Verb Sense Disambiguation
using Support Vector Machines:
impact of WordNet-extracted Features

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Abstract. The disambiguation of verbs is usually considered to be more difficult with respect to other part-of-speech categories. This is due both to the high polysemy of verbs compared with the other categories, and to the lack of lexical resources providing relations between verbs and nouns. One of such resources is WordNet, which provides plenty of information and relationships for nouns, whereas it is less comprehensive with respect to verbs. In this paper we focus on the disambiguation of verbs by means of Support Vector Machines and the use of WordNet-extracted features, based on the hyperonyms of context nouns.

1 Introduction

Word Sense Disambiguation (WSD) is an open problem in the field of Natural Language Processing (NLP). The resolution of lexical ambiguity that appears when a given word in a context has several different meanings is commonly referred as Word Sense Disambiguation. Supervised approaches to WSD usually perform better than unsupervised ones [4]. Results of the recent Senseval-3[1] contest attest this supremacy; moreover, recent results of the application of Support Vector Machines (SVM), a well-known supervised learning technique, to the Word Sense Dismbiguation task seem promising [3].

Some interesting results have been obtained recently in the supervised disambiguation of verbs [1], by using context-extracted features and a multi-class learning architecture. The disambiguation method described in this paper replicates the feature extraction model proposed in [1], with the addition of WordNet [5] extracted features, while using a SVM-based learning architecture. The system was tested over a subset of the Senseval-3 Lexical Sample corpus.

2 Support Vector Machines

The SVM [6] performs optimization to find a hyperplane with the largest margin that separates training examples into two classes. A test example is classified

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[1] http://www.senseval.org