T.J. Trimble

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Projects

Adjectives in the LinGO Grammar Matrix

Master's Thesis & Project

Supervisor: Emily Bender • trimbleworks.us/thesis • delph-in.net/matrix/customize

I extended the Grammar Matrix, an open source grammar engineering project, to enable the morphological, syntactic, and semantic analysis of adjectives cross-linguistically.

- I developed a set of core HPSG linguistic analyses of adjectives accounting for data from dozens of languages, and implemented analyses of 11 languages.
- I extended and added new features to an online grammar customization system using Python and JavaScript for starter natural language HPSG-style grammars.
- I extended a server-side grammar customization library in Python to produce machine readable grammatical description of adjectival lexemes, inflection, and agreement.

Question Answering with Off-the-shelf Deep Processing Systems

With Woodley Packard & Melanie Bolla

We designed a TRAC-style Question Answering system, utilizing open source deep processing tools such as the Stanford CoreNLP dcoref coreference resolver, WordNet, DELPH-IN syntax/semantics processing, and the NLTK.

- I designed and implemented a distributed coreference resolver system for TRAC-style questions using Stanford CoreNLP dcoref and the HTCondor distributed computing system.
- Our system was best in our class after 9 weeks of development, getting scores comparable to published work on unseen data (TRAC strict score of 21.76, lenient score of 33.89).

MachineLearningTools

github.com/dantiston/machineLearningTools

I designed and implemented a collection of machine learning classification algorithms around a common architecture in Java. This architecture is designed to be useful in designing and implementing a machine learning algorithm.

- I implemented several machine learning classifiers with this library including Decision Trees, Naive Bayes, and KNN.
- I wrote several utility methods for interacting with the Java standard library useful for machine learning algorithms.

Additional projects and code at trimbleworks.us

Education

University of Washington — Seattle, Washington

Master of Science, Computational Linguistics — *December, 2014*

- **Natural Language Processing** • tagging, tokenization, chunking, parsing, word sense disambiguation, sentiment analysis, coreference resolution, *etc.* using FSA/FSTs, CKY, HMM, *etc.*
- **Machine Learning** • classification and clustering using Naive Bayes, MaxEnt, LDA, *etc.*
- **Systems Engineering** • built end-to-end systems using distributed computing (HTCondor), error analysis, testing, etc.

Bachelor of Arts, Linguistics — *June 2009*

Coursework in Syntax, Semantics, Morphology, Phonology, Phonetics, Psycholinguistics, and Neurolinguistics.

Skills

Programming Languages: Python • Java • JavaScript/jQuery • PHP • mySQL • BASH

Software Packages: MALLET machine learning tools • NLTK natural language processing tools • NumPy/SciPy • JUNIT, Python unittest frameworks

Natural languages: English *(Native)* • French *(Beginner-Intermediate)* • Italian *(Beginner)* • Japanese *(Beginniner)*