

Observation: Word embedding done in a hyperbolic map results in better classified tree like structure of word vector.

Hypothesis: The hierarchical ranking of the embedding will result in better machine learning task like bilingual lexicon induction, wsd.

Prediction: After converting the word vector in the hyperbolic plane, the precision@1 of bilingual lexicon induction for both source and target language will increase as compared to normal proceteus solution.

Experiment: We will convert the source and target word to word vector and then plot the vector in a hyperbolic plane. We will try to transform source to target vector by couple of linear transformation and which we will find by decreasing the cosine distance between source and target languages. We will run a gradient descent in the same setting as previous for proceteus solution.

a) Outcome of the experiment that validates the hypothesis: The precision@1 of bilingual lexicon induction for both source and target language will increase as compared to normal proceteus solution.

b) Outcome of the experiment that invalidates the hypothesis: The precision@1 of bilingual lexicon induction for both source and target language will increase as compared to normal proceteus solution.