A Call for Inclusivity: Classifying Movies with a Bias against Female Presence

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Credits to "Hollywood's Gender Divide and its Effect on Films," The Pudding

Motivation

- American audiences are increasingly interested in a more equal view of men and women in movies
- Historically, movies have shown a bias towards male-dominated fiction

Can we predict movies for their bias against women's roles?

- Avoiding bias to increase viewership

Female inclusivity determined by **Bechdel Test Criteria:**

Oh no! We have nothing to talk about without men!

1: It has at least two women

2: The two women talk to each other

3: The topic of conversation is not about a man

Data

Bechdel Test Movie List Data

- 8781 movies released from 1888 to 2020
- Crowd-sourced evaluations of the Bechdel Test

Does the Gender of Filmmakers Predict Implicit Bias in Movies?

Methodology

- Names of principal cast and crew for each movie were identified by IMDb data
- Genders were determined using a Gender-Guesser Python package:
    1. The first names of filmaking staff are coded as male/female, 'mostly male/female,' androgynous, or unknown
    2. Movies coded with an all androgynous or unknown cast and crew were dropped (~13%)
- Restrict to movies released after 1990 to control for progress in gender diversity

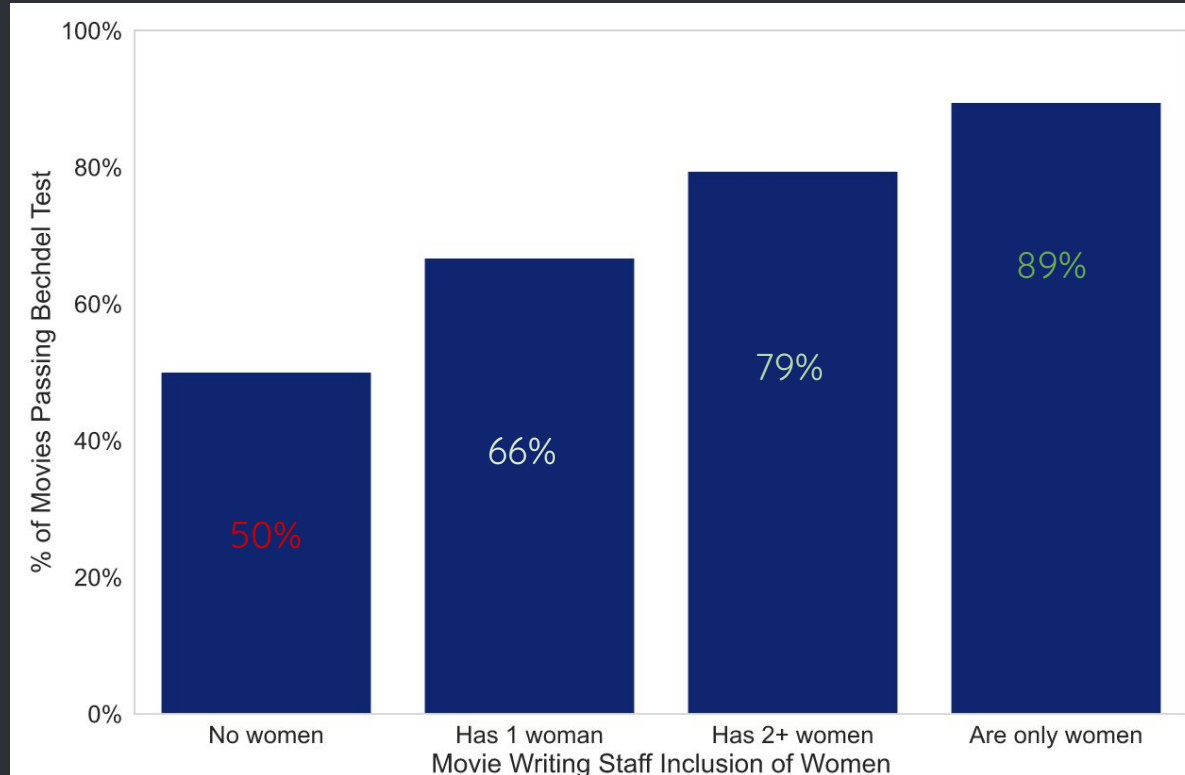## Use a Logistic Regression to Identify Impact of Gender

Predict Bechdel Test Movie Pass based on:

