

COMMON-SENSE KNOWLEDGE FOR  
NATURAL LANGUAGE UNDERSTANDING:  
EXPERIMENTS IN UNSUPERVISED AND  
SUPERVISED SETTINGS

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Sorry not to be here now...but my train is coming!  
You will find me at the social session!



# This paper is about...

- **Computational Linguistics**

- Analysis of different semantic resources

- Common-sense Knowledge

- advantages and drawbacks

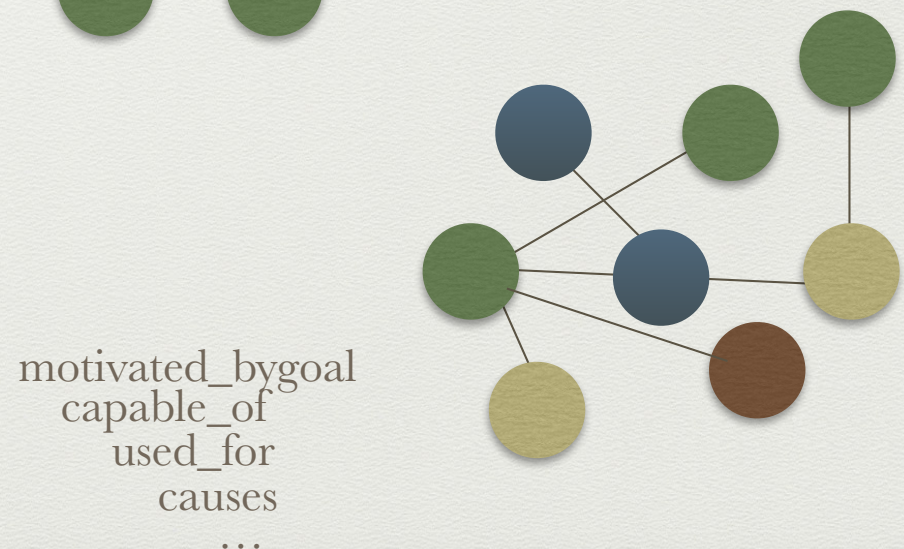
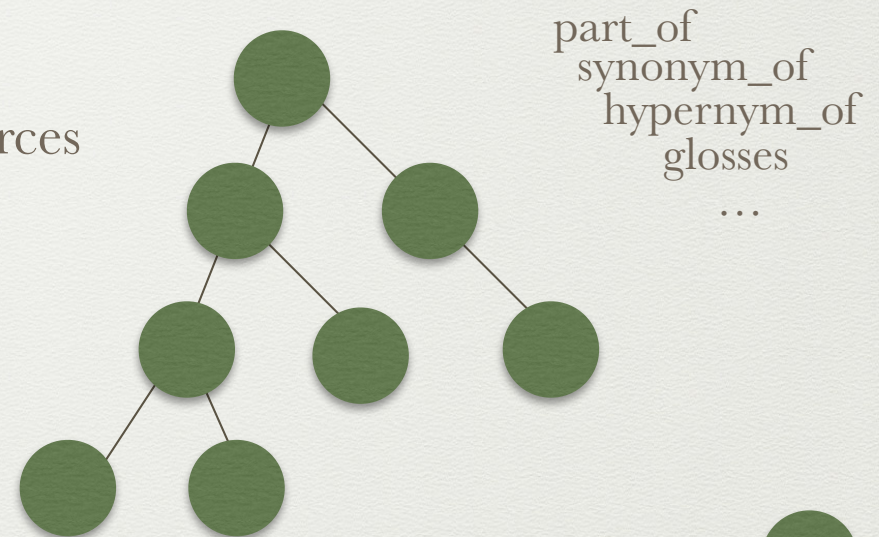
- WordNet-like Knowledge

- advantages and drawbacks

- Evaluation Tasks:

- Word Sense Disambiguation

- Semantic Similarity





# Common-sense Knowledge

(e.g., ConceptNet 5)

- Problems

- **Specificity.** It contains very specific semantic information (e.g., < knowledge – CapableOf – open human mind >) that are difficult to integrate in automated tasks
- **Completeness.** It is not complete (due to the methodology used to build it), since semantic features are associated to only few of all the possible relevant concepts (e.g., ConceptNet contains <jazz – IsA – style of music >) but not < rock – IsA – style of music >)
- **Correctness.** It contains statements which are not semantically correct, e.g., <cat – Antonym – dog> (pragmatics)
- **Relativity.** It has semantic features such as <dog – HasProperty – small>, which is not always true (it depends on the context).
- **Ambiguity.** The terms in ConceptNet are not disambiguated!

- But...

- it contains behavioral information such as what to do with an object, the causes of an action, agents' desires, goals, prerequisites, etc.



# Evaluation

- Questions we proposed to answer...
  - Unsupervised scenario: Word Sense Induction (WSI)
    - How good ConceptNet is for the identification of word meanings?
    - Does the ConceptNet knowledge improve WSI w.r.t. to the use of WordNet information?
  - Supervised scenario: Semantic Similarity
    - If we replace words with the semantic knowledge contained in WordNet and in ConceptNet and train a classifier to classify similar rather than dissimilar word pairs, which resource gives the best results?
- **Other details at the social session!**

