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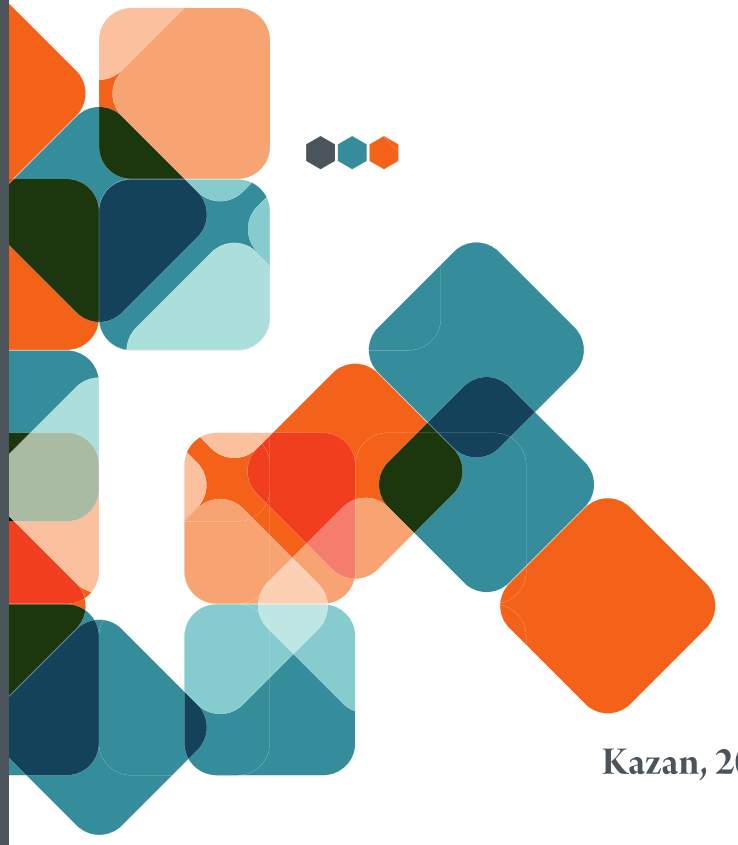

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MODELING OF TENSE SYSTEM IN AGGLUTINATIVE LANGUAGES WITH SEMANTIC SITUATIONS

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The paper provides a formal description of verbs tenses in agglutinative languages using semantic situations and regular expressions on example of Kazakh language. We describe features of Kazakh language's tense system, semantic situations and their representation in the form of regular expressions. Kazakh language's tense system is simulated with semantic situations. A practical use example of proposed solution is provided. There are practical results.

1. Introduction

Tense category is one of the most important grammatical categories of natural languages. In various languages, this category has a different grammatical representation, but its purpose is always the same, that is to show how a text relates to a timeline, adopted in the language. Except for the obvious way to reference time (past, present, future), there are several expressions of time, which in some languages are not obvious. Formal description of tense category is complicated by the fact that the same time moment can be expressed using different grammatical structures. This results in the fact that in natural language processing it can be difficult to analyze time expressions.

To solve this problem, we can use the fact that expression of time in natural languages consists of two components: grammatical and semantic. And the second component, in our opinion, is more important. For example, in machine translation very often tense of the same sentence in different languages may not match.

2. Tense category in linguistics

According to (Fabricius-Hansen, 2006), in grammar tense is a category that determines the position of the action on the timeline. Tense category uses an indication of time tied to some moment. Referencing time to the present moment is sometimes called absolute time, referencing to the moment other than current is called relative time. The first case