Space Search to look through stored data to answer a user question

**“No plan survives first contact
with the enemy”**

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- Helmuth Karl Bernhard Graf von Moltke
Chief of Staff of the Prussian General Staff

Design

- The user must first fill Sybil with the data they want it to hold
- The user can ask Sybil any questions about the data that is stored
- Sybil can then search through its stored data to see if it has an answer
- Output the answer (if found) in a coherent manner



Implementation

- NLTK (Natural Language Toolkit)
 - Tag words as certain parts of speech to format output from data
 - Searches for synonyms
- Simple Query Analysis
- Deployed on Heroku with a Facebook chat client

Sybil my software project is due next Tuesday

my keys are taped to the roof of my car

S
Sybil Thanks, I'll remember that!

where are my keys?

S
Sybil my keys are taped to the roof of my car

my uncle is Helmuth Karl Bernhard Graf von Moltke

S
Sybil Thanks, I'll remember that!

who is my uncle?

S
Sybil I'm sorry, I do not know the answer to that.

what is my uncle helmuth's name?

S
Sybil I'm sorry, I do not know the answer to that.

what is my uncle helmuth 's name?

S
Sybil my uncle is Helmuth Karl Bernhard Graf von Moltke

Planned Work

- Improve reply syntax
- Speed up response time
- Include intelligent Date/Time recognition
- Support multiple users
- Android application

Team 5

Sam Borick

- User Interface
- Question Identification
- Algorithm Refinement
- Deployment

Charles Jusko

- Data Storage
- Question Answering
- Algorithm Design

Questions?

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Contribute at
github.com/mibzman/sybil
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