- The participation of women in decision-making roles:
    - Writing
    - Directing
    - Producing
    - Editing
    - Cast
- Control variables:
    - Indicator for Top Production Companies
    - Indicator for Top International Production Companies
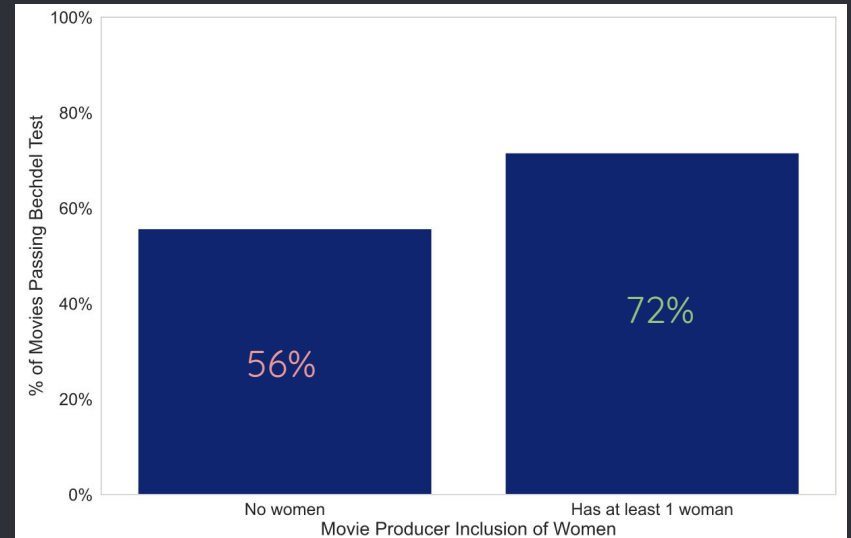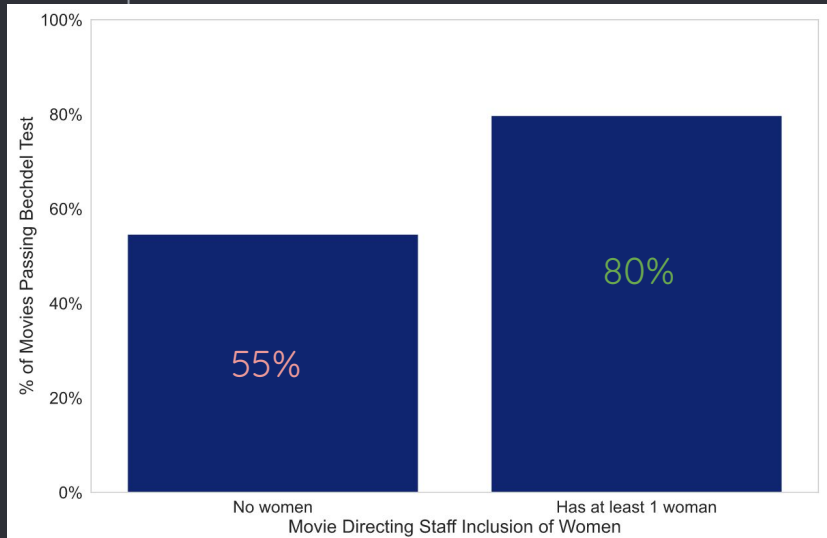   - Indicator for decade of movie's release

