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Title: Deep Recurrent Neural Network vs. Support Vector Machine for Aspect-Based Sentiment Analysis of Arabic Hotels' Reviews

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Highlights

In this research, state-of-the-art approaches based on supervised machine learning are presented to tackle aspect-based sentiment analysis (ABSA) challenges of Arabic Hotels' reviews. Two approaches of deep recurrent neural network (RNN) and support vector machine (SVM) are implemented and trained along with lexical, word, syntactic, morphological, and semantic features. The proposed approaches are evaluated using a reference dataset of Arabic Hotels' reviews annotated using an ABSA framework presented in the Semantic Evaluation workshop 2016 (SemEval-ABSA16). Evaluation results show that the SVM approach outperforms the other deep RNN approach in the research investigated tasks (*T1: aspect category identification (E#A allocation)*, *T2: aspect opinion target expression (OTE) extraction*, and *T3: aspect sentiment polarity identification*). Whereas, when focusing on the execution time required for training and testing the models, the deep RNN was faster especially for the second task.

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