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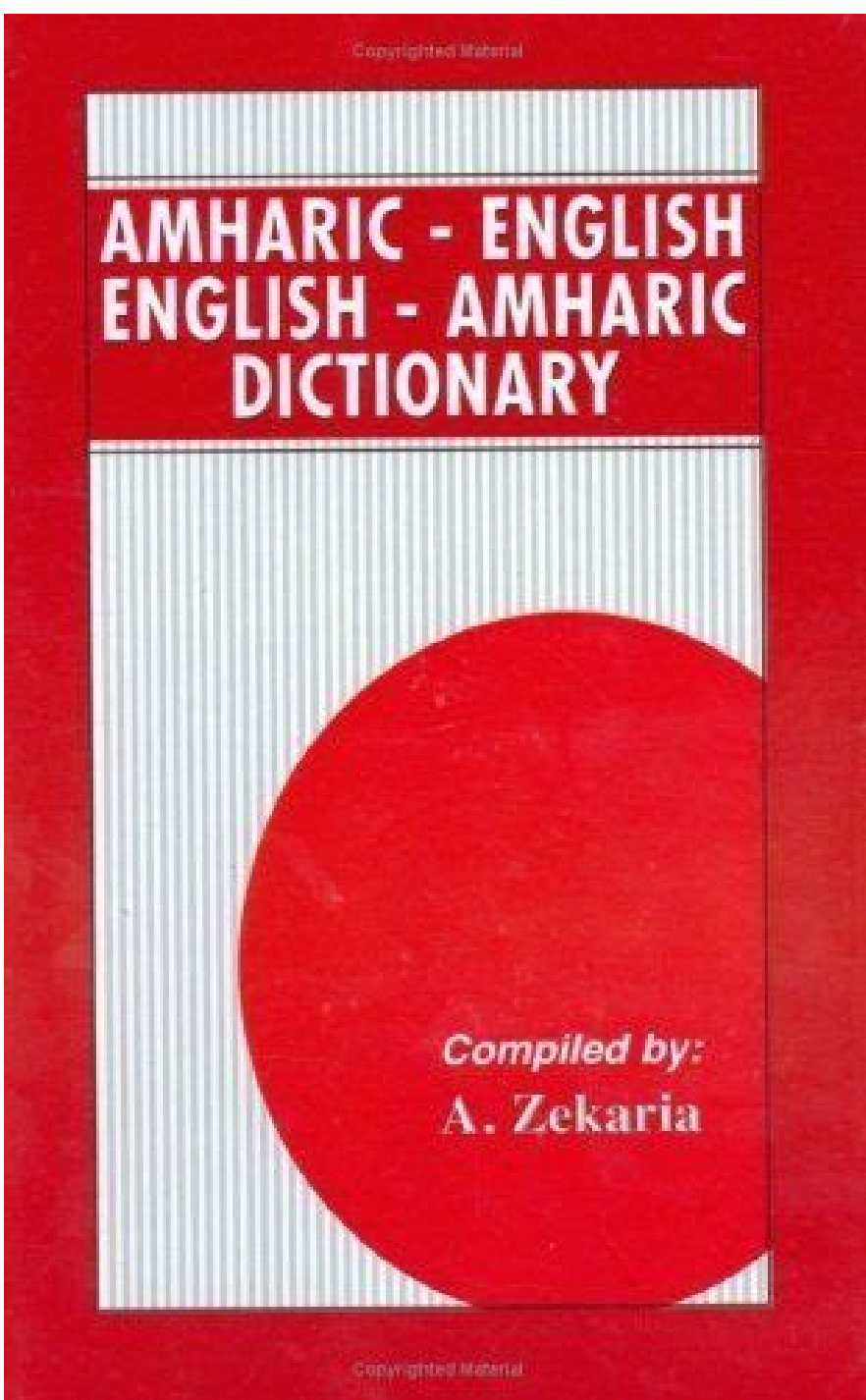
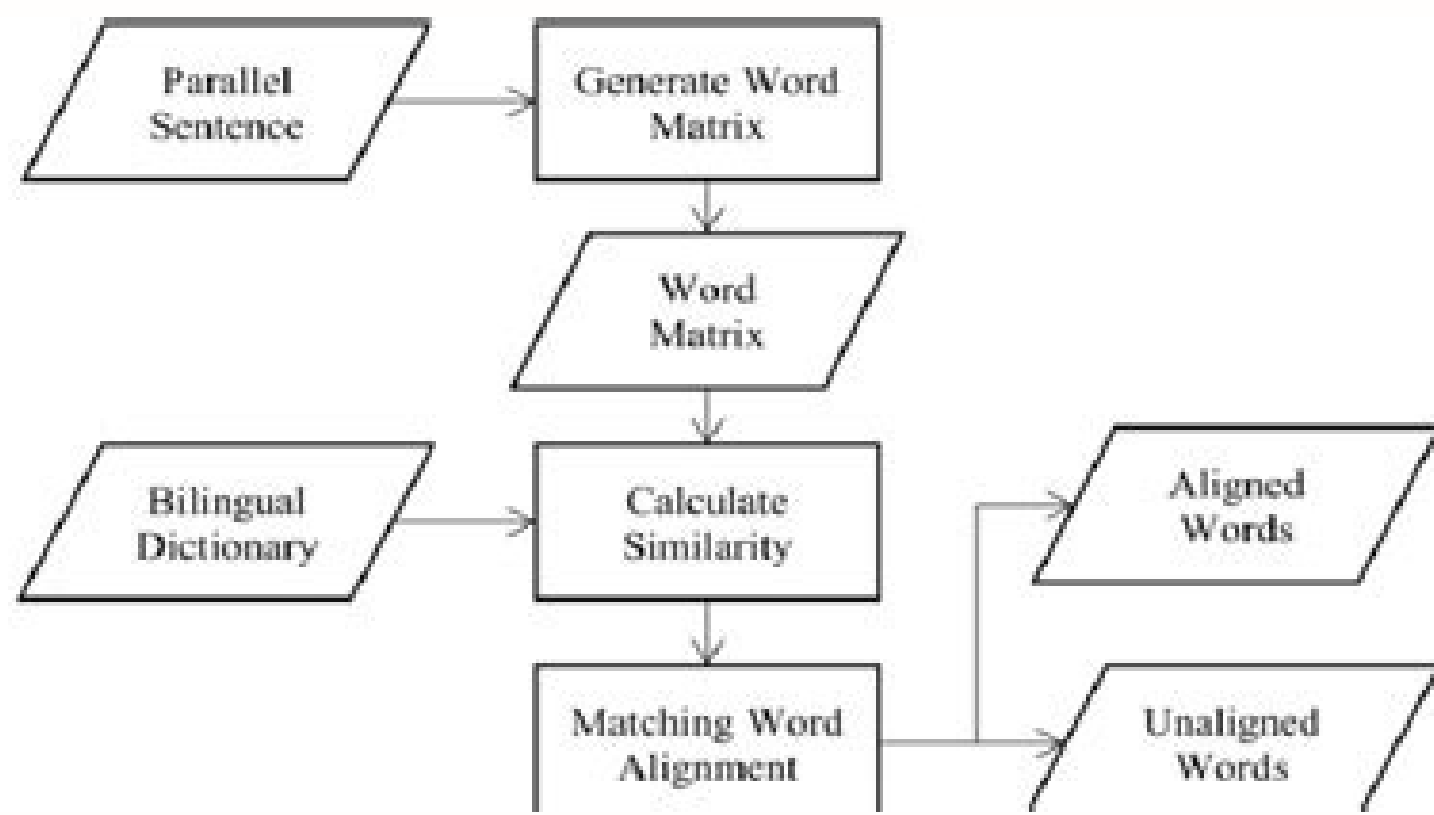
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## Designing a Rule Based Stemmer for Afaan Oromo Text

