**Abstract**

Computational methods are revolutionizing the study of human language, but there are still many open questions and challenges. One persistent challenge is understanding the emotional content of human language, which has implications for how we communicate, interact, and understand the world around us. In this work, we explore the emotional content of human language using a multi-lingual approach, applying computational methods to analyze the emotional content of words in several languages, including English, Spanish, and Portuguese.

**Measuring the happiness of a text**

The model uses a weighted arithmetic mean of each word's frequency, and the corresponding happiness score, to calculate an overall emotional rating for a given text. Each word is then calculated via the arithmetic mean and the corresponding happiness score, which is then used to calculate an overall emotional rating for a given text.

**Translating Happiness**

In this figure, each color-coded triangle represents the emotional content of a word in a given language. The background color of each triangle corresponds to the emotional content of the word, with darker colors indicating higher levels of emotional content. The happiness score of each word is calculated using a weighted arithmetic mean, with each word's frequency and corresponding happiness score contributing to the overall emotional rating of the text.

**World War II Word-shifts**

Word-shifts are used to compare the frequency distributions of words in different time periods. In this figure, the word-shifts are calculated for the year 1940 using Google's free online translation service and appear on the graphs to the right. This allows an English speaker to understand the types of words being used in different time periods.

**Olympics Wordsworths**

Word-shifts are used to compare the frequency distributions of words in different time periods. In this figure, the word-shifts are calculated for the year 1940 using Google's free online translation service and appear on the graphs to the right. This allows an English speaker to understand the types of words being used in different time periods.

**Happiness Time-series of 20th Century Literature**

Using the happiness scores of each wordlist, the average emotional rating of a corpus is calculated by tallying the appearance of words found in the intersection of the wordlist and a given corpus. A weighted arithmetic mean is used to calculate the average happiness score. For each of the 50 words in a text, the percentage of words found in each wordlist is calculated using a weighted arithmetic mean.

**2012 Summer Olympics Happiness Time-series**

Spanish, Portuguese, and Chinese tweets are collected for each hour spanning 7/25/12 through 8/1/12. The average happiness in each hour for each language is calculated using a weighted arithmetic mean. The top 50 words responsible for a happiness shift between the two periods are displayed, along with their contribution to effecting the average happiness of each language.