

Deriving the Optimal Movie Plot

a study using sentiment analysis on movie plots

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Introduction

This study attempts to quantify emotion in movies and tie these emotions to a film's success. The “ideal” movie will be the one that demonstrates the optimal emotions at the optimal times.

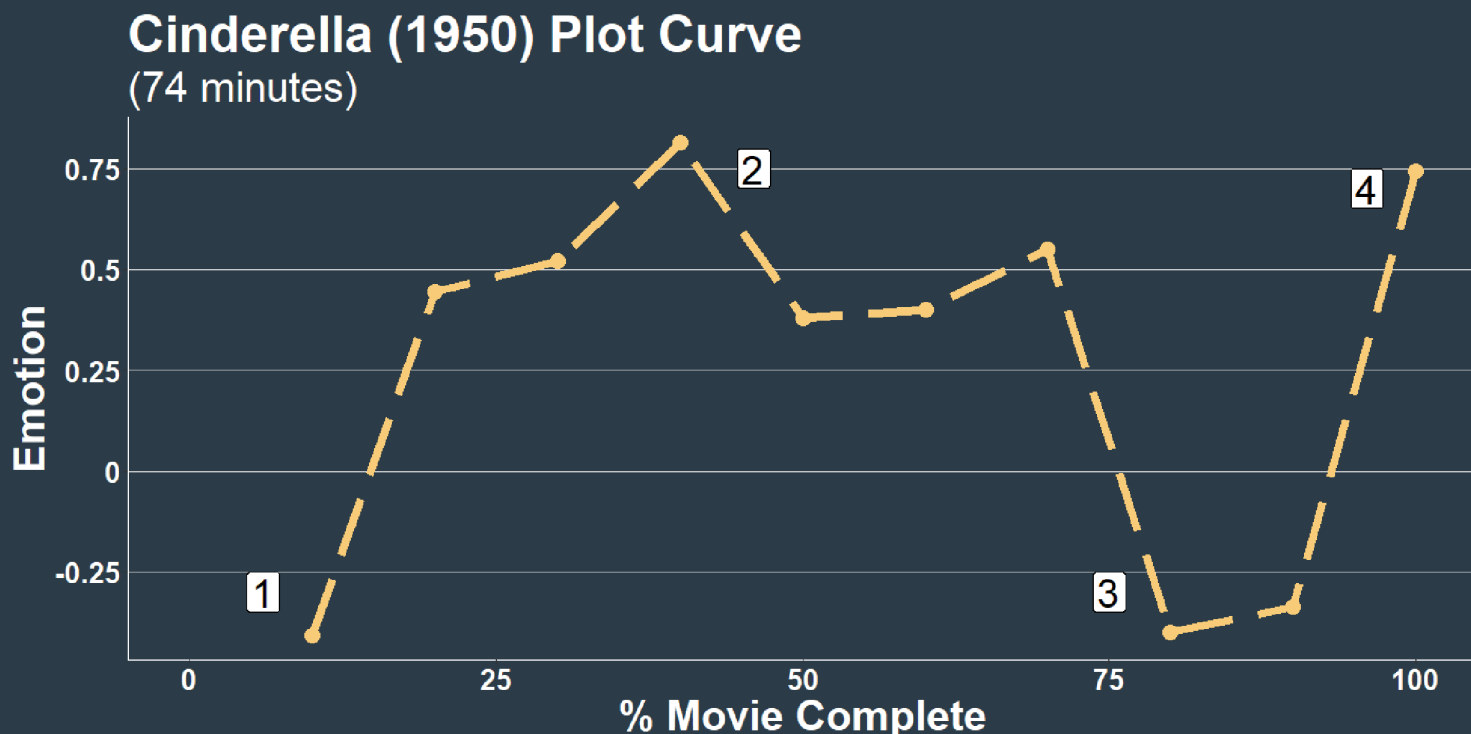
A movie's plot plotline can be approximated by performing sentiment analysis on an in-depth plot description (available through various sources, including Wikipedia). The various emotions through the plot description can be interpreted as the mood at a certain point in the film.

