

# NLP/ASR

## Unit 1: Introduction to NLP



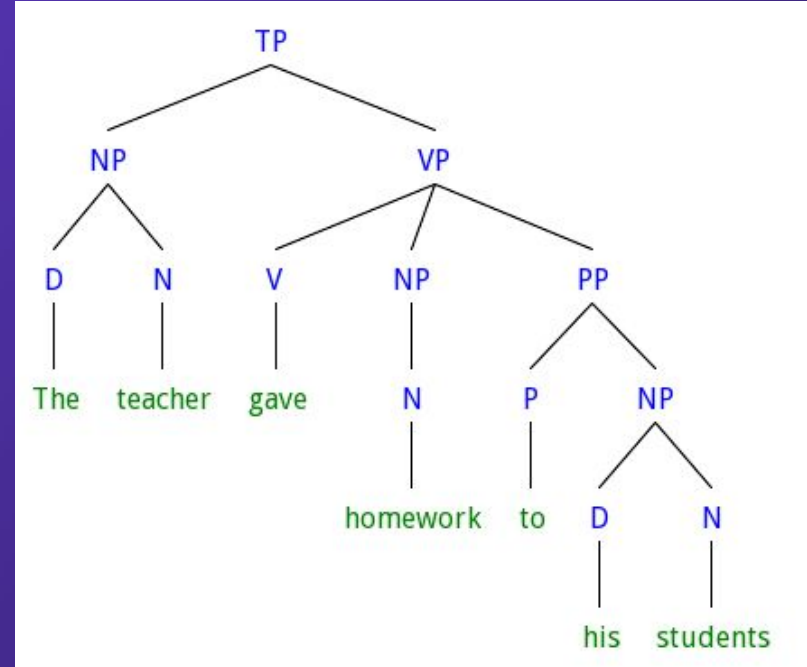
# 1.1.1

## Basics of NLP

Introduction to NLP

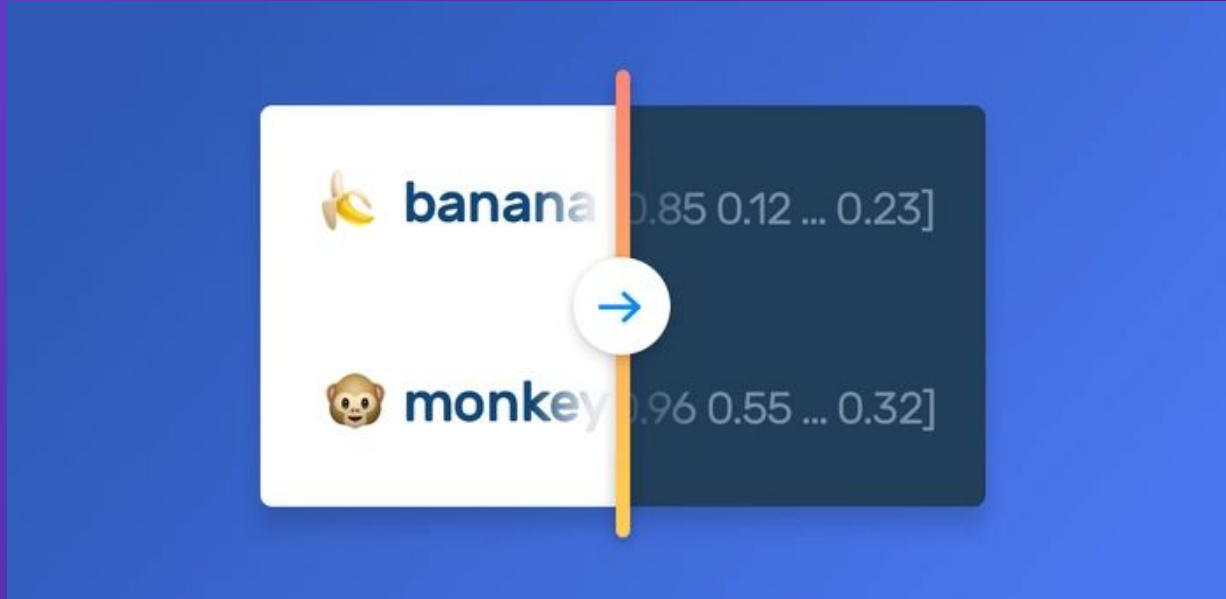
# Language: A Complex System

- It's not just words; it's grammar, meaning, and context
- Ambiguity, slang, and idioms - the richness that trips up computers
- Languages constantly change and evolve



# From Words to Numbers

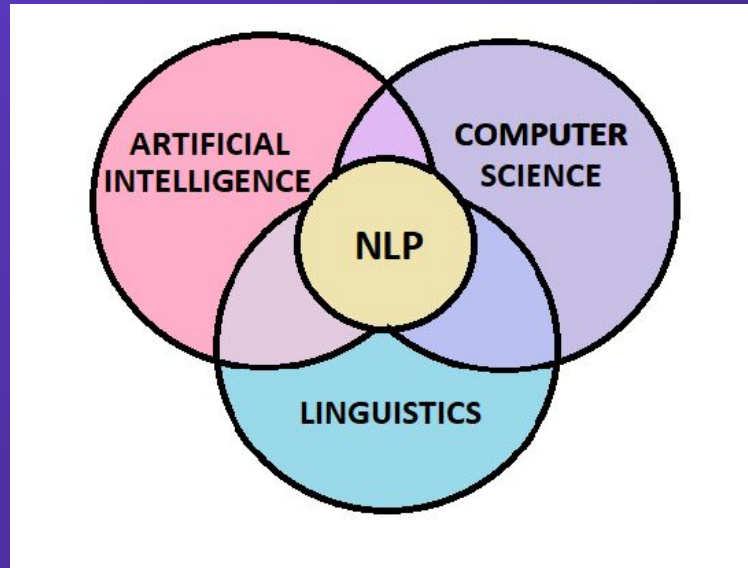
- Capturing relationships and context through numerical patterns



