Narrative Transportation Proposal

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Abstract

The study of narrative transportation in psychology, cognitive science, and psycholinguistics and other fields has been motivated by, among other things, a theorized connection between it and how persuasive a narrative is (Green and Brock, 2000). In this study, we aim to bring together understandings of narrative transportation from different fields for computational modelling purposes.

1 Motivation

A computational approach to understanding narrative transportation would be useful in contributing to an understanding of narrative engagement. It could serve as a component of assistive writing technologies, or be part of a recommendation system for books.

There are many factors in determining whether or not a particular text will be transporting to a particular audience. Some of them are thought to be dependent on an audience's context, while others are related to the aspects of narrative that are found in the text (Melanie C. Green, 2004). The main question we'll endeavor to answer is: what of those textual characteristics could be used to predict transportation?

2 Methods

To that end, our plan is to synthesize the research on reader transportation and closely related topics, present the categories that correspond to the different causes that bring it about, identify the relevant textual features, apply existing techniques to extract them, and provide an initial attempt of predicting reader transportation using a small data set.

We will draw from current work in the field of narrative understanding to annotate stories and have Amazon Mechanical Turk workers rate how transporting they find them.

3 Background

3.1 Narrative Transportation Theory

The narrative transportation theory comes from the psychology field, stating that the audience tends to "get lost" in narrative stories, which is reflected in the changes of their emotions and attitudes in real life scenarios as a distinct mental process.(Green and Brock, 2000) Through the engagement of the narrative, readers may experience the loss of awareness of the real-world facts, and researchers have discovered different belief states in readers of two stories.

3.2 Narrative Arc

Whether the extraction of narrative structure is possible through text analysis methods is an interesting topic that has drawn attention recently. There are 3 key fragments of unfolding a story, which is the "arc of story", suggested by Freytag's framework are 1).Staging, 2). Plot progression, and 3).Cognitive tension.(Boyd et al., 2020)

Staging refers to the propositions and elements which help the narrator to set the scene and background information. Once we have the staging, **plot progression** takes over the narrative, which is the movements and interactions between the main characters. From the semantic perspective, the plot progression part will include an abundant amount of verbs, adverbs, and pronouns due to its functionality. As the narrative proceeds, it will reach a climax which is the **cognitive tension** which can appear as some central conflict for the characters to resolve. One approach of capturing these 3 fragments through textual analysis is by identifying function words in the corpus, which can be a building block to our project ideas.

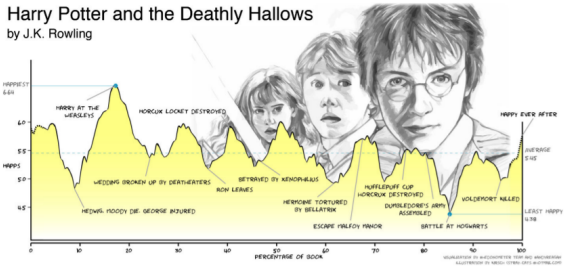

Figure 1: Sample emotion arc for Harry Potter. (Reagan et al., 2016)

3.3 Emotional Arc

The other tool we could utilize is the emotional arc, which is similar to the sentiment classification task of NLP on the sentence level. The idea is to identify the change of emotion impact through the narrative by sentiment analysis approaches on the breakdown fragments, and putting together we are able to visualize these classification and find a path of emotions, as the example shown in figure 1.

In general, there are 6 core categories for emotion arcs, according to (Reagan et al., 2016), listed below:

- 'Rags to riches' (rise).
- 'Tragedy', or 'Riches to rags' (fall).
- 'Man in a hole' (fall-rise).
- 'Icarus' (rise-fall).
- 'Cinderella' (rise-fall-rise).
- 'Oedipus' (fall-rise-fall).

We would like to apply NLP classification and data mining related methods and identify these two arcs: narrative arc and emotional arc as a supporting analysis for our topic studies, and we wish to find connections between these components and the narrative transportation for the audience in a computational manner.

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