Project Proposal: Human Language Technologies

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**Introduction**

Users of the website Yelp are able to rate other users’ reviews for businesses as either “useful”, “funny”, or “cool”. We are interested in determining the most informative content in Yelp reviews, based on which reviews Yelp users found “useful”. There are two parts to the project we are proposing. Part 1 will be to develop a model to determine the usefulness of each sentence within a Yelp review. Part 2 will be to use this model to extract the most useful information from the set of reviews for a particular business; this information will be used to generate a concise “meta-review” that summarizes the original set of reviews.

**Evaluation**

We will use data from the Yelp Challenge data set for training and testing purposes in Part 1. We can evaluate how accurate our usefulness rating for a review is by comparing it to how other Yelp users rated the review. The evaluation for Part 2 will necessarily be more subjective. We will generate examples of meta-reviews, and ask volunteers to determine how successfully each example compiles the most useful data from the existing reviews of the business.

**Tentative Timeline**

3/1 Submit Project Proposal for review. Begin individually reviewing the related work, considering possible techniques for implementing review usefulness quantification, and determining what implementation tools are necessary.

3/14 Based on our individual research, create a skeleton idea for a program to calculate the usefulness of a sentence within a review. Divide up responsibilities and begin the implementation.

3/21 Have a functioning program to quantify the usefulness of a sentence within a review. Using this program, begin to develop another program that will extract the most useful details from reviews for a single business and compile these details into a single meta-review.

4/15 Have a working program to extract useful details for a business and compile them into a meta-review. Begin fine-tuning the code and evaluating the results.

4/22 Have all programming and evaluation of results finished. Spend the next week working on the presentation.

4/28 Presentation.

**Related work**

* “Exploring the mechanisms behind the assessment of usefulness of restaurant reviews” (<http://dl.acm.org/citation.cfm?id=2768557>). This team interviewed Yelp users to determine what makes a Yelp review seem useful.
* “Low-Quality Product Review Detection in Opinion Summarization” (<https://aclweb.org/anthology/D/D07/D07-1035.pdf>). This team defined what a high-quality review of a product was. Using this definition, they were able to filter out poor-quality reviews to enhance opinion summarization.
* “The Social Aspect of Voting for Useful Reviews” (<http://link.springer.com/chapter/10.1007/978-3-319-05579-4_36>). This team determined what criteria people use to rate a review. They devised a regression model that predicts the usefulness rating of reviews.
* “Finding Thoughtful Comments from Social Media” (<http://www.aclweb.org/anthology/C12-1061>). This team measured the thoughtfulness of comments on social media venues. They could determine the quality of the comment and the opinion of the person writing it.