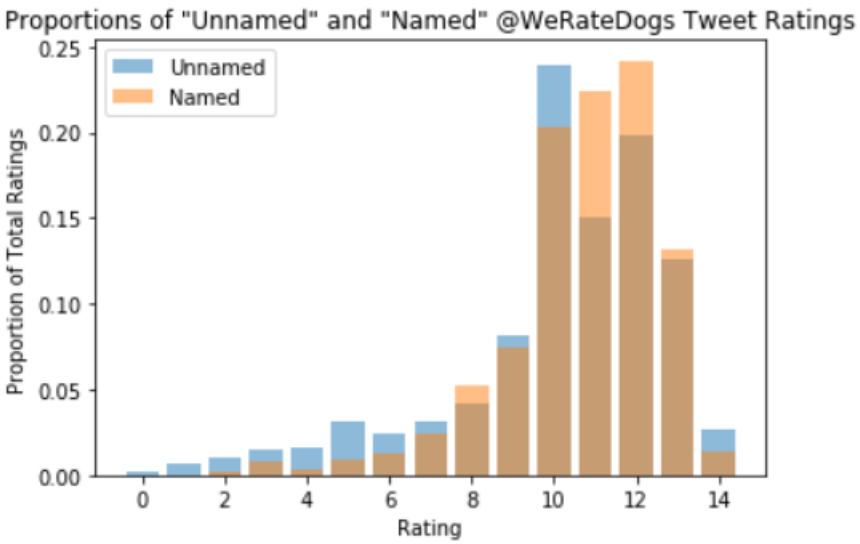
Analysis of @WeRateDogs Ratings

The @WeRateDogs Twitter account involves a dog-lover's "rating" of a dog or dogs featured in a submitted image. In essence, the rating scale runs from 0 to 10 (per dog), but the ratings tend to exceed the upper boundary of 10 because of this Twitter user's love for dogs, implied by the user's quip "(because) they're good dogs, Brent".

Because of the central role of the ratings at @WeRateDogs, factors affecting rating value and the influence of rating value on subsequent retweet and favorite counts were investigated. After assessing the gathered @WeRateDogs Twitter data, only original tweets (i.e., no replies nor retweets) with an available image and a rating of 15 or less were analyzed (n = 1953). Notably, while most submitted images and ratings did appear to involve a dog, a review of a sample of the text messages and images and their respective tweet ratings indicated that this was not always the case. However, to avoid excessive exclusion of valid data and due to the difficulty in systematically identifying invalid (i.e., non-dog) data, the cleaned Twitter dataset was not pared further.

The first investigation assessed whether the tweets without an easily identifiable dog name (i.e., "unnamed", n = 605) tended toward lower rating values than the tweets with a dog name ("named", n = 1348). This inquiry stemmed from the impression arising during data assessment that a sample of tweets that did not include a dog, and also no name, were associated with lower rating values (i.e., less than 10). Figure 1 shows a comparison of the proportion of unnamed tweets and named tweets having the indicated rating value.

FIGURE 1:



This comparison suggests that, indeed, a greater proportion of unnamed tweets occurred at all but one of the lower rating values (i.e., 10 or less), although a greater proportion of unnamed tweets was also observed at the highest rating (i.e., 14).

The second investigation assessed whether subsequent retweet count and/or favorite count correlated with the corresponding dog rating. Figure 2A and 2B show scatter plots of the

logarithm (base 10) of each tweet's retweet count and favorite count, respectively, relative to its dog rating value.

FIGURE 2A:

