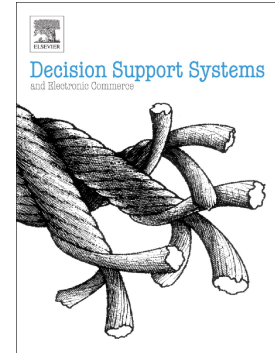


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## Cross-domain aspect extraction for sentiment analysis: a transductive learning approach

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### Abstract

Aspect-Based Sentiment Analysis (ABSA) is a promising approach to analyze consumer reviews at a high level of detail, where the opinion about each feature of the product or service is considered. ABSA usually explores supervised inductive learning algorithms, which requires intense human effort for the labeling process. In this paper, we investigate Cross-Domain Transfer Learning approaches, in which aspects already labeled in some domains can be used to support the aspect extraction of another domain where there are no labeled aspects. Existing cross-domain transfer learning approaches learn classifiers from labeled aspects in the source domain and then apply these classifiers in the target domain, *i.e.*, two separate stages that may cause inconsistency due to different feature spaces. To overcome this drawback, we present an innovative approach called CD-ALPHN (Cross-Domain Aspect Label Propagation through Heterogeneous Networks). First, we propose a heterogeneous network-based representation that combines different features (labeled aspects, unlabeled aspects, and linguistic features) from source and target domain as nodes in a single network. Second, we propose a label propagation algorithm for aspect

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