Machine Translation System for English to Hindi Language

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Goal

- To develop an automatic language translation system from English to Hindi.
- Translating a text in one natural language into another natural language using SMT.

Abstract

This paper discusses This paper presents a novel approach to statistical machine translation from English to Hindi, leveraging the IBM Model 1. Our study focuses on bridging the linguistic and structural gaps between these two languages, which belong to distinct language families and exhibit significant differences in grammar, syntax, and morphology.The objective of the contest was to explore the effectiveness of Statistical Machine Translation (SMT) for Indian language to Indian language and English-Hindi machine translation.

IBM Model 1

- IBM Model 1 estimates the translation probability of each word in the source language being translated into every possible word in the target language.

- These probabilities are initialized uniformly and then iteratively refined through an expectation-maximization (EM) algorithm.

- During training, the model adjusts the probabilities based on the observed word alignments in the bilingual corpus.

Application to English-to-Hindi Translation:

- In our project, IBM Model 1 serves as the backbone of the statistical machine translation system.
- By training the model on corpora, we aim to learn the translation probabilities between words in the two languages.
- The model's learned parameters enable the generation of Hindi translations for English sentences, leveraging the established word-to-word correspondences.

working