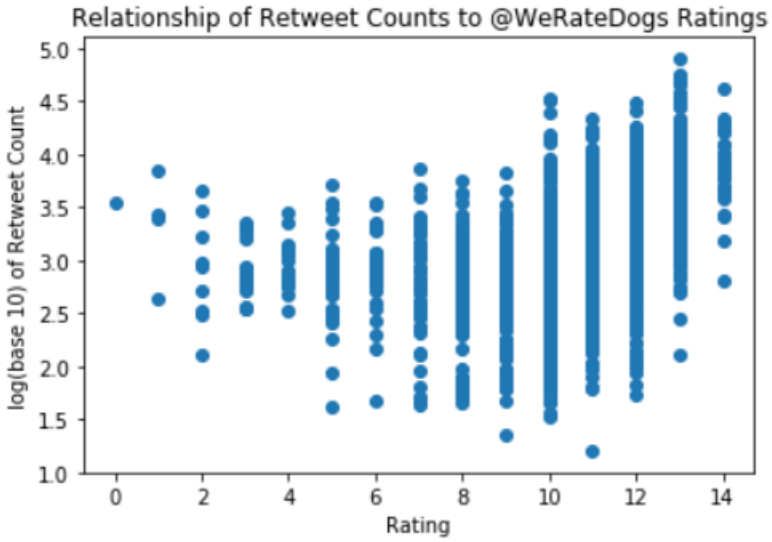
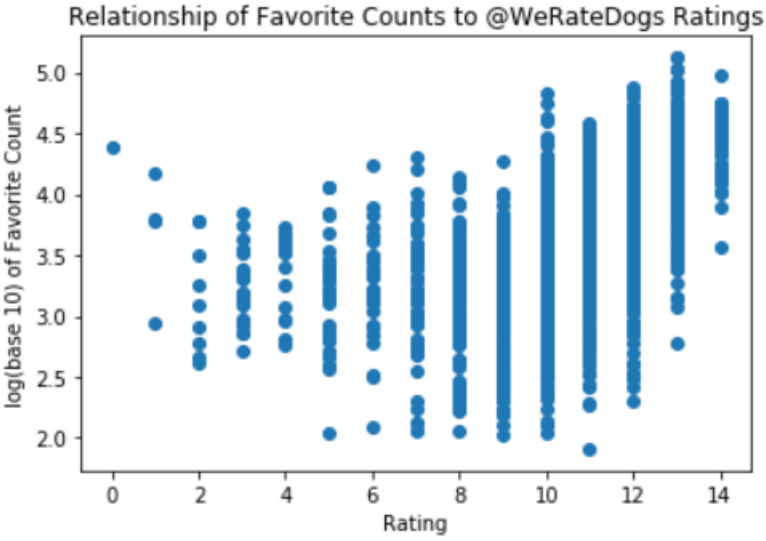


FIGURE 2B:



Interestingly, it appears that both retweet counts and favorite counts show a similar relationship to the corresponding rating values, and this relationship appears to have a non-linear "concave" shape. This suggests that more extreme ratings generally lead to greater retweet and favorite counts.

For the third and final investigation, breed prediction data from a single submitted image for each rated tweet was further limited to the 10 most common, high probability dog breed predictions (i.e., prediction ranking = 1, prediction confidence > 0.5, and prediction of a valid dog breed = True) (n = 466). Descriptive statistics of the rating values for this data subset were generated to assess whether any of these 10 dog breeds tended to have lower or higher ratings (see Table 1).

Table 1: Descriptive rating statistics for the 10 most common, high probability dog breed predictions.

prediction	count	mean	std	min	25%	50%	75%	max
pug	43.0	10.209302	1.819970	3.0	9.50	10.0	11.0	13.0
Chihuahua	46.0	10.565217	1.939670	5.0	10.00	11.0	12.0	14.0
toy_poodle	23.0	11.130435	1.099766	9.0	10.50	11.0	12.0	13.0
Pomeranian	29.0	11.172414	1.002460	10.0	10.00	11.0	12.0	14.0
Labrador_retriever	62.0	11.193548	1.340892	8.0	10.00	11.0	12.0	13.0
French_bulldog	22.0	11.227273	1.770978	8.0	10.25	11.5	12.0	14.0
Pembroke	70.0	11.657143	1.540616	4.0	11.00	12.0	13.0	14.0
golden_retriever	115.0	11.686957	1.209358	8.0	11.00	12.0	12.0	14.0
chow	26.0	11.730769	0.961569	10.0	11.00	12.0	12.0	13.0
Samoyed	30.0	11.733333	1.014833	10.0	11.00	12.0	13.0	13.0

While there is notable overlap in rating values among all 10 of the analyzed dog breeds, the pug breed mean rating and five-number rating distribution summary (min, quartiles, and max) are suggestive of a full point lower rating overall for pugs compared to the consistently highly rated chow and Samoyed breeds.

In summary, the above analyses suggest that original, rated tweets without a named dog have disproportionately lower ratings. Furthermore, the retweet counts and favorite counts of these tweets appear to generally parallel each other, with more extreme ratings (either low or high) seeming to correspond to higher retweet and favorite counts. Finally, tweets with a high probability of involving a dog among the 10 most common breeds suggest that certain breeds of dog tend to be more highly rated (e.g., chow and Samoyed) than others (e.g., pug).