Coreference Resolution   상호참조해결

└ Identify all mentions that refer to the same entity in the world

Applications
- Full text understanding
  - info. extraction, question answering, summarization, ...
- Machine translation
  - 언어마다 대명사 다르고, 명사·형용사 등이 성별 젠더 있기도
- Dialogue Systems
  - 대화형, 상호작용

Coreference 단계
1. Detect the mentions (easy)
2. Cluster the mentions (hard)

Mention Detection
mention : a span of text referring to some entity
- Pronouns   part-of-speech tagger
- Named entities   Named Entity Recognition system
- Noun phrases   parser
                    <traditional pipeline systems>

Anaphora : a different-but-related linguistic concept,
          when a term refers to another term
          Barack Obama said he would sign the bill.
                    ↑   ↑
                antecedent   anaphor
          주로 anaphora 전에 antecedent 등장   (Cataphora는 아님)

Four kinds of coreference models

- Rule-based
- Mention Pair
- Mention Ranking
- Clustering

Hobb's naive algorithm

Winograd Schema

Mention Pair

- Train a binary classifier that assigns every pair of mentions a probability of being coreferent
- Look at all candidate antecedents and decide which are coreferent with it

Mention Ranking

- Assign each mention its highest scoring candidate antecedent according to the model
- Dummy NA mention allows model to decline linking the current mention to anything

1D convolution

End-to-End deep learning