

Advanced Applications for Local Language Computing



Sarmad Hussain

Center for Research in Urdu Language Processing
National University of Computer and Emerging Sciences

Overview

- ▶ Content Development
 - Optical Character Recognition System
 - Automatic Speech Recognition
- ▶ Content Access
 - Text to Speech System
 - Machine Translation

OCR

Scanned Text Document

- Neural Network
- Neural Network Cluster
- Fuzzy Logic Engine
- ...



- Noise
- Skew
- Non-text



- Recreate doc
- Spell Check
- Re-classify
- Format for output



- Columns
- Lines
- Words
- Ligatures
- Characters
- Diacritics/marks



Text Document

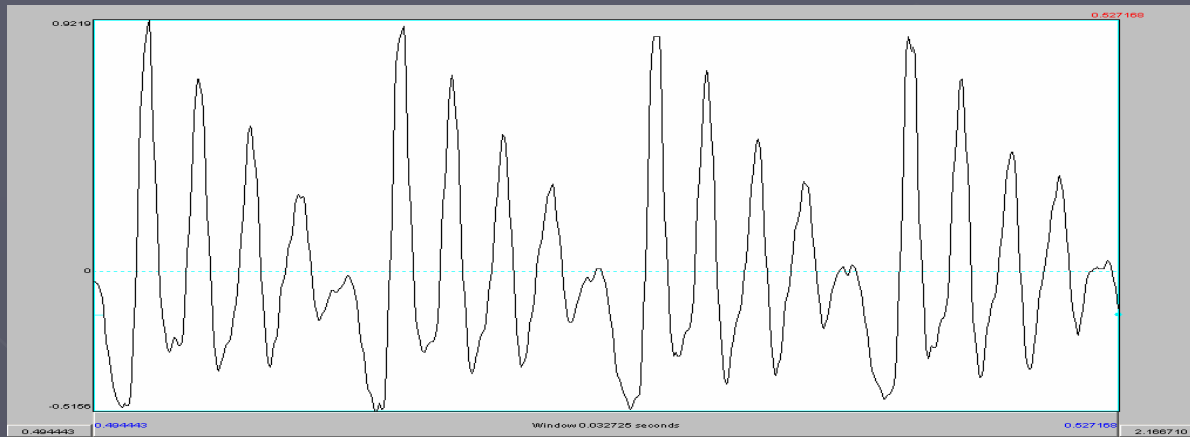
ASR

Application Layer (e.g. Dragon Naturally Speaking)

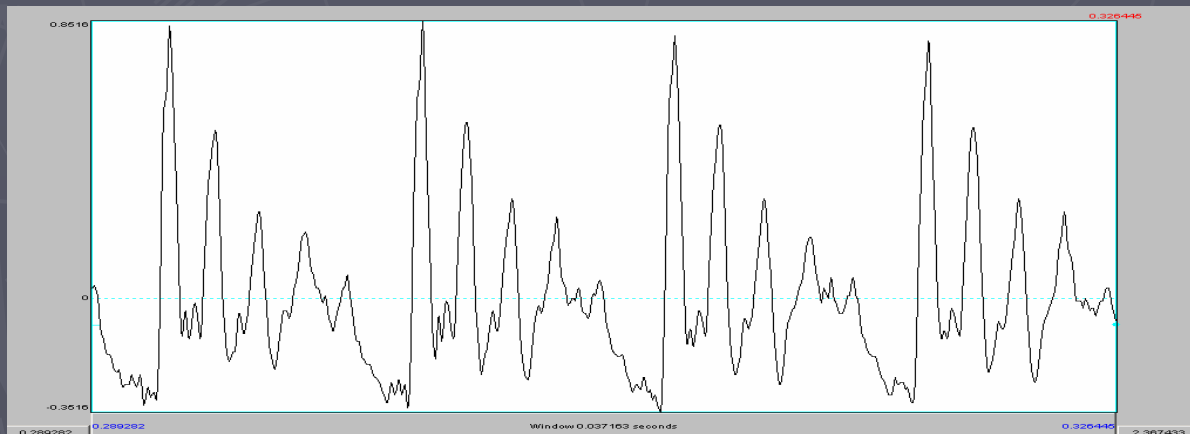
Language Layer (e.g. IBM ViaVoice)

Engine
(e.g. HTK)

