

# Analysis of Movie Genre and Ratings

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September 28, 2023

## 1 Research Question

Do different genres receive varying critical appreciation? We compare 3 movie genres ('Comedy', 'Documentary', 'Drama') with their ratings ('Rotten', 'Fresh', 'Certified Fresh') to determine if there is a statistically significant correlation between the two variables.

## 2 Analysis

The tables below provide the joint distribution of raw values (Figure 1) and conditional distributions of proportions (Table 1). The conditional distributions in Table 1 show non-identical distributions of ratings according to genre. The probability of "Rotten" conditional on the movie being a comedy is ....., while the probability of "Rotten" conditional on the movie being a documentary is only.... This is a first indication that genre and ratings are not independent.

genre	critics_rating			
	Rotten	Fresh	Certified	Fresh
Comedy	63	14		10
Documentary	3	32		17
Drama	124	106		75

Figure 1: Contingency table—Joint distribution raw values

Genre/rating	Rotten	Fresh	Certified Fresh	Sum
Comedy	0.72	0.16	0.11	1.0
Documentary	0.06	0.62	0.33	1.0
Drama	0.41	0.35	0.25	1.0

Table 1: Contingency table–Conditional distributions proportions

We also visualize the results in Table 1 in Figure 2, which confirms that the probability of “Rotten” varies greatly depending on the genre.

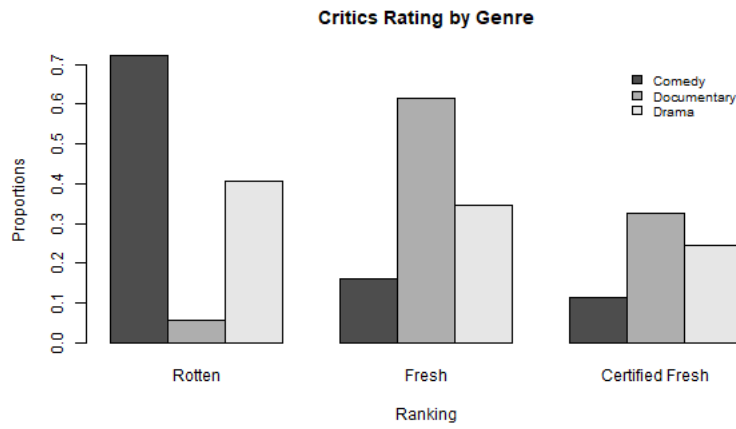


Figure 2: Bar plot–Conditional distributions proportions

Finally, we use the Chi-square test of independence to validate whether genre and ratings are independent or not. The code used is detailed below:

```
# Run Chi squared test
chisq.test(df_s$genre, df_s$critics_rating)
```

The results of the test were as follows:

Pearson’s Chi-squared test

```
data: df_s$genre and df_s$critics_rating
X-squared = 62.008, df = 4, p-value = 1.097e-12
```

### 3 Conclusion

In conclusion, we rejected the null hypothesis that ranking and genre are independent. In particular, we note that Comedy seems to be more likely to

receive rotten reviews, while documentaries are less likely to receive rotten reviews.