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### Abstract

Most natural language processing systems use stemmer as a separate module in their architecture. Specially, it is very significant for developing, machine translator, speech recognizer and search engines. In this work, a stemming system for Afaan Oromo is presented. This system takes as input a word and removes its affixes according to a rule based algorithm. The result of the study is a prototype context sensitive iterative stemmer. Error counting technique was employed to evaluate the performance of this stemmer. The errors were analyzed and classified into two different categories: under stemming and over stemming errors. For testing purpose corpus which is collected from different public Afaan Oromo newspapers and bulletins is used. Newspapers, bulletins and public magazines are considered as consisting different issues of the community: social, economical, technological and political issues. This will reduce the probability of making the corpus biased toward some specific words that do not appear in everyday life. According to the evaluation of the experiments, it can be concluded that an overall accuracy of the stemmer is encouraging which shows stemming can be performed with low error rates in high inflected languages such as Afaan Oromo.

**Keywords:** Afaan Oromo stemmer, Rule based Stemmer, Context sensitive stemmer

## 1. INTRODUCTION

We can find a variety of internet search engines with advanced search parameters for retrieving documents in a document collection. During the development of search engines we can notice an ongoing specialization on the searching features. These engines are becoming more and more sophisticated trying to cover user's demands to access specific information.

One of the attempts to make the search engines more effective in information retrieval was the usage of word stemming. For grammatical reasons, documents are going to use different forms of a word, such as organize, organizes, and organizing. Additionally, there are families of derivationally related words with similar meanings, such as democracy, democratic, and democratization. In many situations, it seems as if it would be useful for a search for one of these words to return documents that contain another word in the set. Stemming makes families of derivationally related words with similar meanings represented

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