

Extracting aspects, sentiment and categories of aspects in user reviews about restaurants and cars

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Abstract

This paper describes a method for solving aspect-based sentiment analysis tasks in restaurant and car reviews subject domains. These tasks were articulated in the Sentiment Evaluation for Russian (SentiRuEval-2015) initiative. During the SentiRuEval-2015 we focused on three subtasks: extracting explicit aspect terms from user reviews (tasks A), aspect-based sentiment classification (task C) as well as automatic categorization of aspects (task D). In aspect-based sentiment classification (tasks C and D) we propose two supervised methods based on a Maximum Entropy model and Support Vector Machines (SVM), respectively, that use a set of term frequency features in a context of the aspect term and lexicon-based features. We achieved 40% of macro-averaged F-measure for cars and 40,05% for reviews about restaurants in task C. We achieved 65.2% of macro-averaged F-measure for cars and 86.5% for reviews about restaurants in task D. This method ranked first among 4 teams in both subject domains. The SVM classifier is based on unigram features and pointwise mutual information to calculate category-specific score and associate each aspect with a proper category in a subject domain. Extracting Aspects, Sentiment and Categories of Aspects in User Reviews In task A we carefully evaluated performance of a method based on syntactic and statistical features incorporated in a Conditional Random Fields model. Unfortunately, the method did not show any significant improvement over a baseline. However, its results are also presented in the paper.

Keywords

Aspect categories, Aspect extraction, Aspect-based sentiment analysis, Sentirueval, User reviews