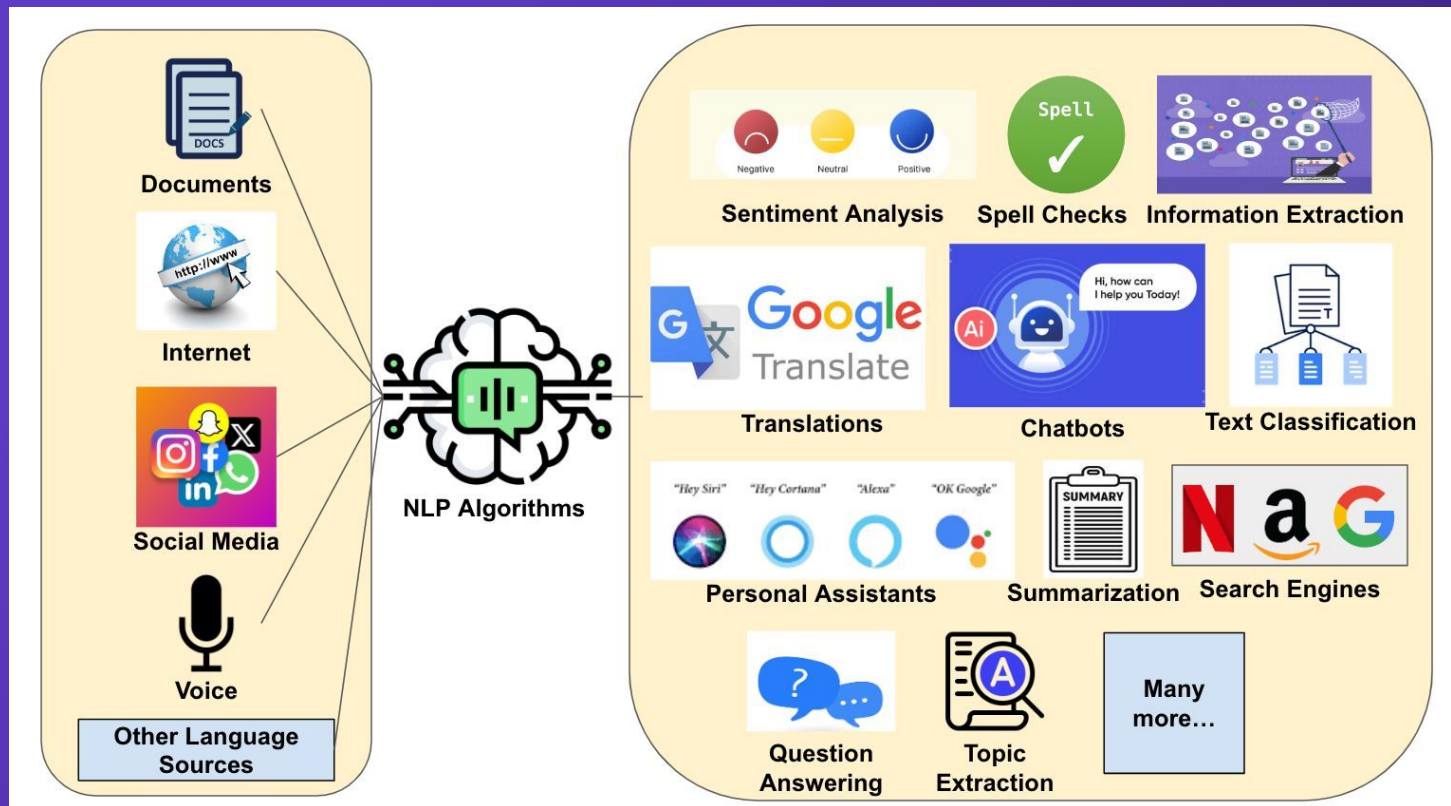
# What is NLP?

*Natural language processing (NLP) is a field at the intersection of computer science, artificial intelligence, and linguistics.*

*It concerns building systems that can process and understand human language.*



# Motivation behind NLP



# Motivation behind NLP

- Unlocking vast amounts of unstructured text data
- Revolutionizing how we interact with technology
- Driving innovations in customer service, healthcare, finance, and beyond

# NLP Challenges

- Ambiguity
  - Words and phrases can have multiple meanings
  - Context
  - Sarcasm, idioms, and slang
- Data needs
  - Require massive amounts of data
  - Quality and diversity of data
- Language diversity: Numerous languages and dialects
- Fairness and Bias
  - If data is biased, the NLP models learn those same biases
  - This can lead to unfair outcomes, especially in sensitive areas