INTRODUCTION

The Bioorganic wiki is a student-created online textbook written by students in an intermediate-level, college chemistry class. Previous research[1] identified creative linguistic forms in the text such as metaphor, anaphora, and understatement. While this past work looked broadly at creative language within the wiki, this project looks closely at usages of personification. This research investigates personification and how it relates to student understanding of scientific topics.

PERSONIFICATION

Personification is a specific type of metaphor in which non-human nouns are attributed human-like qualities.

"Of course we can't have thrombin going around ripping apart every arginine or lysine it sees."

-Auth0r1, Furman Bioorganic Wiki Chapter 9

In this example the serine protease 'thrombin' is attributed with the human verb 'ripping'.

PROJECT AIDS

1. Develop algorithm to automatically detect personification
2. Determine accuracy of algorithm by testing against known personification, non-personification, and metaphor corpuses

RESULTS

In order to automatically detect personification, this project expanded on the research previously done by Krishnakumaran and Zhu. Their algorithm (Figure 2) for detecting metaphors using WordNet and bigram counts was redesigned specifically for detecting personification. The personification algorithm (Figure 3) results are listed below (Figure 4).

ANALYSIS

The algorithm can reliably determine non-personification and metaphor non-personification but is less accurate at determining whether a sentence contains personification. This stems mostly from the NLP problem of sense disambiguation within the WordNet database.

CONCLUSIONS

Personification's heavy usage within the wiki suggests its importance for student learning. The personification algorithm designed through this research is useful not only in analyzing the most commonly used literary device in the Furman Bioorganic Wiki but also in the general field of natural language processing.

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