Identify **accuracy** of prediction as metric of success

Including at least one woman on a movie's writing staff has a significant effect on the movie's success rate
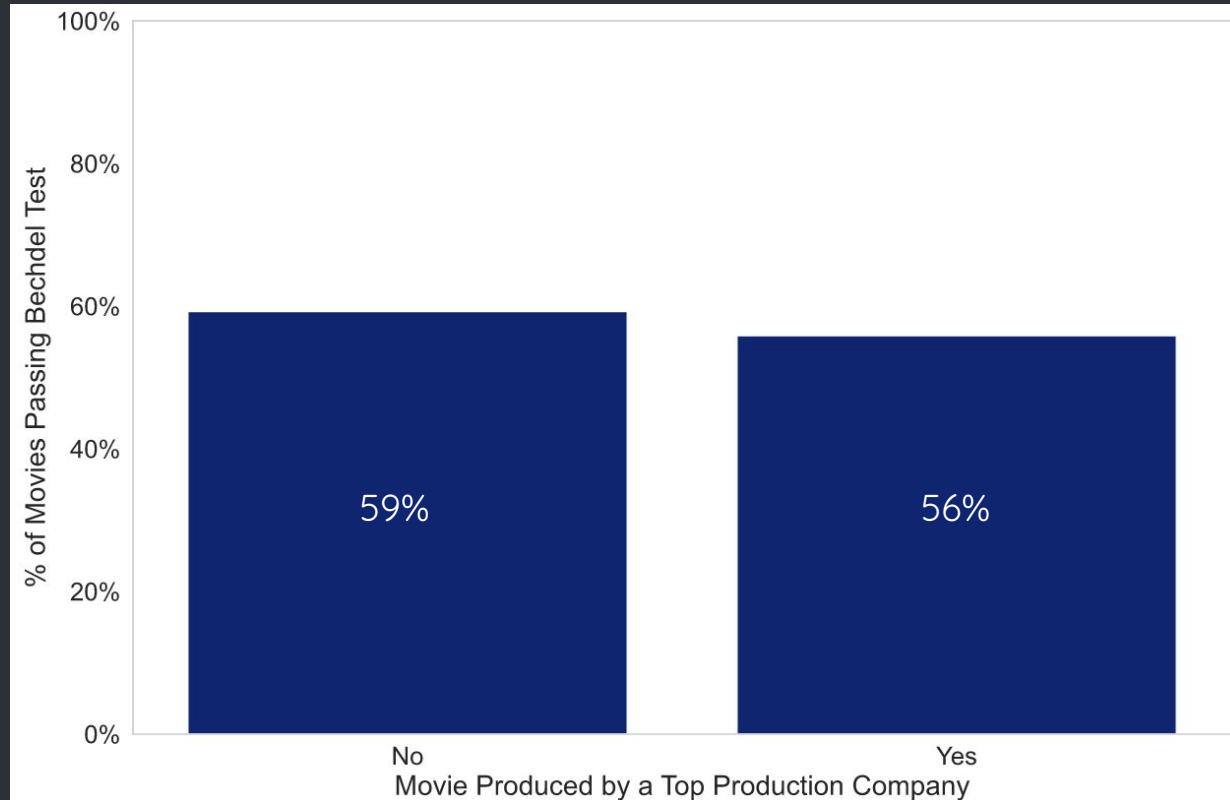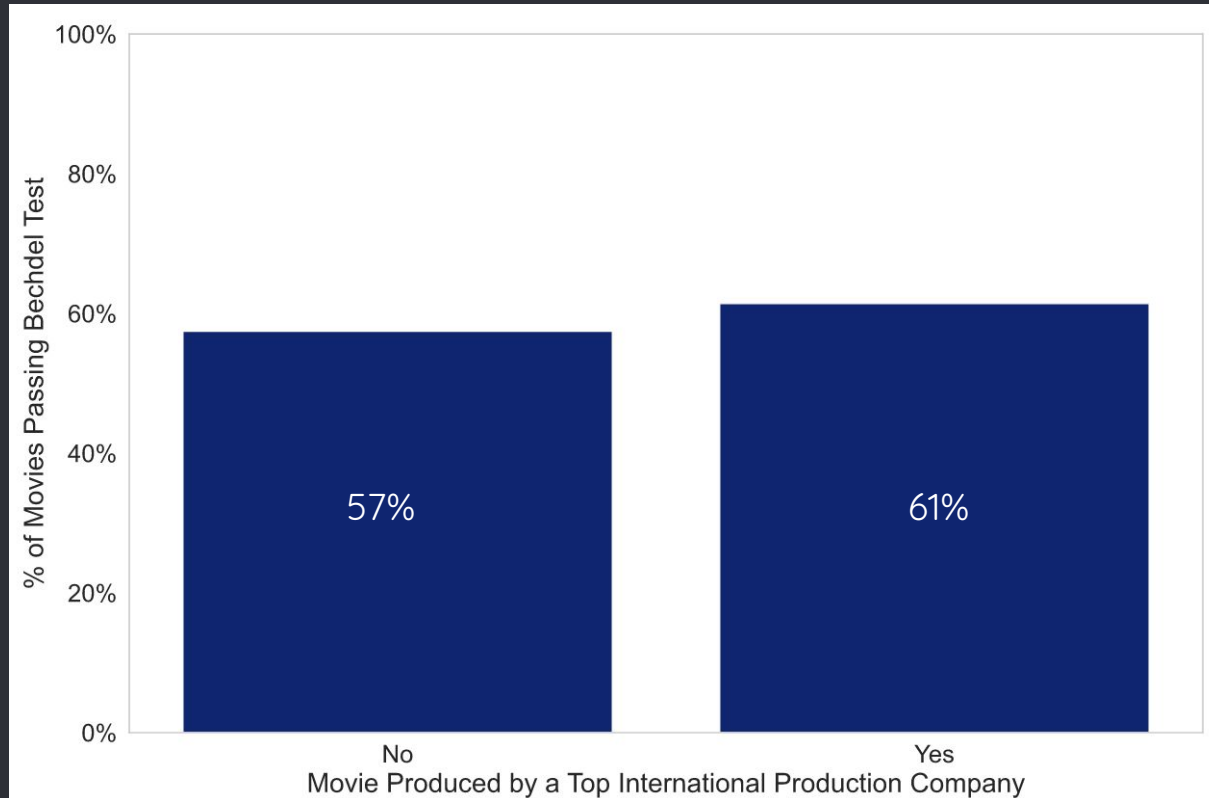Inclusion raises the share of movies that pass well above 50%

