

Should there be a Rocky VIII?

Michael Laster



What predicts the gross income of a sequel?

General

- Rotten Tomatoes score?
- rating (i.e. R, PG, PG-13)?
- runtime?

Unique to Sequels

- time since last release?
- continuity?

Sources of Data:

[boxofficemojo.com/
franchises](http://boxofficemojo.com/franchises)

rottentomatoes.com

Franchise Index

Series

Brands

Franchise (click to view chart)	Total Gross	# Movies / Average	#1 Picture	Gross
3 Ninjas	\$41.6	4 \$10.4	3 Ninjas	\$29.0
Alex Cross	\$160.5	3 \$53.5	Along Came a Spider	\$74.1
Alien	\$515.9	7 \$73.7	Prometheus	\$126.5
Alvin and the Chipmunks	\$662.7	5 \$132.5	Alvin and the Chipmunks 2	\$219.6
American Ninja	\$15.8	4 \$3.9	American Ninja	\$10.5
American Pie	\$409.2	4 \$102.3	American Pie 2	\$145.1
Amityville	\$170.5	4 \$42.6	The Amityville Horror	\$86.4
Arthur	\$143.2	3 \$47.7	Arthur	\$95.5
Atlas Shrugged Franchise	\$8.8	3 \$2.9	Atlas Shrugged: Part I	\$4.6
Austin Powers	\$473.2	3 \$157.7	Goldmember	\$213.3
Avengers	\$1,082.4	2 \$541.2	The Avengers	\$623.4

3 NINJAS (1992)

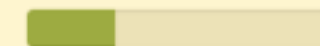


TOMATOMETER

29%

Average Rating: 4.1/10
Reviews Counted: 21
Fresh: 6
Rotten: 15

All Critics | Top Critics



Critics Consensus: No consensus yet.

AUDIENCE SCORE

53%
liked it

Average Rating: 2.7/5
User Ratings: 202,420

ADD YOUR RATING



+ WANT TO SEE

NOT INTERESTED



Add a Review (Optional)

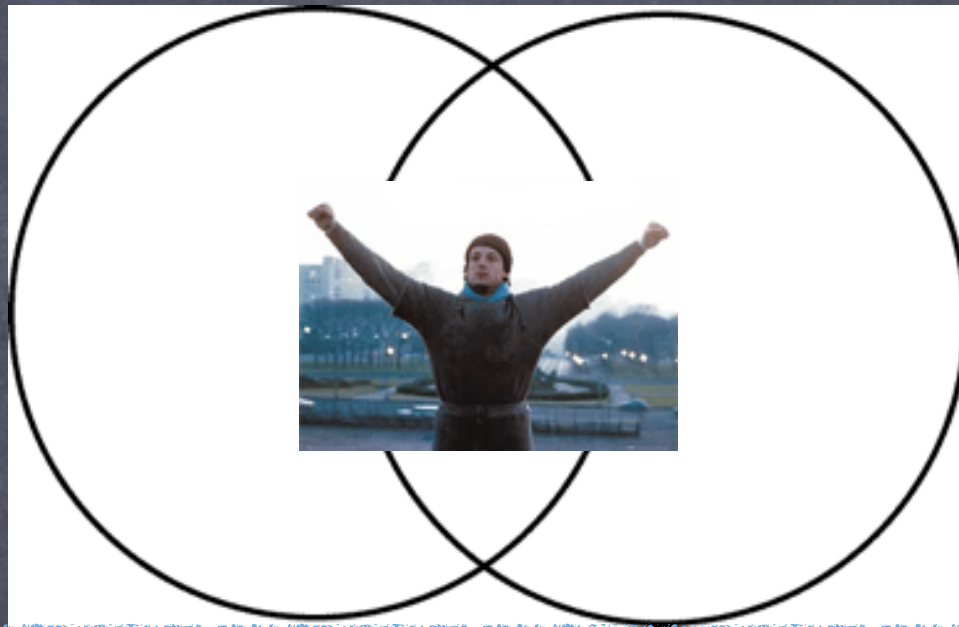
Post

Variables Scraped:

- Adjusted Gross Total Income
- Release date
- Rotten Tomatoes viewer Score
- MPAA Ratings
- Characters