Challenge: Variability in Speech Signal

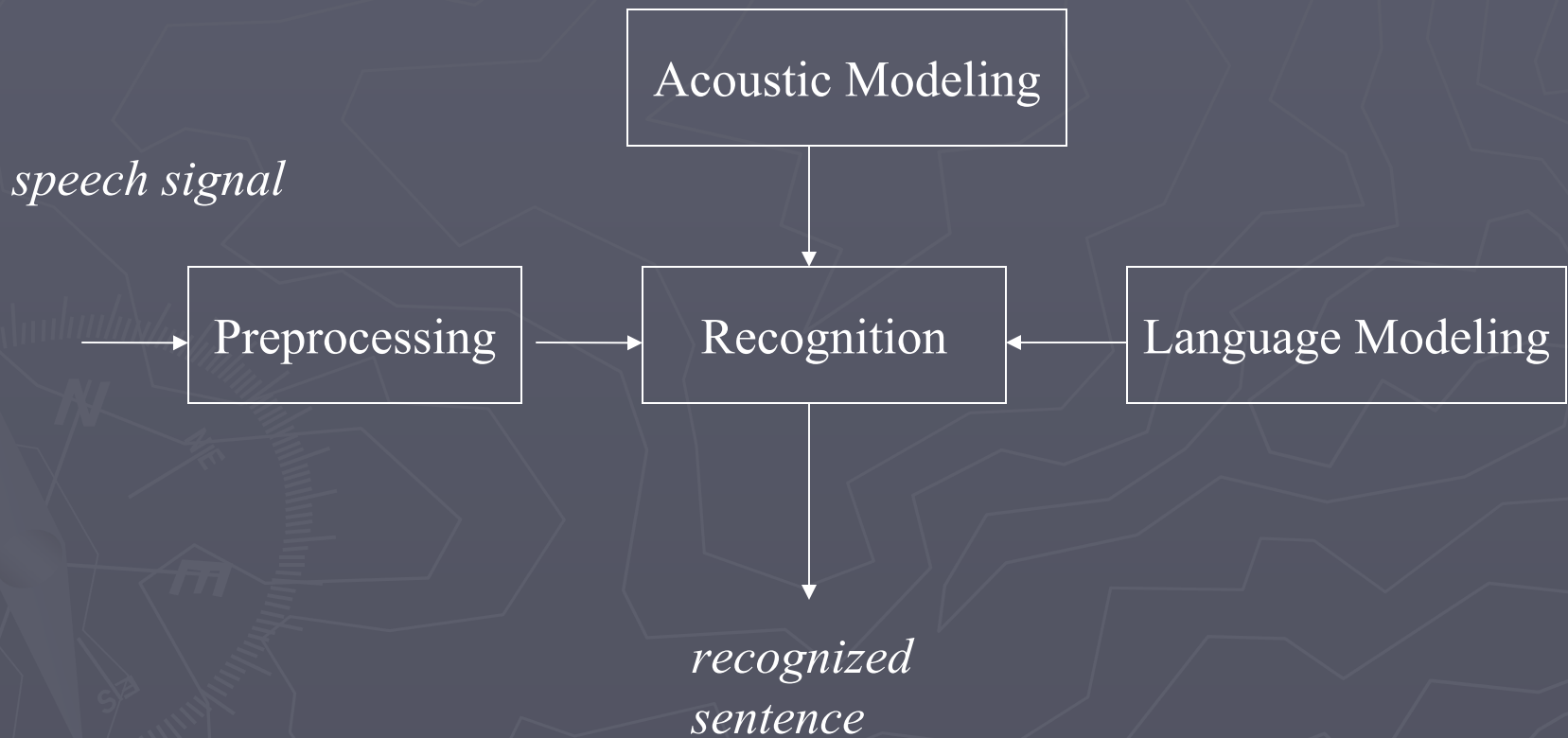


/baba/

