

Sentiment Analysis of Tweets of WWE's RAW vs Smackdown

Introduction

For nearly 20 years WWE has had two shows RAW and Smackdown Live. Smackdown has always been considered the "B show" to RAW. Jokes revolve around Vince McMahon's overwhelming bias towards the Monday night show. In 2016 the shows were split into different brands entirely. This involved each show having their own rosters, their own writers and their own championships. Outside of once or twice a year, the two brands do not interact and operate independently.

Since RAW is considered the "A show" and has larger resources to draw from, a three hour time slot (Smackdown is 2 hours) and some of the biggest names in the business (Rhonda Rousey joining RAW earlier this year, for example), it would make sense that the show would resonate more with viewers. I was curious about exploring this using sentiment analysis and Twitter to gauge fan reactions to determine which show was truly 'better.' My hypothesis is that Smackdown has stronger fan support over RAW. I'll admit that this is due to some personal bias as I prefer Smackdown's storylines and roster and because the growth women's wrestling has achieved the past couple of years, with Smackdown's women participating in main events regularly and accomplishing many "firsts" for women in the industry.

Data Collection

Using the streaming method in the tweepy package, I streamed tweets for #RAW on 12/3/2018 and 12/10/2018. I streamed tweets for #SDLive on 12/4/2018 and 12/11/2018. The tweets were loaded into Pandas DataFrames where sentiment analysis using the nltk package was used to measure the sentiment of each tweet. The text was dropped from the DataFrames and saved as .csv files to be analyzed in R. For the second week's Twitter streams I included retweets just to see if it would have any effect on the overall sentiment. Overall, 120,876 tweets were collected between both weeks.

Analysis

Once the data was loaded into R I created an aggregate of the mean sentiment per minute for each of the four dataframes. The data for each week was bound and plotted in a stacked bar plot to show the average sentiment per minute. There is a period on the Smackdown for 12/4/2018 where my internet cut out for about 15 minutes and the last hour for RAW on 12/10/2018 ran into the same issue but I didn't catch that the connection was dropped.

After this I plotted each shows tweets per minute to compare how many tweets each show received.

Finally, I used a t-test on each week to determine if the sentiment of one show was significantly higher than the other.

The results were fairly dramatic with Smackdown being overall nearly completely positive both weeks and with RAW being nearly completely negative both weeks. RAW week 1 had a mean sentiment of -0.0104 while Smackdown had a mean sentiment of 0.1136. Likewise, for week 2 RAW had a mean sentiment of -0.0839 while Smackdown had a mean sentiment of 0.1026.

When running the t-test:

H_0 : There is no difference in sentiment between RAW and Smackdown

H_a : There is a significant difference in sentiment between RAW and Smackdown

The results for both weeks gave a p-value of $< 2.2e-16$ which is less than the α of 0.5. I can reject the null hypothesis and say that the sentiment for Smackdown is greater than that of RAW for at least two weeks in a row.

Conclusion

Running this program over a couple of months could be interesting to see how the sentiment could change over time. RAW is currently getting the lowest ratings in the history of the show and I think this is being represented in the overall negative attitude fans have on Monday nights. This is mostly due to poor writing and uninteresting angles with a lot of office politics leaking out into the ring making it hard for fans to suspend disbelief for a couple of hours, which is why we watch in the first place.

It's also interesting to note that there are far more tweets on Mondays than there are on Tuesdays. This could mean that more people are watching RAW than Smackdown which may play a part in the overall sentiment. It could be since RAW is the "A show" more people tune into that while the "B show" is more for bigger fans.

WWE also has several minor league style shows and a cruiserweight division that air different nights and on different platforms. In the future I might try to extend this to determine what truly is the best show the WWE puts on.