To answer the question, “what is the optimal movie plot,” the most attention is paid to the plot curves that earned the largest average annual revenue.

The data for this study is sourced from *Kaggle*.

Ex. 01:

Cinderella

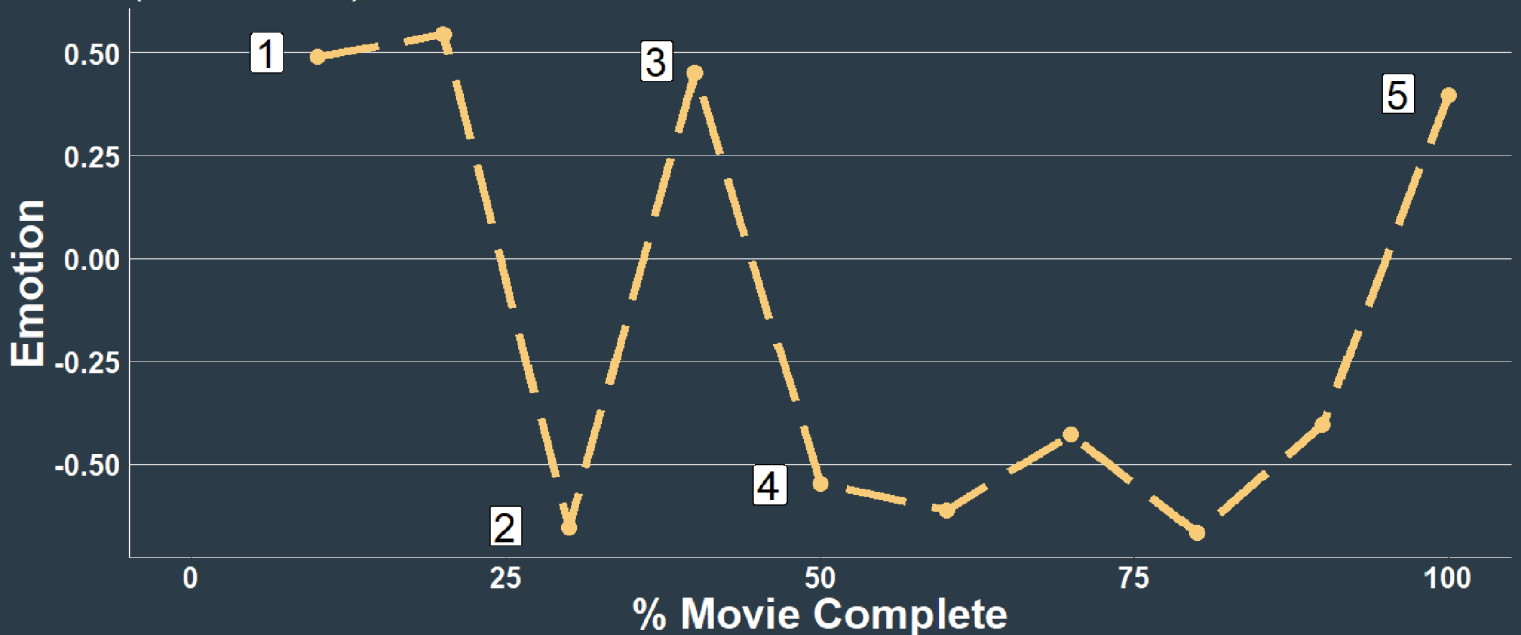


- [1] Cinderella begins her story poor and mistreated.
- [2] Cinderella's fairy godmother makes her happy.
- [3] The clock strikes midnight and Cinderella returns to her normal life.
- [4] Happily ever after!

