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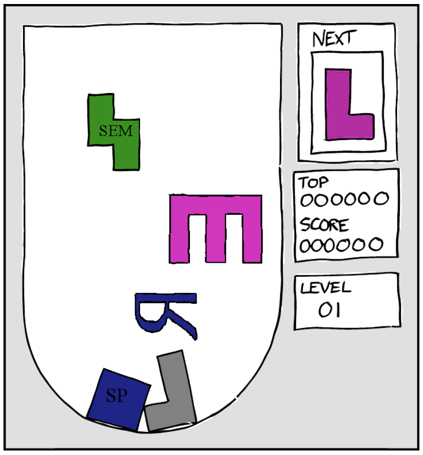

Proceedings of the ACL 2012 Joint Workshop on Statistical Parsing and Semantic Processing of Morphologically Rich Languages

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Preface to SP-SEM-MRL 2012

Morphologically Rich Languages (MRLs) are languages in which grammatical relations such as Subject, Predicate, and Object, are largely indicated morphologically (e.g., through inflection) instead of positionally. This poses serious challenges for current (English-centric) syntactic and semantic processing. Furthermore, since grammatical relations provide the interface to compositional semantics, morpho-syntactic phenomena may significantly complicate processing the syntax–semantics interface. In statistical parsing, English parsing performance has reached a high plateau in certain genres. Semantic processing of English has similarly seen much progress in recent years. MRL processing presents new challenges, such as optimal morphological representation, non position-centric algorithms, or different semantic distance measures.

These challenges lurk in areas where parses may be used as input, such as semantic role labeling, distributional semantics, paraphrasing and textual entailment; inadequate representation or pre-processing of morphological variation is likely to hurt parsing and semantic tasks alike.

This joint workshop aims to build upon the first and second SPMRL workshops (at NAACL-HLT 2010 and IWPT 2011, respectively) while extending the overall scope to include semantic processing. We aim to encourage cross-fertilization among researchers working on different languages and among those working on different levels of processing.

The syntax track received 11 papers of which 7 were accepted for publication. This year's collection of papers describe work on Korean, Basque, French, Spanish, Portuguese and Tamil (the latter three are a first for SPMRL), and encompass several different parsing approaches and combinations thereof, including dependency parsing, PCFG-LA parsing, rule-based parsing and precision-grammar-based parsing.

A trend of this year's papers is the problem of data sparsity in statistical parsing of MRLs: Candito et al. present a technique that involves the use of word clusters, lemmas and Wordnet synsets to alleviate the problem of OOV words in statistical parsing with the French Treebank; Silva and Branca investigate whether dependency information can be used to assign lexical types to OOV words in a HPSG precision grammar approach to Portuguese parsing; Le Roux et al. investigate the problem of data sparsity in the context of Spanish constituency parsing and show that optimising the processes of lemmatisation and part-of-speech tagging can lead to improved parsing performance; Green et al. tackle the problem of small training sets by applying ensemble parsing models trained on subsets of the entire training set. (They test their approach on the Tamil language but suggest that it is applicable to any language with minimal treebank resources).

We are also happy to present parsing papers that describe general parsing techniques that are applicable to any language, but which have been tested on MRLs: Goenaga et al. explore an approach which involves the combination of rule-based and data-driven parsing, and test this combined approach on the Basque language; Le Roux et al. present a reranking technique in which the n-best trees produced by a constituency parser are then converted to dependency trees and reranked using dependency information. (The approach is tested on a language with scant morphology, English, and a language with a richer inflectional system, French); Finally, Choi et al. present work which aims to reduce ambiguity in statistical parsing of Korean by transforming eojeol-based trees into entity-based trees. Their work is relevant to all languages where the word is not the natural unit of syntactic analysis.

Five papers, of seven submissions, were accepted for the Semantic Track of SP-SEM-MRL 2012. The

selected papers reflect a healthy diversity of semantic models and the fertile breadth of applications for semantics in morphologically rich languages: Versley applies supervised learning to the task of classifying German noun-verb semantic relations. The experiments evaluate a wide range of corpus- and lexicon-based features for representing the noun-verb pairs; Lorenzo and Cerisara present a Bayesian model for unsupervised Semantic Role Labeling for English and French, with promising results; Hawwari, Bar, and Diab propose a method for creating a resource of Arabic multi-word expressions. The method handles MWEs with gaps, which can be problematic for Arabic; Versley and Henrich describe an approach to word sense discrimination based on the hypothesis that an ambiguous word is unambiguous when embedded in the context of a compound word. Their findings support the utility of the hypothesis.
In research which combines both syntactic and semantic processing, Acedański, Slaski, and Przepiórkowski introduce a procedure for extracting dependency information from chunked data. Given the output of a chunker without prepositional phrase attachment information, their procedure is able to make attachment decisions using lexical, morphosyntactic, lexico-semantic, and association features.

It is our hope that the rich programme of SP-Sem-MRL 2012 will foster interactions and collaborations between the syntax and the semantics community on the topic of Morphologically Rich Languages processing. Our aim is to help to bring ideas (and solutions) to the fore and promote a more rapid advance of the state-of-the-art in the field.

We thank our authors and the Program Committee for making SP-Sem-MRL 2012 a success.

Marianna Apidianaki, Ido Daga, Katryn Erk, Jennifer Foster, Yuval Marton, Ines Rehbein, Djamé Seddah, Reut Tsarfaty and Peter Turney

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