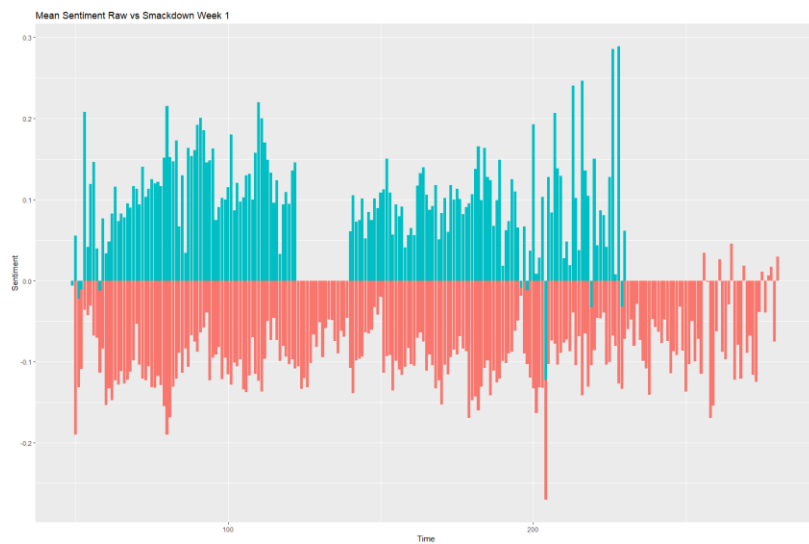


Figure 1 Mean Sentiment RAW vs Smackdown Week 1

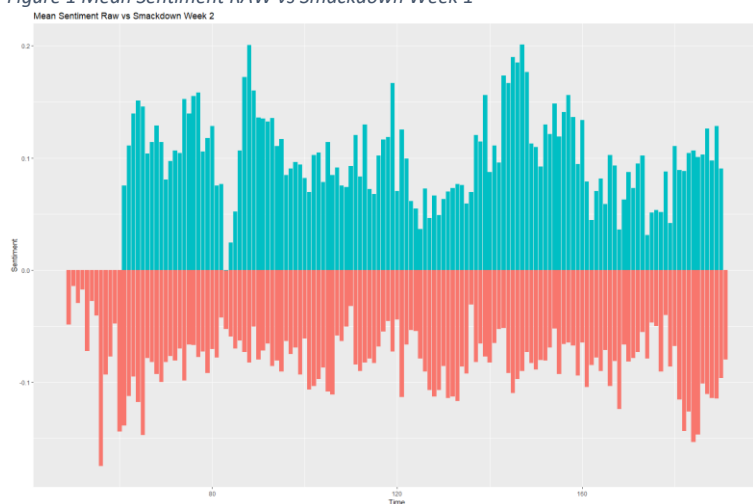


Figure 2 Mean Sentiment RAW vs Smackdown Week 2

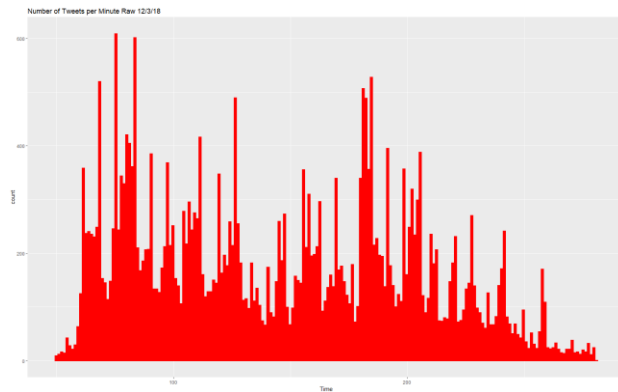


Figure 3 Tweets/min RAW week 1

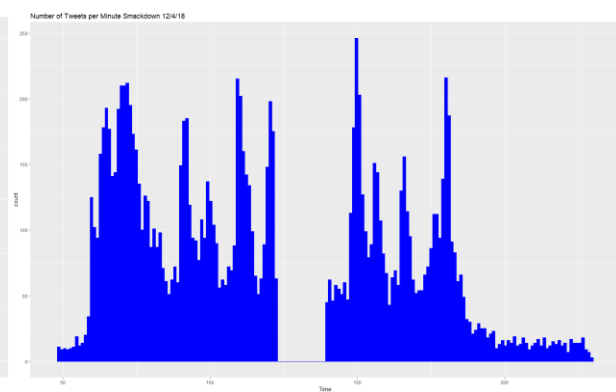


Figure 4 Tweets/min SD week 1

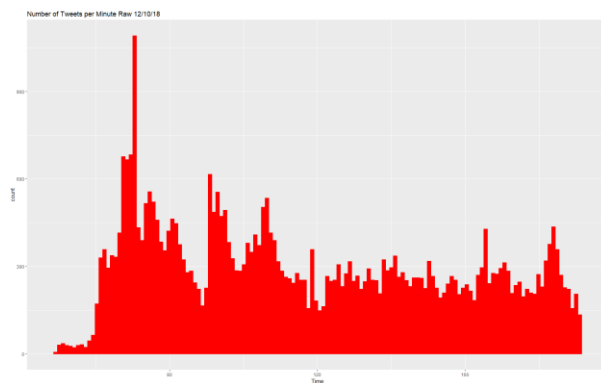


Figure 5 Tweets/min RAW week 2

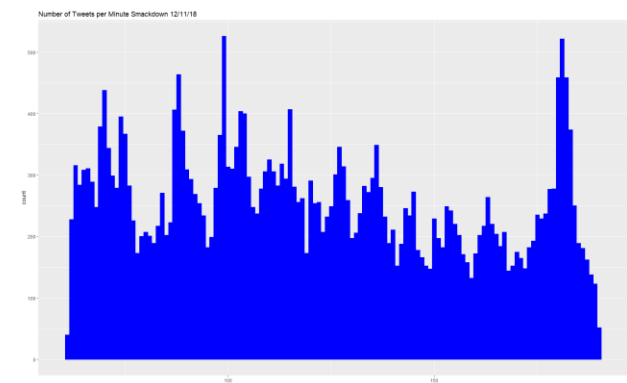


Figure 6 Tweets/min SD week 2