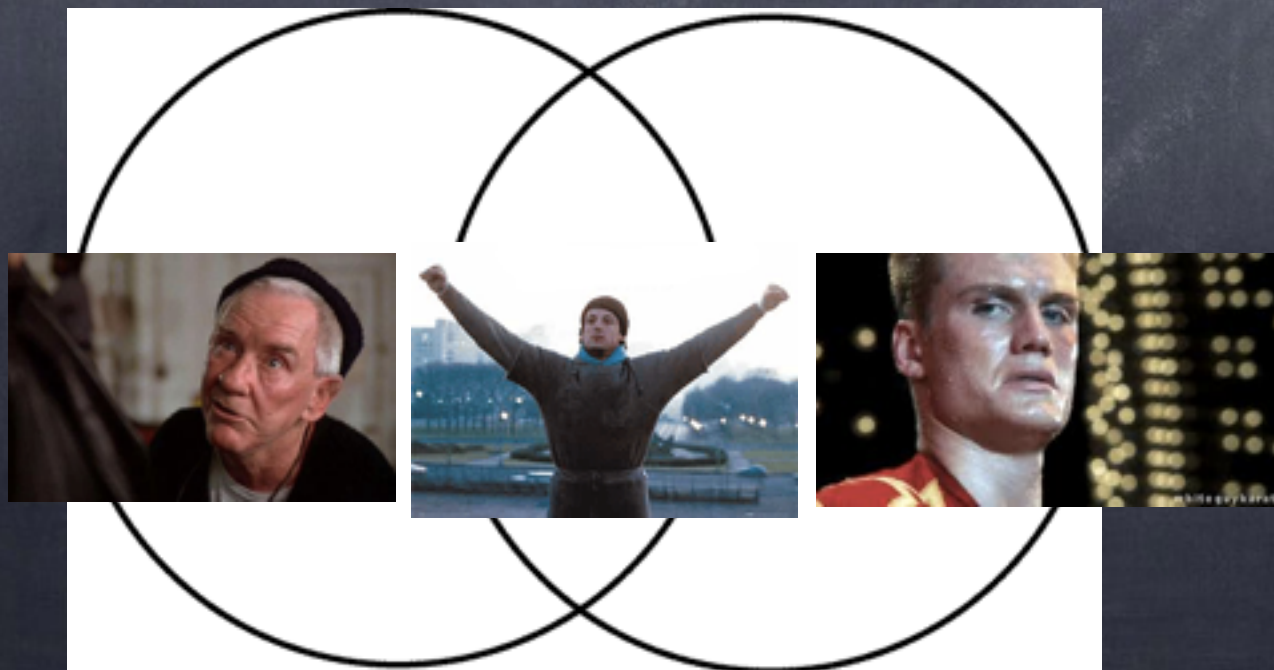
How to quantify continuity?