Female-directed and -produced movies also show an improvement in a movie's passing rate

Top production companies are marginally less successful at producing movies passing the Bechdel Test

Top international production companies have produced movies marginally more successful at passing Bechdel Test

68%

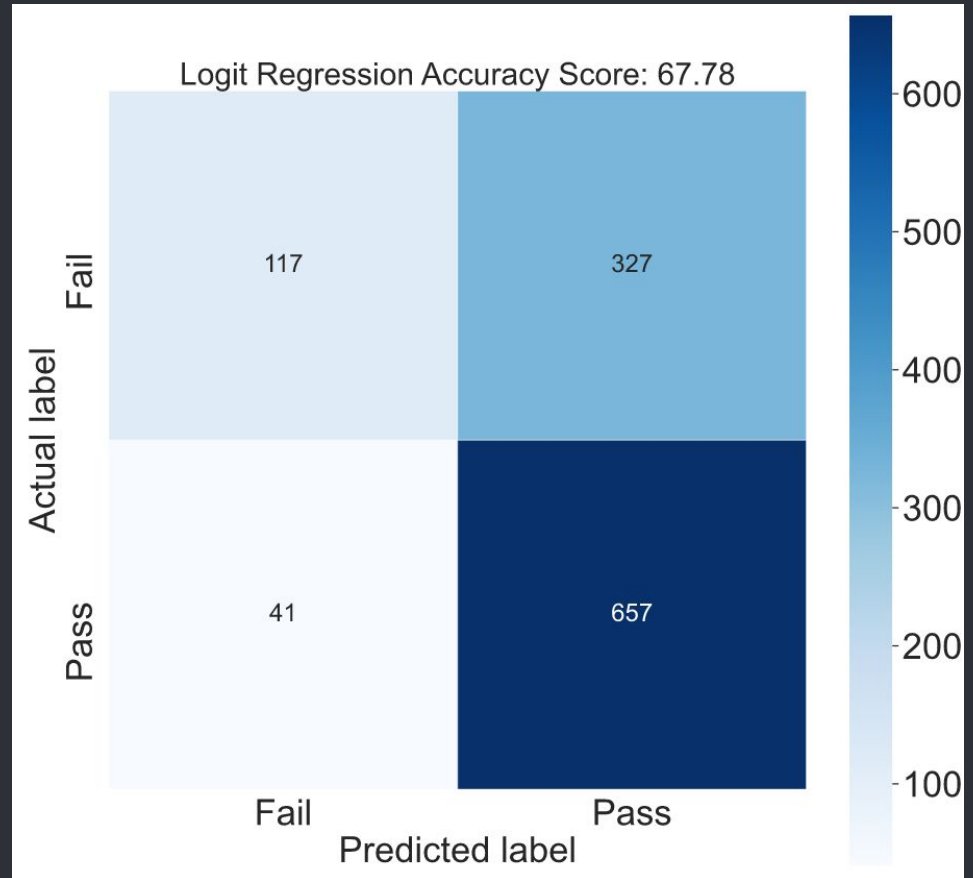Average accuracy of predicting a movie's passing of the Bechdel Test on unseen movie data

