

WHY DO WE FIND SOME REVIEWS MORE HELPFUL? THE ROLE OF VERIFIED STATUS AND EMOTIONAL TONE

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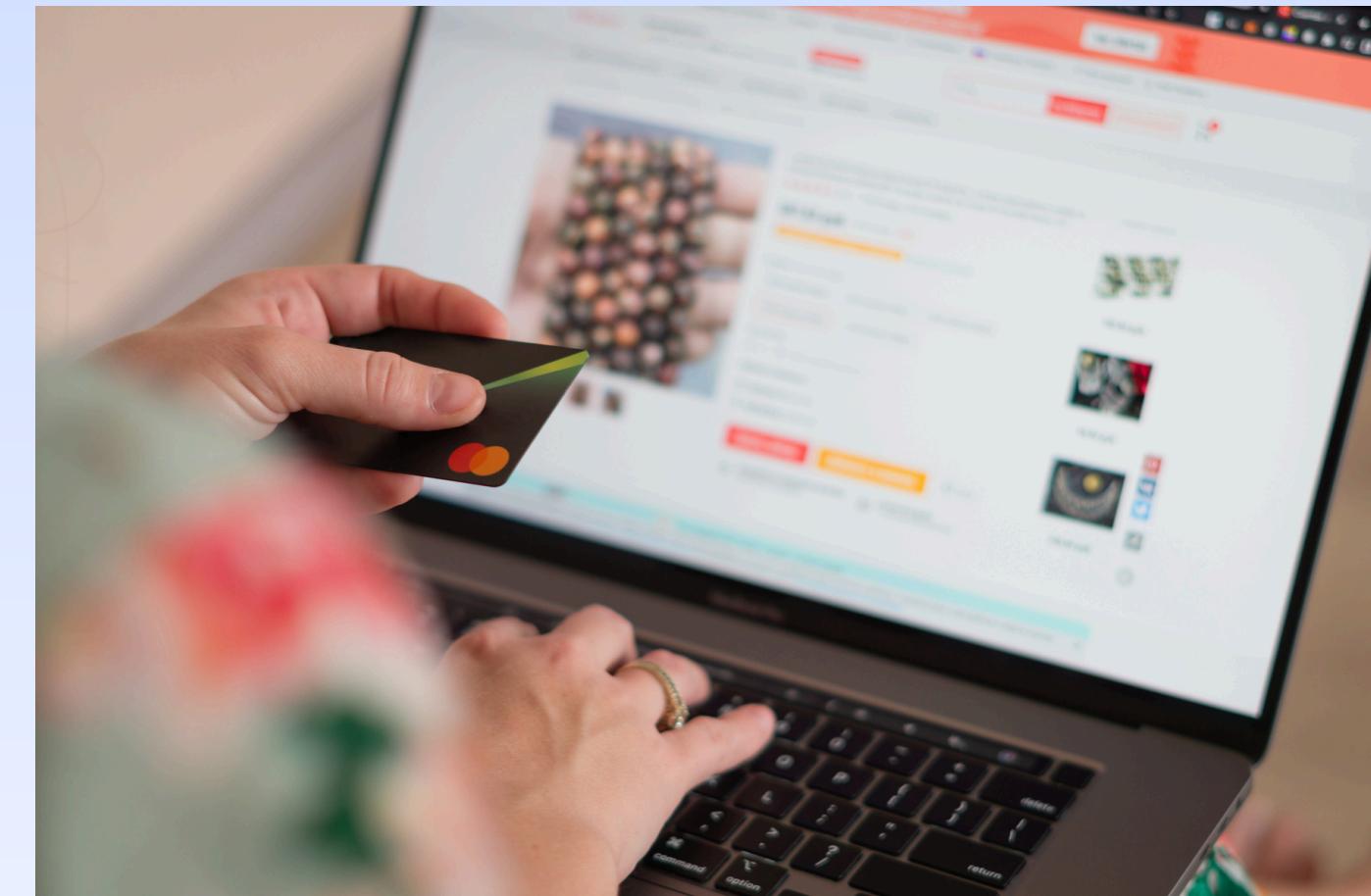
Master's in Computational Social Science

2 July 2025

Sebastian Daza

OUTLINE

- Introduction & Background
- Methodology
- Main Results
- Hypothesis Evolution
- Discussion
- Conclusion
- Thank You / Q&A
- Appendix



INTRODUCTION & BACKGROUND

MOTIVATION

Question: *How do verified purchase status and emotional tone influence the perceived helpfulness of online product reviews?*

