

# Ruijie Rao DS558 HW4 Report

## 2.1 Learning from Embeddings using AmpliGraph

### 1. Results:

- TransE: MRR: 0.35, Hits@10: 0.60, Hits@3: 0.45, Hits@1: 0.21
- DistMult: MRR: 0.49, Hits@10: 0.62, Hits@3: 0.51, Hits@1: 0.42
- ComplEx: MRR: 0.49, Hits@10: 0.62, Hits@3: 0.52, Hits@1: 0.43

1. • Q1. How do they get ranks (in this tutorial) for the certain triple? Please explain step by step.

A list of corrupted triples are created according to corruption strat. For a certain triple, the model calculates the scoring of the triple, and rank its score against all the corrupted triples. Its rank is outputed.

- Q2. What should be ranks (in this tutorial) if the model got 100% correct answers?

All rank 1.

## 2.2 Relation prediction

### • Results:

- TransE: 'SPOUSE'
- DistMult: 'SWORN\_TO'
- ComplEx: 'ALLIED\_WITH'

## 2.3 Nearest Neighbor Search

### 1. Results:

- TransE: 'Arya Stark', 'Hayhead', 'Poxy Tym', 'Harwin', 'Shyra'
- DistMult: 'Arya Stark', 'Edrick Stark', 'Desmond', 'Gariss', 'Quent'
- ComplEx: 'Arya Stark', 'Edrick Stark', 'Desmond', 'Gariss', 'Poxy Tym'

## KGTK

## 3.1 PageRank

- Overlap Count: 18

## 3.2 Extended Path

- Allies Count: 1020