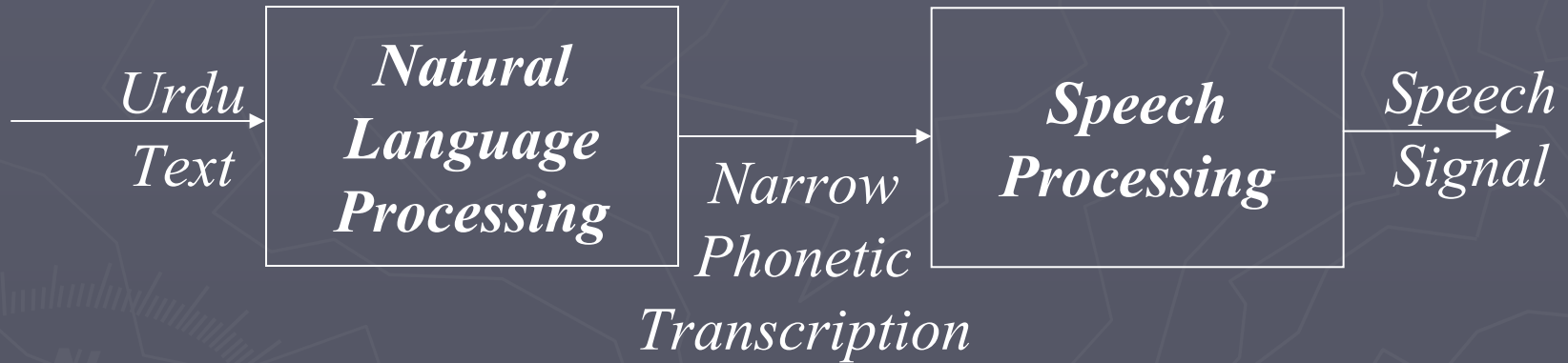


/baba/

ASR



TTS

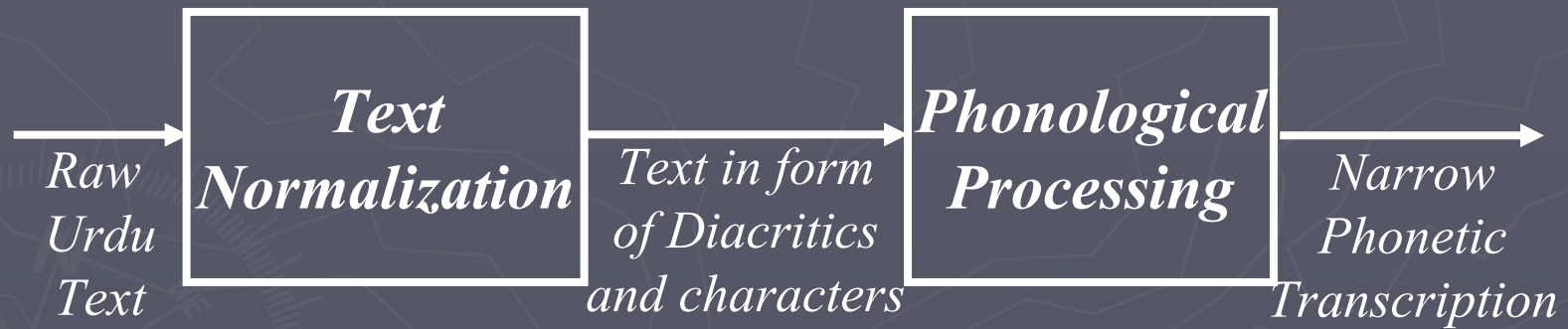


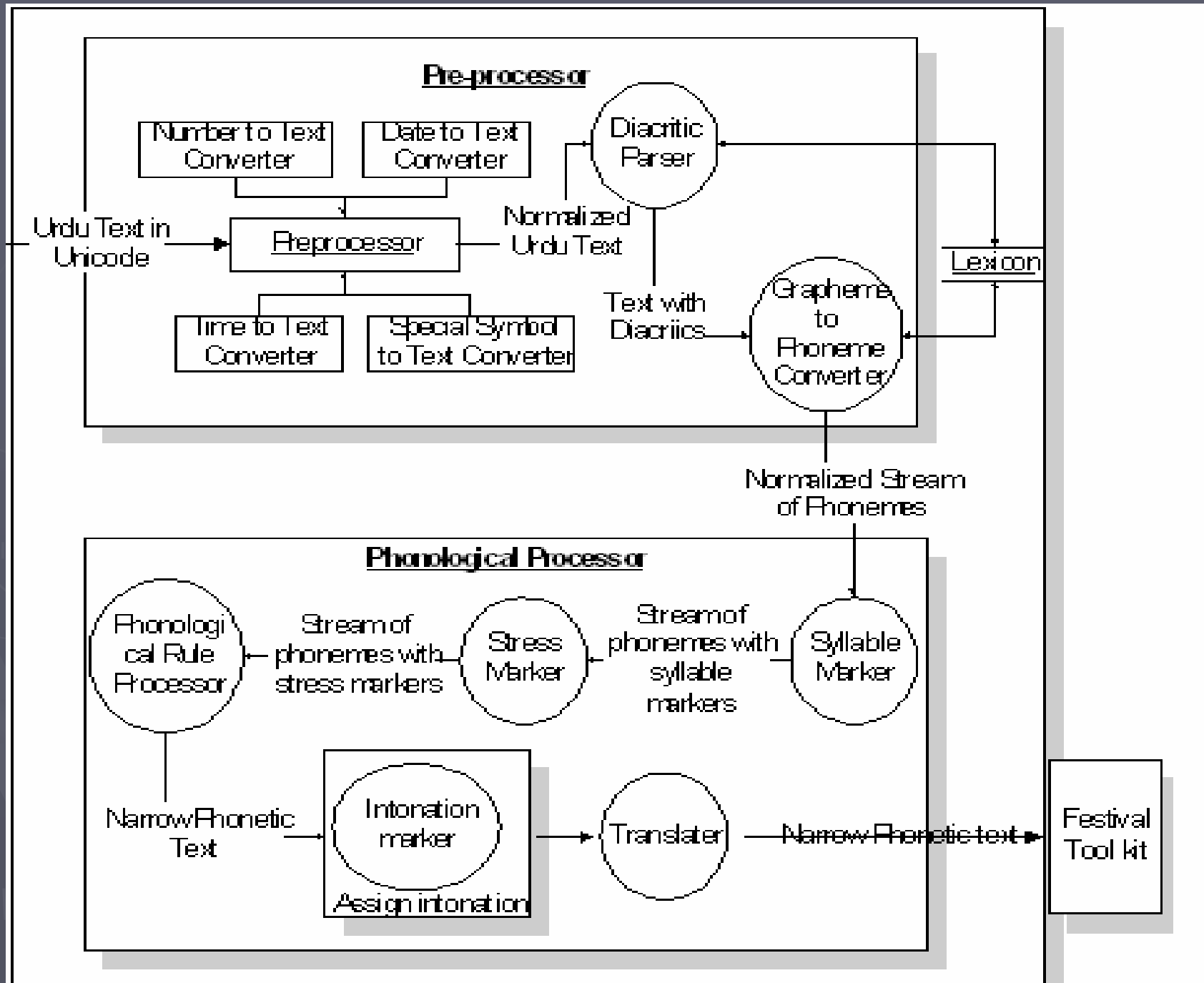