Ex. 02:

Twelve Angry Men

12 Angry Men (1957) Plot Curve
(96 minutes)

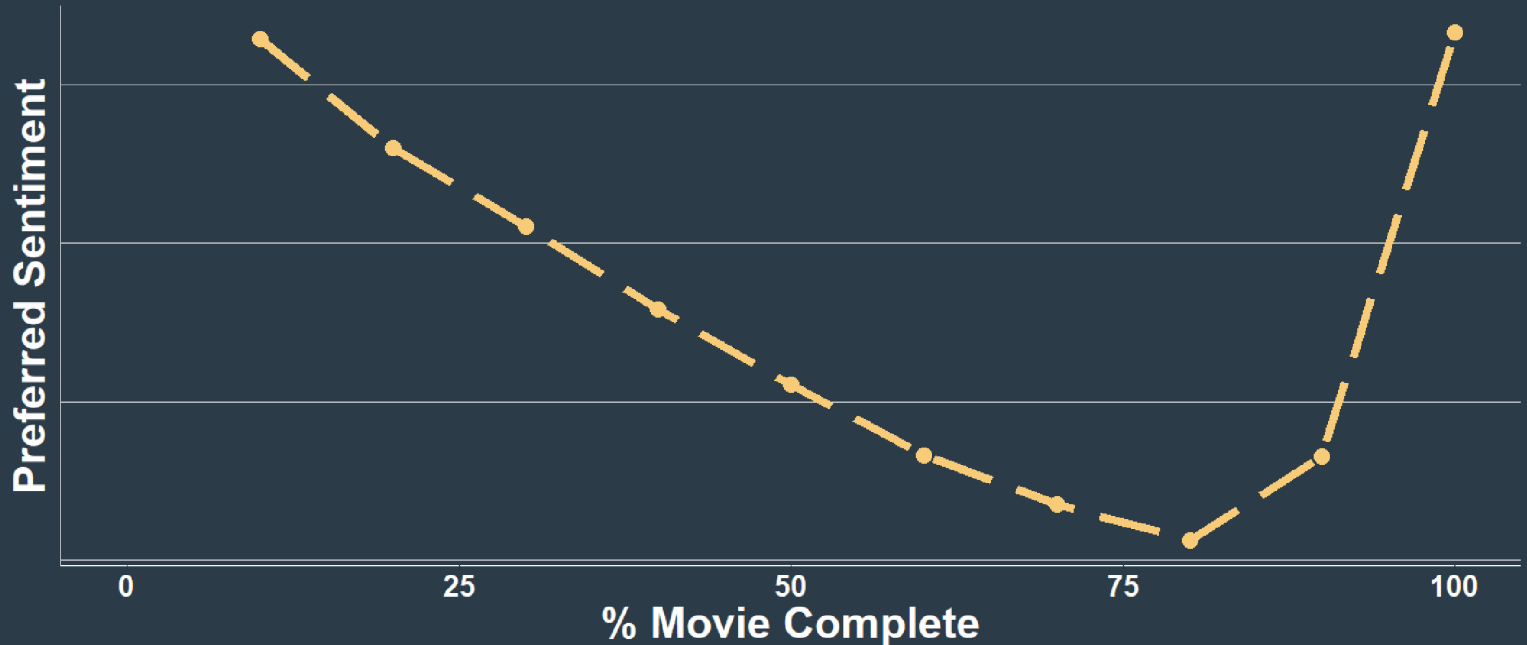


- [1] The jury believes they are all in agreement to convict.
- [2] A dissenter voices his opinion.
- [3] Some of the original members are swayed.
- [4] There are more adamant stances to convict.
- [5] Resolution! The jury rules that there is reasonable doubt.

