

Title

A Bayesian Model for Joint Induction of Sentiment, Aspect and Discourse Information

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Abstract

In this work, we develop a generative framework for jointly inducing information related to sentiment analysis of opinionated texts. The joint induction of sentiment and aspect is done on the sub-sentential level, thus yielding a fine-grained analysis. We argue that by incorporating discourse information, we can achieve more accurate estimations.

In particular, we deviate from the “traditional” view of discourse, and we model a discourse structure appropriate for the particular task. This is achieved by designing a Bayesian model, where priors encode our beliefs about the different discourse classes as well as the constraints they impose to the local structure. Our model is thus able to induce discriminative cue phrases which indicate that a change of discourse is about to happen.

While the quantitative analysis that we conducted indicated that learning a discourse model suitable for this task significantly increased the results of the aspect-based sentiment analysis over a discourse-agnostic approach, the qualitative analysis confirmed that the induced representation is a meaningful discourse structure.