Rocky
III

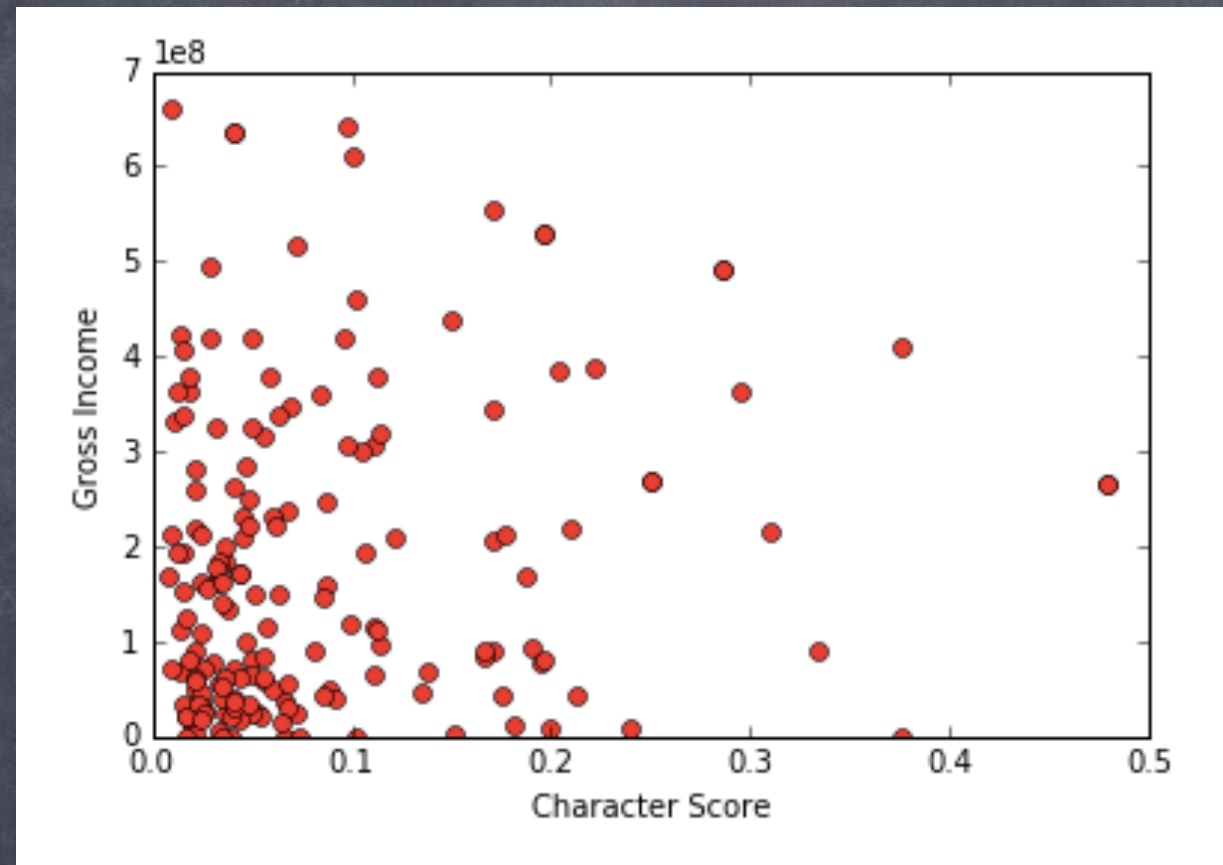


Rocky IV

=Char
Score



Character Score Limited:



possible
remedies to be
discussed...

Results from Linear regression model:

OLS Regression Results

Dep. Variable:	Gross	R-squared:	0.470
Model:	OLS	Adj. R-squared:	0.447
Method:	Least Squares	F-statistic:	20.88
Date:	Thu, 14 Jul 2016	Prob (F-statistic):	5.73e-20
Time:	17:24:29	Log-Likelihood:	-3460.9
No. Observations:	173	AIC:	6938.
Df Residuals:	165	BIC:	6963.
Df Model:	7		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[95.0% Conf. Int.]
Intercept	-1.114e+08	5.28e+07	-2.111	0.036	-2.16e+08 -7.19e+06
Rating[T.NR]	-1.075e+08	1.3e+08	-0.829	0.408	-3.64e+08 1.49e+08
Rating[T.PG]	3.147e+07	4.94e+07	0.637	0.525	-6.61e+07 1.29e+08
Rating[T.PG13]	6.835e+07	4.83e+07	1.414	0.159	-2.71e+07 1.64e+08
Rating[T.R]	-4.939e+07	4.95e+07	-0.998	0.320	-1.47e+08 4.84e+07
Time_elapsed	-2960.4323	3164.408	-0.936	0.351	-9208.383 3287.519
Score	4.476e+06	4.95e+05	9.049	0.000	3.5e+06 5.45e+06
scores	7.766e+07	1.12e+08	0.691	0.490	-1.44e+08 3e+08

Omnibus:	9.499	Durbin-Watson:	1.650
Prob(Omnibus):	0.009	Jarque-Bera (JB):	10.055
Skew:	0.464	Prob(JB):	0.00655
Kurtosis:	3.732	Cond. No.	4.96e+04

A few take-aways for further refinement:

- Rotten tomatoes user ratings seem to be notable for predicting gross income
- Time since last release doesn't appear too important
- "Character Score" method needs more adjustment