Results 01

Average Movie Plot Curves

(unweighted average)

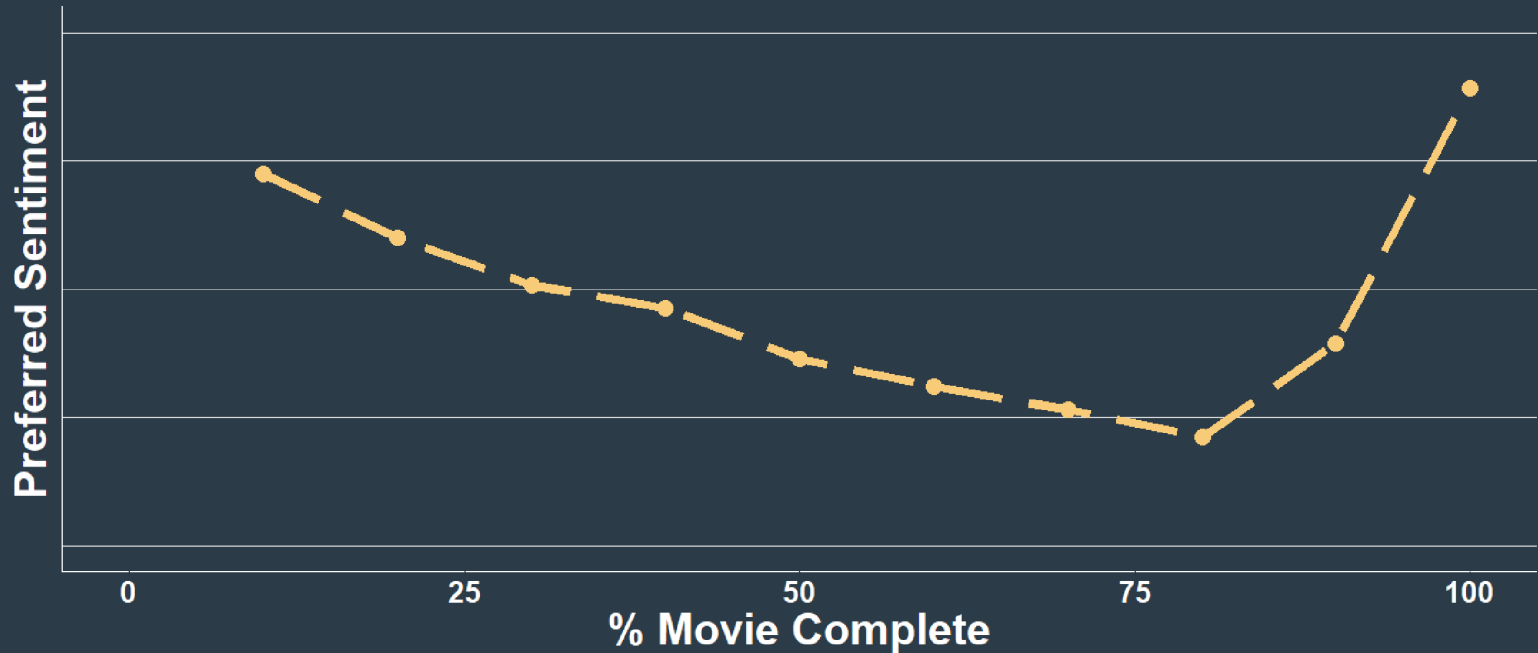


After plot curves were constructed for ~35,000 movies, the emotions at each interval ($n = 10$ in the above case) were averaged to arrive at the most common plotline in the film industry.

This plot structure is commonly referred to as the “man-in-the-hole” story.

Results 02

Averaged Movie Plot Curves (weighted by average annual revenue)



Weighting each plot based on how successful the movie was (by average annual revenue since its release) allows for higher priority to be placed on successful plotlines. Averaging after weighting leads to the culmination in what can be interpreted as the optimal storyline.

Interestingly, the most optimal storyline also happens to be the most common storyline: the “man-in-the-hole.”

Man-in-the-Hole

Famous examples of the “man-in-the-hole” storyline include:

1. *The Godfather* (1991)
2. *Goldfinger* (1964)
3. *Monsters Inc.* (2001)
4. *Harry Potter and the Chamber of Secrets* (1998)
5. *Theseus and the Minotaur* (400 BCE)