

Association of Power and Agency with Character Relationships in Film

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Introduction

Gender bias is prevalent in our society and has been for a long time. Although the male-female dynamic and traditional roles in society may slowly be shifting, the effects of the historical bias linger in modern gender roles.

We wish to explore how the agency and power [Sap et al., 2017] of male and female characters is associated with different kinds of relationships [Iyer et al., 2016].

- ▶ Power: whether an agent is more important than the theme
- ▶ Agency: how much control an agent has on their storyline

By studying the differences in power/agency between characters, we aim to extend the finds of [Sap et al., 2017] to understand what kind of traditional biases are pervasive in modern film.

Problem Definition

Let S be the set of all characters. We obtain a subset $R_{mf} \subset S \times S$ of character pairs such that the first identifies as female and the second as male, and the two characters have a significant level of interaction.

We obtain a set $D = \{d_1, \dots, d_l\}$ of l distinct relationship descriptors, which characterize the relationship between a pair of characters. We define maps $m_a : S \rightarrow [-1, 1]$ and $m_p : S \rightarrow [-1, 1]$ to the character's agency and power over the theme.

Given a pair of characters $(C_f, C_m) \in R_{mf}$, and a set of probabilities for each descriptor $\mathbf{p} = (P(d_i \mid C_f, C_m))_{i=1, \dots, l}$, we wish to see if there is any association between \mathbf{p} and the values of $m_a(C_f)$, $m_p(C_f)$ and $m_a(C_m)$, $m_p(C_m)$.

Technical Approach

We obtained the set D of relationship descriptors using the relationship modeling network proposed by [Iyyer et al., 2016]. The neural network incorporates dictionary learning. In addition to learning a generic set of relationship descriptors, the network also learns relationship trajectories of two characters by assigning a \mathbf{p} for every phase in the relationship.

For each character, we obtain values of power and agency using the methods proposed by [Sap et al., 2017]. The authors show that verbs used by characters can be used to quantify their power and agency. We extract the verbs used by characters via dependency parsing and co-reference resolution using SpaCy.

After obtaining the set of relationship trajectories, power and agency for each character pair we conduct an analysis to understand the association between power and agency and different kinds of relationships.

Evaluation Rationale

We attempted to evaluate the predictive power of power and agency with respect to relationships. One of the inputs to Mohit lyer's neural network is a character embedding. We added power and agency as additional features to the character embedding to see if the relationship trajectories would be more accurate.

To find relationship descriptors for which power and agency values reveal the presence of gender bias in character portrayals, we aggregate the power and agency differences for all relationships grouped by their most likely descriptors. If there exists some relationship descriptor d_i for which the corresponding female characters have significantly more or less power than their male counterparts, it indicates the presence of a potential gender bias in the portrayal of such relationships.

Evaluation Results

Due to the nature of the loss function used in the neural network, proposed by Mohit Iyer, adding power and agency to the character embedding hardly made any difference to the relationship trajectories.

Through the alternative analysis, we found that for most relationship descriptors, the relationships which contain them as the most likely descriptor have a usual power/agency differential. However, there were some relationship descriptors for which the difference in the male and female power/agency is significantly higher (indicating females have more power/agency) or significantly lower than what would be a usual deviation.

Evaluation Results

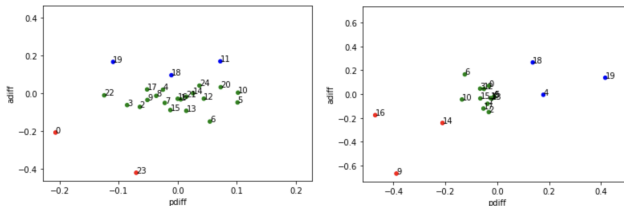


Figure 1: Descriptors with their average power and agency differential values. The plot on the left is 25 descriptors obtained with a word dropout rate of 0.67, the right is 20 descriptors obtained with a word dropout rate of 0.70.

Interestingly, D23 in the left plot represents relationships in the context of military or similar institutions, and D14 in the right plot identifies relationships in a work-place. Both have lower values of power and agency differentials, indicating female characters in such relationships are depicted with less power and agency. D19 and D4 in the right plot represent moody relationships and 'food words' respectively. These observations reflect biases seen in the real world.

Summary

How characters are written and portrayed is essentially the only interface the audience has to them. Differences in portrayals of similar actions by different characters can lead to stereotypes.

Using power and agency combined with relationship descriptors obtained by the Relationship Modeling Network [Iyyer et al., 2016], we show that there exist certain kinds of gender biases in film in the portrayal of characters with specific kinds of relationships. However, for most relationships, the bias measure is well within expected deviation. Furthermore, a few descriptors may sometimes be nonsensical. This may be dealt with by obtaining more data and increasing the word dropout probability.

References



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