Trope-Enabled Neural Network for Predicting Film Ratings

(Final Project of SI696: Big Data Analytics)

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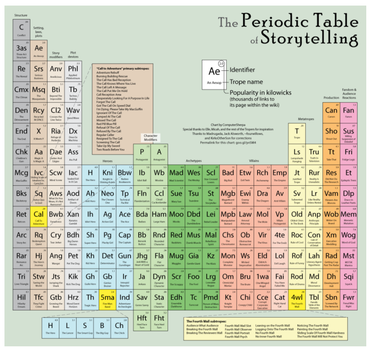
Measuring Narrative for Elements of Success

Uncover the Utility of Narrative



Trope - a narrative feature that the audience will recognize instantly.

Most correlated with IMDB rating:
Bittersweet Ending

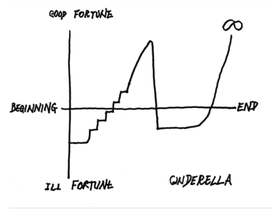
Least correlated with IMDB rating:
Dull Surprise

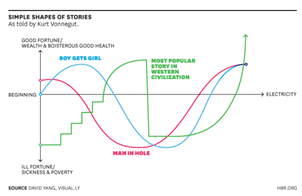
tvtropes

IMDb

Find and Utilize Trope Patterns to Predict Success

"There's no reason why the simple shape of stories can't be fed into computers."
- Kurt Vonnegut





Do Certain Tropes Affect a Movie's IMDB Rating?

BASELINE MODEL

- ❑ Movie 'Year' Only
- ❑ Mean Squared Error: **1.66**
- ❑ 1 Hidden Layer
- ❑ 100 Epochs
- ❑ Batch Size = 5

	IMDB Rating	Year	Trope 1430
Movie 1	8.4	0.06001610555	1
Movie 2	7.6	-0.171465375	0
Movie 3	5.4	0.08584303423	1

Input(s)
Output

4,336 Tropes **6,708 Movies**

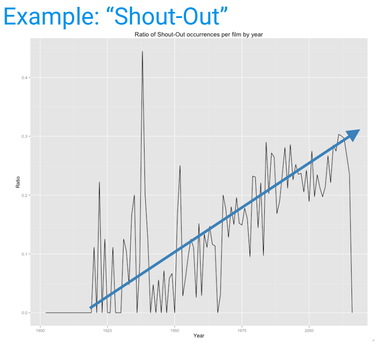
BEST OVERALL MODEL

- ❑ Mean Squared Error: **1.02**
- ❑ 3 Hidden Layers
  - ❑ 2150, 1000, 500 nodes respectively
- ❑ 120 Epochs
- ❑ Batch Size = 10

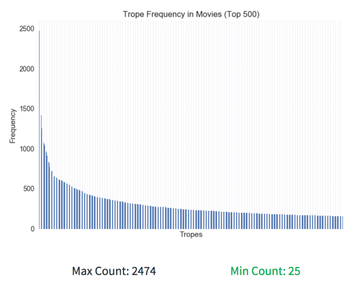
Data Features

- ❑ Year released
- ❑ Movie runtime
- ❑ Time series score for all tropes

Example: "Shout-Out"



Time Series Regression Coefficients



Max Count: 2474 Min Count: 25

Trope Frequency Distribution

This is a final project presentation of SI 696: Big Data Analytics. We thank Sam Carton for the initial data and Prof. Qiaozhu Mei for his assistance and support.

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