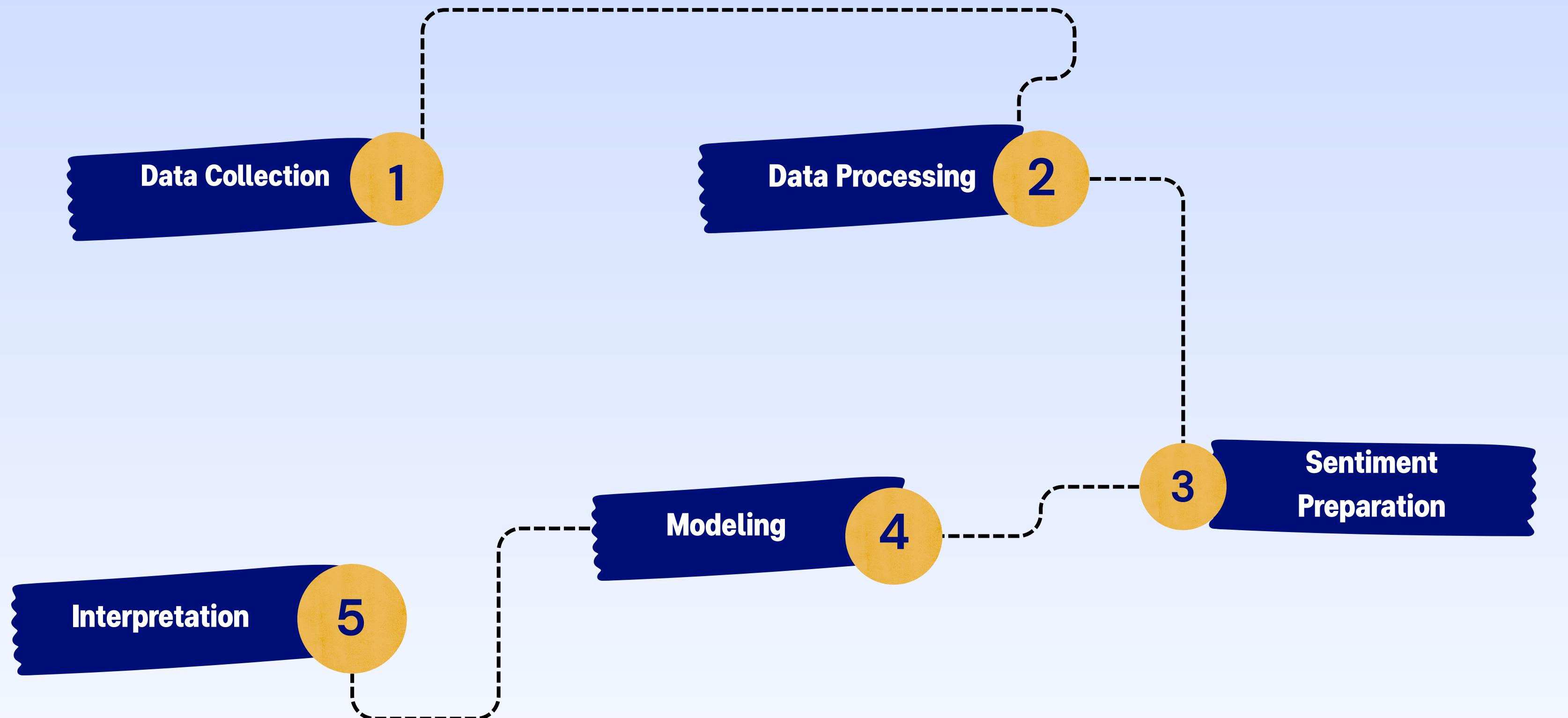
BACKGROUND

Verified reviews increase trust (credibility cue)
Emotional tone boosts engagement
ELM: Message + Source both affect perception

RESEARCH GAP

Few studies combine verified status & emotion
Interaction effects rarely tested
Contextual factors (e.g., price) often ignored

