Mining Possessions: Existence, Type and Temporal Anchors
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What is Possession?

- **Possession** — one entity belongs to another
- **Possessor** — Person, Organization, Location
- **Possessee** — Physical/Abstract Entity

Abstract: John has a cold.
Inalienable: John hurt his arm.
Alienable: John drove his car.
Control: John was reading Mary’s book.

Possessor – Possessee pair generation

- On top of OntoNotes
- Possessor – Named Entity Person or the personal pronouns *I, We, He, She, They* that are nominal subjects of a verb.
- Possessee – Nouns subsumed by the chosen synsets of WordNet that are reachable from the same verb.

Corpus Analysis

- Deterministically generated 979 potential (possessor, possessee) pairs on top of OntoNotes.
- Manually validated the pairs for possession existence, possession type and temporal anchors.
- Inter annotator agreement is substantial. (Possession Existence: 0.79, Possession Type: 0.77, Before: 0.68, During: 0.75, After: 0.59).
- Experimented with SVM, Feed Forward Neural Networks and LSTMs.
- Results show that the task can be automated.

Applications: Recommendation systems, Provenance document generation