Design and Development of Morphological Analyzer for Tigrigna Nouns Using Finite State Transducer Techniques

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Abstract: A morphological analyzer is an important component of most natural language processing tasks. It is the process of returning one or more surface forms from a sequence of underlying (lexical) forms, can provide fine-grained parts of speech information, and help resolve necessary syntactic agreements. It is used to analyze surface word forms, which are the ones that are found in everyday communication, is the segmentation of words into their component morphemes and the assignment of grammatical morphemes to grammatical categories and lexical morphemes to lexemes. In addition, morphological analysis systems are used as components in many applications, including machine translation, spell-checker, speech recognition, lexicon compilation, POS tagging, conversational systems, automatic sentence construction, and many others. Morphological analyzers have been developed for many local/European languages like English and Amharic. However, there is no such system for Tigrigna. This study develops a rule-based morphological analyzer for Tigrigna nouns. A rule-based morphological analyzer is designed and developed based on the Finite State Transducer Techniques. The FOMA tool is employed for the experiment analysis. The performance of the system is 82.85%. The result obtained encourages the undertaking of further research in the area, especially with the aim of developing a full-fledged Tigrigna morphological analyzer.

Keywords: morphology, Tigrigna, finite state transducer, finite state automata, FOMA

Conference Title: ICKSNLP 2022: International Conference on Knowledge, Systems Engineering and Natural Language Processing

Conference Location: Dubrovnik, Croatia

Conference Dates: October 06-07, 2022