1 Natural Language Processing Background

- Basic concepts


- Pretrained language models


Supplemental Readings


2 Question Answering for Structured Data


**Supplemental Readings**


### 3 Semantic Parsing for Dialogue Agents


Supplemental Readings

- Data acquisition for dialogue state tracking (WOZ)

- Dialogue semantics

- Dialogue state tracking

3
4 Large Language Models


5 Advanced Natural Language Understanding Topics

5.1 Multi-lingual Assistants


Supplemental Readings


5.2 Error Recovery


5.3 Text-Based Question Answering


Supplemental Readings


5.4 Chatty Dialogues


6 Assistant Architectures

6.1 The Anatomy of Virtual Assistants


6.2 Multimodal Assistants


Supplemental Readings


6.3 Automatic Speech Recognition and Speech Synthesis