Results

Precision of Labelling Pass: 67%

Recall of Labelling Pass: 94%

Precision of Labelling Fail: 74%

Recall of Labelling Fail: 26%

Gender Matters

- Including women in the filmmaking staff can reduce bias away from male-dominated stories
- Filmmakers should strive to promote inclusion of women in the job pipeline process

Gender can Predict Bechdel Success

- Looking at only the gender of a movie's cast and crew may be indicative which movies have roles biased against women
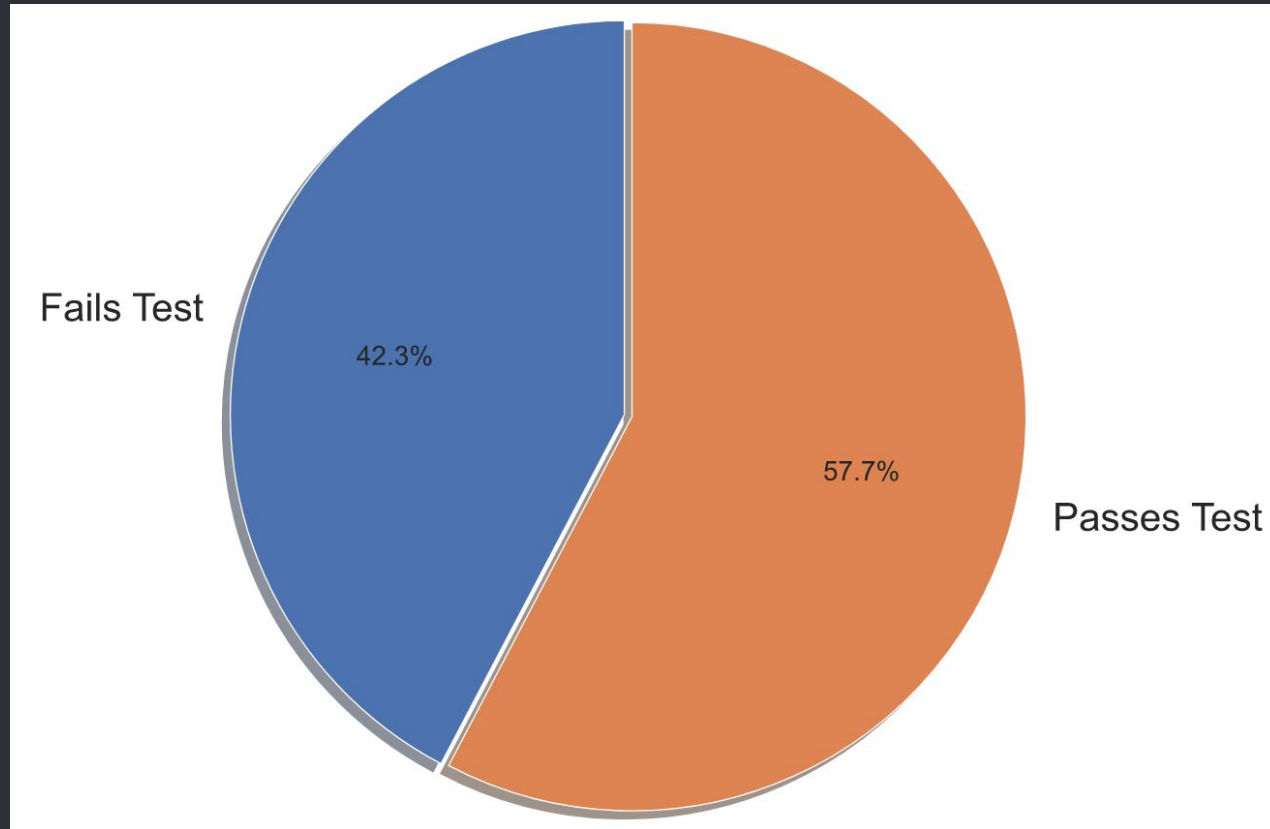- Viewers have a simple measure to indicate interest in a movie

