

# Named Entity Recognition (NER)

# Entities and Named Entities

- Entities: common things, belongs to noun family

The president will meet the chairman of the company in the capital city

- Named Entities: entities having proper name



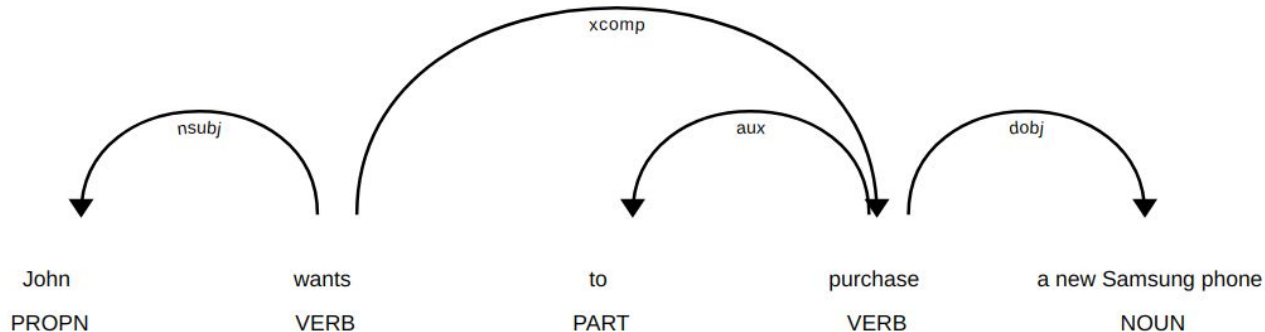
Donald Trump will meet the chairman of Google in New York City

# Named Entity Recognition (NER)

- Process of finding named entities from a given text
- Two steps:
  - Named Entity Extraction
  - Named Entity Classification

# Named Entity Extraction

- Identification of noun phrases
- Noun phrases: connected by direct subject or object relationships
- Sentence: John wants to purchase a new Samsung phone



# Named Entity Extraction

John wants to purchase a new Samsung phone

Diagram illustrating Named Entity Extraction for the sentence "John wants to purchase a new Samsung phone". The words are grouped by parts of speech (POS) tags: NNP (John), VBZ (wants), TO (to), VB (purchase), DT (a), JJ (new), NNP (Samsung), and NN (phone). Brackets indicate the grouping of words under each tag.

Named Entities: John, Samsung

Satya Nadella is CEO of Microsoft

Diagram illustrating Named Entity Extraction for the sentence "Satya Nadella is CEO of Microsoft". The words are grouped by parts of speech (POS) tags: NNP (Satya), NNP (Nadella), VBZ (is), NN (CEO), IN (of), and NNP (Microsoft). Brackets indicate the grouping of words under each tag.

Named Entities: Satya Nadella, Microsoft

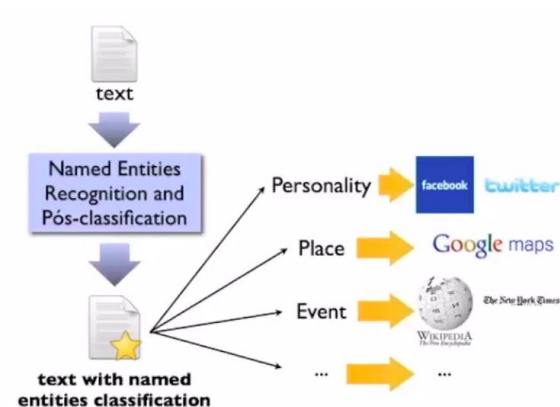
Facebook has bought stake in Reliance Jio .

Diagram illustrating Named Entity Extraction for the sentence "Facebook has bought stake in Reliance Jio .". The words are grouped by parts of speech (POS) tags: NNP (Facebook), VBZ (has), VBN (bought), NN (stake), IN (in), NNP (Reliance), NNP (Jio), and . (punctuation). Brackets indicate the grouping of words under each tag.

Named Entities: Facebook, Reliance Jio

# Named Entity Classification / Linking

- Assigning the class / category of the named entity
- Classes: Person, Organization, Location, Drug etc.
- Entity Linking with a Knowledge Base
- Linking Approaches:
  - Domain Dictionary Lookup (Ontologies)
  - Knowledge Base: Wikipedia, Google
  - APIs - Google Maps, News API



# Challenges

- Updated Ontologies
- Name Variation
  - Singh Yuvraj, Yuvraj Kr Singh
- Multiple Categories
  - London: Name of a person, Name of a city
  - Donald Trump Park: Name of a park(location), Name of a person
- Non Capitalization



Thank You