Solving Semantic Analogy Problems Using ConceptNet

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December 12, 2012

Summary

We implemented a system for solving SAT analogy problems, using ConceptNet. The system attempts to find the relationship between the target pair of words (such as *mason*:*stone*) and each option pair (such as *teacher*:*chalk*, *carpenter*:*wood*, *soldier*:*gun*, *photograph*:*camera*, *book*:*word*), scores the similarity of each option's relationship to the target's relationship, and selects the option with the highest score. On a dataset of 374 questions, it achieves an accuracy rate of 28.1%.

1 Problem Overview

TODO: define the problem, give example, explain relevance to intelligence

2 Previous Work

TODO: summarize previous work, show results table

3 Approach

TODO: explain our approach, connect to human strategies, describe ConceptNet

4 Implementation

TODO: explain our imeplementation: queries to ConceptNet, parallelization, finding paths, similarity metric

5 Results

TODO: show our results, discuss error types

6 Further Work

TODO: give options of ways this could be improved/extended