Future Work

- Include more features and feature engineering
  - Movie Genre, Movie Taglines
  - Verify Gender Guesser using Cast Bios
  - Time Series Component - Prior Movie Success Rate
- Visualize a impact of model's coefficients in Web App
- Analyze other classifications that indicate other dimensions of inclusivity
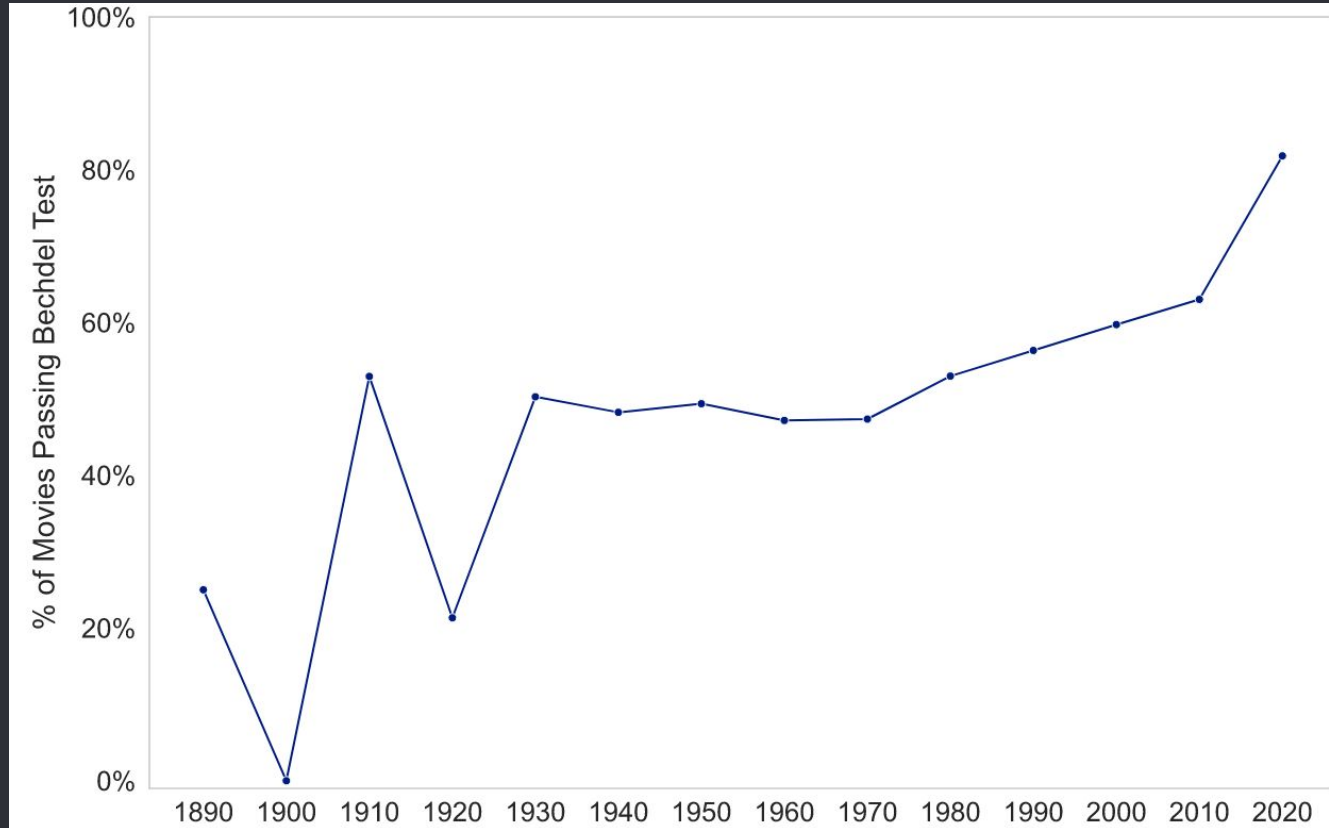 - People of color
  - Seuxality

Thanks!

A large portion of movies fail the Bechdel Test

However, movies are increasingly passing the Bechdel Test over time

Top Production Companies and their Share of Movies Passing the Bechdel Test

	Passing Movies	Total Movies	Bechdel Pass %	Ex-US?
Warner Bros.	188	394	48%	No
Universal Pictures	188	345	54%	No
Paramount Pictures	160	302	53%	No
Columbia Pictures	141	294	48%	No
Canal+	163	263	62%	Yes