Improving Hypernymy Prediction via Taxonomy Enhanced Adversarial Learning

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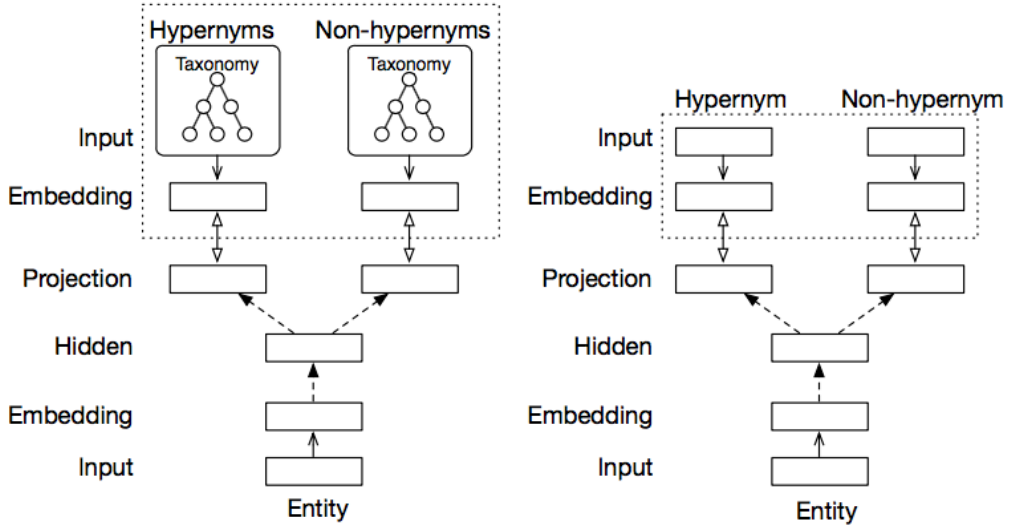
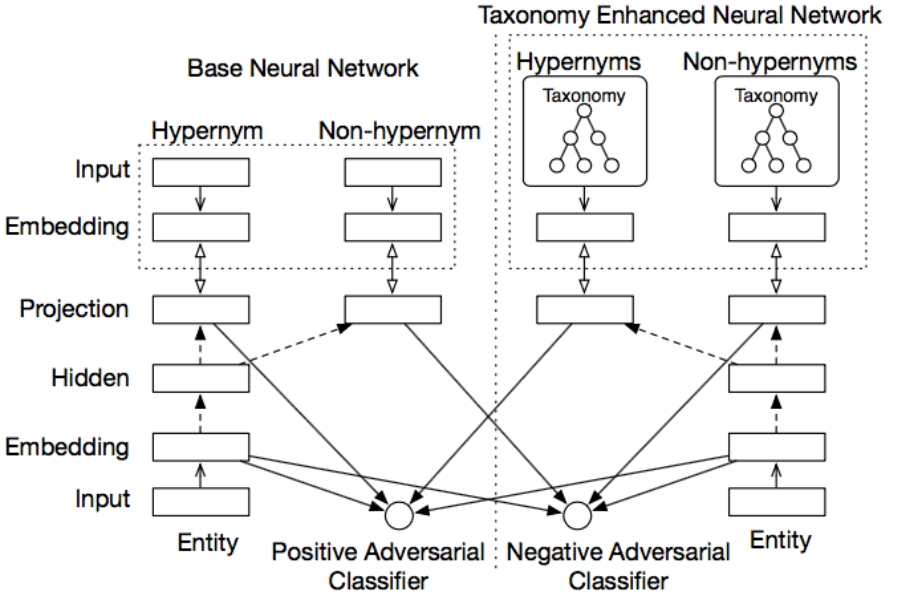
Three Models for Hypernymy Prediction

- U-TEAL
  - Unsupervised neural network-based hypernymy measure
- S-TEAL
  - Supervised neural network-based hypernymy classifier
- AS-TEAL
  - Adversarial supervised neural network-based hypernymy classifier
  - Fusing hypernymy relations from training training data and existing taxonomies



(a) U–TEAL: Neural Network + Unsupervised Measure (b) S–TEAL: Neural Network + SVM



(c) AS–TEAL: Two Neural Networks + Two Adversarial Classifiers + SVM

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Experiments

- **Taxonomy Data**
  - **IS-A** relations sampled from **Microsoft Concept Graph**
- **Three Tasks**
  - Unsupervised Hypernymy Classification
  - Supervised Hypernymy Detection
  - Graded Lexical Entailment

Outperforming State-of-the-arts

- **Two Applications**
  - Language Extensibility Study
  - Enriching Microsoft Concept Graph

POSTER PRESENTATION: **Poster/Demo Reception 1, January 29**

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