بابا آیا ام لایا

→ ['ba.ba 'a.ya 'am 'la.ya] →

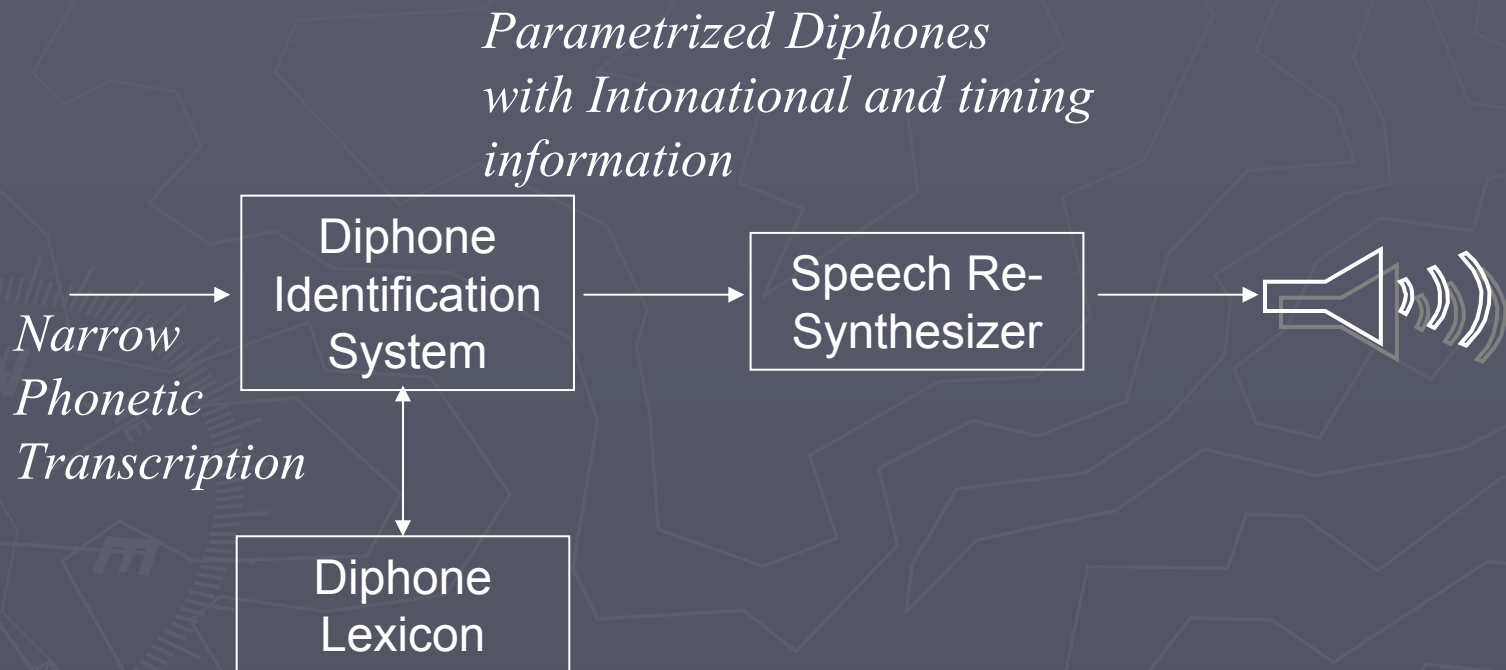


