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Computational Collective Intelligence

8th International Conference, ICCCI 2016
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Proceedings, Part II

2 Part II

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Low Resource Language Processing

Inferring of the Morphological Chunk Transfer Rules on the Base of Complete Set of Kazakh Endings

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Abstract. In this paper we propose method of constructing a set of machine translation rules associated with the transfer of word's morphological structures of the rich morphology source language, such as the Kazakh language, into a syntactic structure of the inflectional target language, such as Russian or English. The proposed method is based on the definition of a complete set of endings types of the source language, on the base of which a complete set of structural transfer rules of source language word's morphological structures into target language phrase syntactic structure is constructed. The proposed method of the morphological chunk transfer rules inferring is shown in the examples of the Kazakh-Russian and Kazakh-English machine translation.

Keywords: Inferring · Machine translation · Chunk · Transfer rules · Endings

1 Introduction

The question of the sentences structural transfer in the rule-based machine translation (RBMT) can divided into two groups: the syntax structural transfer and the transfer of word's morphological structure into a phrase syntax structure. The second group of transfers usually occur when made machine translation of languages with complex morphology into languages with a simple morphology, for example, the Kazakh language into Russian or English. In this case, some source language word's morphological structures transformed into target language phrase's syntactic structure. We call this second group of structural transfers as "morphological chunk transfers".

This problem of morphological chunk transformation significantly affects to the quality of statistical machine translation, known as the problem of morphological segmentation of the SMT [1].

In this paper, we propose an approach of the inferring of the morphological chunk transfer rules based on a finding of complete set of endings for one of the languages in a pair language of machine translation. Then, the system of obtained morphological chunk transfer rules of machine translation will also be complete. The proposed