Proposal: Literary Analysis of Homer's The Iliad using NLP Methods

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I. Proposed Project

A. Focus

As a creative project, I plan to inspect The Iliad of Homer using Natural Language Processing (NLP) methods. NLP is a subfield of Artificial Intelligence which studies the computers' understanding of human language. The focus will especially be on the analyzing and comparing different songs (parts) in The Iliad.

B. Hypothesis

I believe this research will reveal many interesting properties of the semantics of the text, the style of Homer the poet, and the style of translator Robert Fagles.

C. Relevance with HUM 111 Course

Use of emerging technologies like artificial intelligence in the humanities topics would provide a bridge between ancient and contemporary worlds. Incorporating the applications of artificial intelligence would provide many benefits for both of the sides. For example, as we gain a better understanding of the classics, we are having an excellent application area. Also, I believe classics may be key to the artificial intelligence understanding of emotions. Such understanding would improve AI capabilities (which was my ENG 102 topic) as emotions promote our cognitive skills like face recognition [1].

D. Purpose

Human language understanding is represented as a hard problem in computer science. Alan Turing, the father of the modern computing, proposed a test to say whether a machine can think, which is now called the Turing Test. He argues that if a machine could pass the test, such machine can be accepted as intelligent as humans. While a person was communicating with a machine, the machine's goal is to

trick this person to believe they are speaking with another human [2]. In addition to such motivation, approaching this problem by the computer scientists' perspective would give me a better understanding of the text since applying the methodology below requires an engagement with the text in terms of both syntax and semantics. Using the methods developed by computer scientists may reveal many properties of the text and also enhance my understanding of Natural Language Processing. Also, I believe that this project will be a contribution to the NLP community.

II. Research Methodology

A. Source

The Iliad of Homer which translated by the Robert Fagles and published by Penguin Classics will be used by the computer.

B. Preprocessing Step

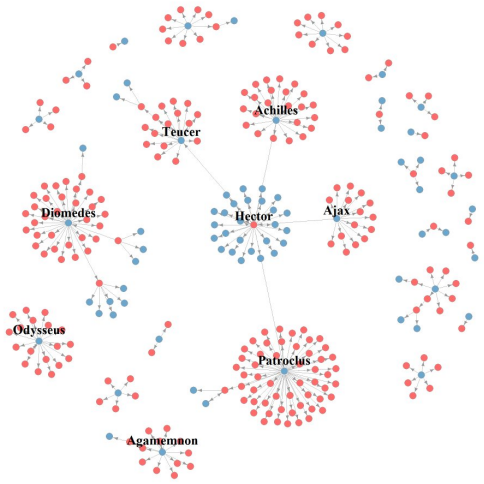
The text will be converted to plain text format from PDF. Then, the text will be separated into its word and grouped by its belonging song. Also, the following features are revealed:

- Word frequencies (counts)
- Word lengths
- Words' part of speeches
- Part of speech frequencies
- Repeating phrases & frequencies

C. Processing Step

For each song, the retrieved information in the preprocessing step (e.g. word frequencies) will be used to obtain the information below:

- **Character networks:** The names of & relations between characters.



[3]

- **Syntactic analysis**: Numbers of the part B's items. (e.g. Most occurred words: Hector: 213 times, Paris: 179 times)
- **Sentimental analysis**: Positive/negative assessments (i.e. the mood) of the songs.
- **Semantic analysis**: Meaning-related assessments and comparisons of songs. (e.g. detecting topic of a song, similarities between songs).

Obtained information will be visualized to ease the understanding of results.

D. Transparency and Reproducibility

All the project information, the data, the code and the results will be publicly available on github.com/selimfirat which is a code-sharing community. Thus, the research will be reproducible and transparent.

E. Evaluation

This proposal and, if accepted, the proposed project will be evaluated by Dr. Sjoerd Levelt in Bilkent University. Since his expertise is not computer science, the results of this research will not require any pre-knowledge of NLP.

Word Count: 596

REFERENCES

[1] J. Megill, "Emotion, cognition and artificial intelligence," *Minds and Machines*, vol. 24, no. 2, pp. 189–199, 2014.

[2] A. M. Turing, "Computing machinery and intelligence," *Mind*, vol. 59, no. 236, pp. 433–460, 1950.

[3] "The status of iliad."