TTS - NLP

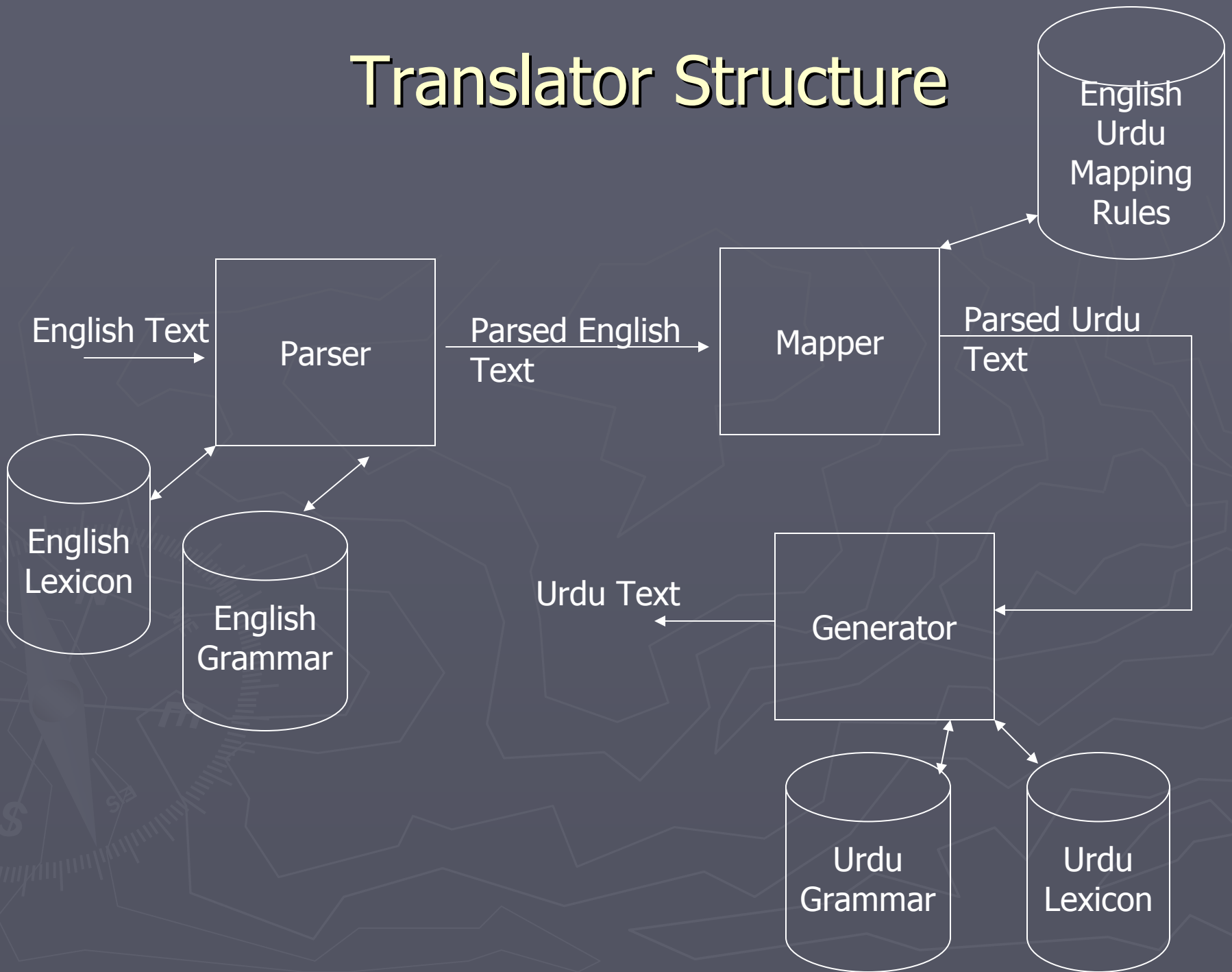




TTS – Speech Processing



Translator Structure



Thanks

