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An Aspect-Based Sentiment Analysis Approach to Evaluating Arabic News Affect on Readers

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Abstract: Great challenges arise due to the rapid growth of online data. The widespread use of online social networks (OSN) have enabled the generation of massive amounts of raw data where users post their own material. One interesting example of user generated data is their political views and opinions. The ability to crawl OSN and automatically analyze their political content is of undeniable importance. However, this requires automated methods for posts? tone analysis, sentiment analysis, and emotional affect. The purpose of this paper is to evaluate Arabic news posts affect on readers using a novel approach of aspect-based sentiment analysis (ABSA). There are many tasks typically associated with ABSA such as the extraction and polarity identification of aspect terms and categories. The focus of this work is on the tasks related to aspect terms. A typical approach to address these tasks goes through several stages of text pre-processing, features extraction and classification. This paper follows this approach and makes use of widely used features and classifiers. The features considered include Part of Speech (POS) tagging, Named Entity Recognition (NER), and N-Grams. As for the considered classifiers, they are: Conditional Random Fields (CRF), Decision Tree (J48), Naive Bayes and K-Nearest Neighbor (IBk). A set of experiments are conducted to compare the considered classifiers against each other and against a baseline classifier that is very common for ABSA. The results show that the extracted features allow all of the four considered classifiers to significantly outperform the baseline classifier. They also show that J48 performs the best for the task of aspect terms extraction whereas CRF and Naive Bayes are slightly better in aspect terms polarity identification.