**Aspect Based Sentiment Analysis with Structured Learning**

1 Introduction

The automatic extraction of subjective information in text materials is generally referred as Sentiment Analysis or Opinion Mining and it is performed via natural language processing, text analysis and computational linguistics techniques.

The fried rice is amazing here. (1)

The Aspect Term Extraction (ATE) subtask aims at finding words suggesting the presence of aspects on which an opinion is expressed, e.g. fried rice in sentence 1. In the Aspect Term Polarity (ATP) task the polarity evoked for each aspect is recognized, i.e. a positive polarity is expressed with respect to fried rice. In the Aspect Category Detection (ACD) task the category evoked in a sentence is identified, e.g. the food category in sentence 1). In the Aspect Category Polarity (ACP) task the polarity of each expressed category is recognized, e.g. a positive category polarity is expressed in sentence 1.

2 Sequence Labeling for ATE

The Aspect Term Extraction (ATE) has been modeled as a sequential tagging process. We consider each token representing the beginning (B), the inside (I) or the outside (O) of an argument.

2.1 Modeling Features for ATE

3 Multiple Kernel Approach for Polarity and Category Detection

3.1 Representing Lexical Information

The Bag of Word (BoW) is a simple representation reflecting the lexical information of the sentence.

3.2 Generalizing Lexical Information

3.3 Generalizing Syntactic Information

4 Results

4.1 Aspect Term Extraction

4.2 Aspect Term Polarity

4.3 Aspect Category Detection

4.4 Aspect Category Polarity