METHODOLOGY



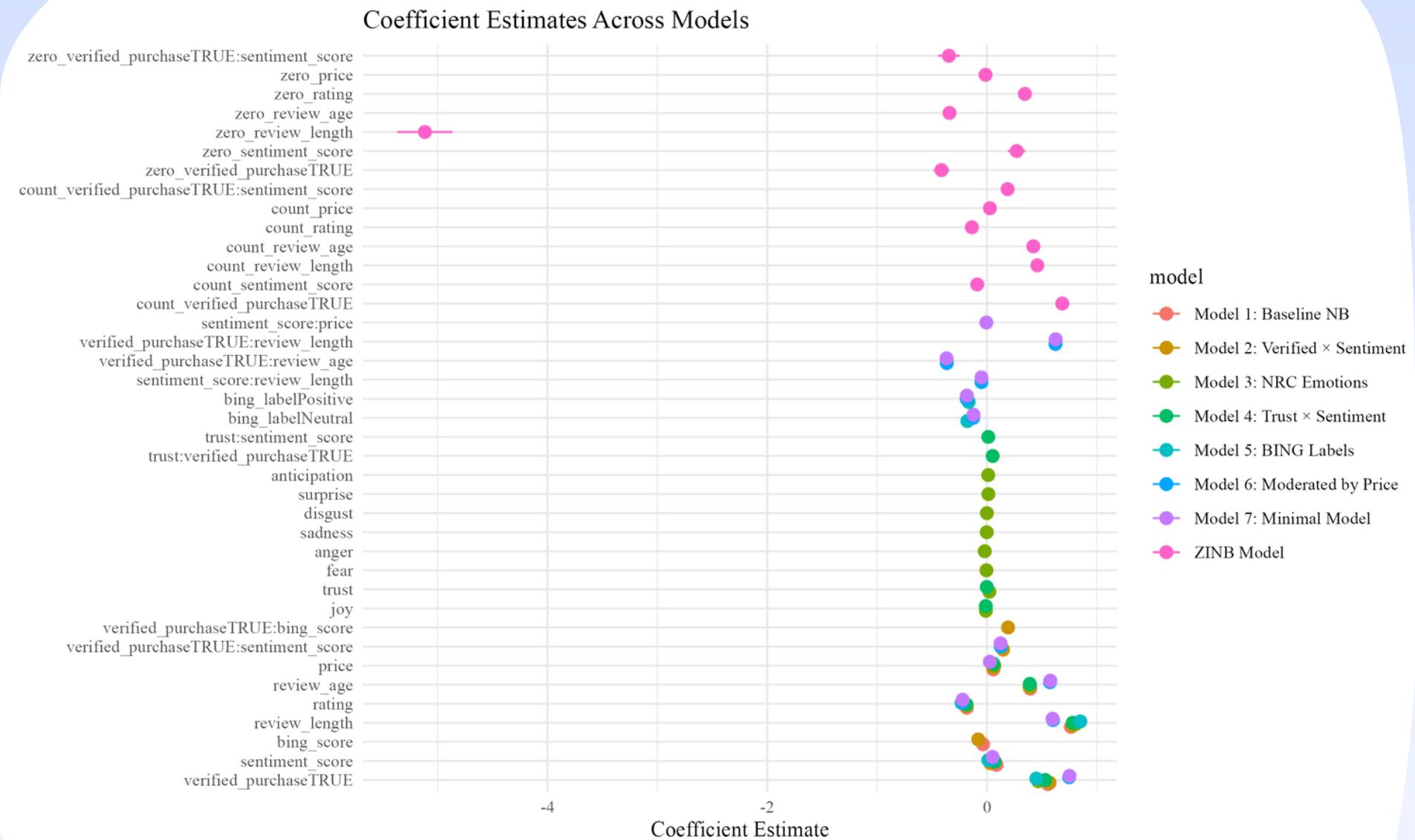
RESULTS

STRONG & SIGNIFICANT

- Verified Purchase Status
- Verified × Sentiment Interaction
- Review Length
- Positive Sentiment Score (AFINN)
- Trust Emotion (NRC)
- Sadness × Review Length

NON-SIGNIFICANT/ WEAKER

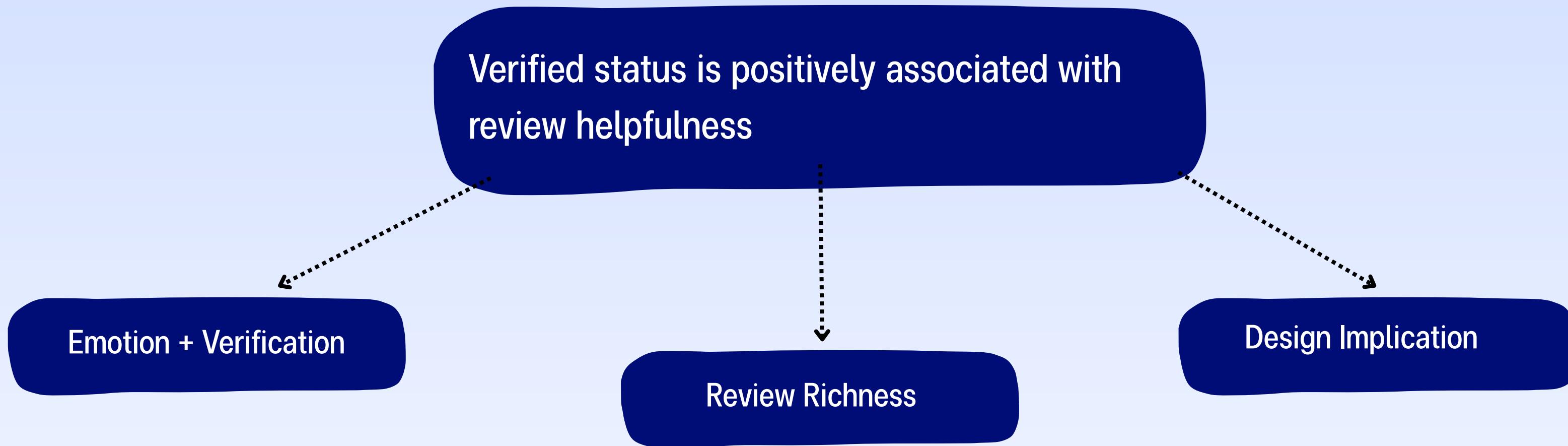
- Rating (Stars)
- Price
- Joy Emotion (NRC)
- Anger / Disgust (NRC)
- Review Age
- Emotion in Unverified Reviews



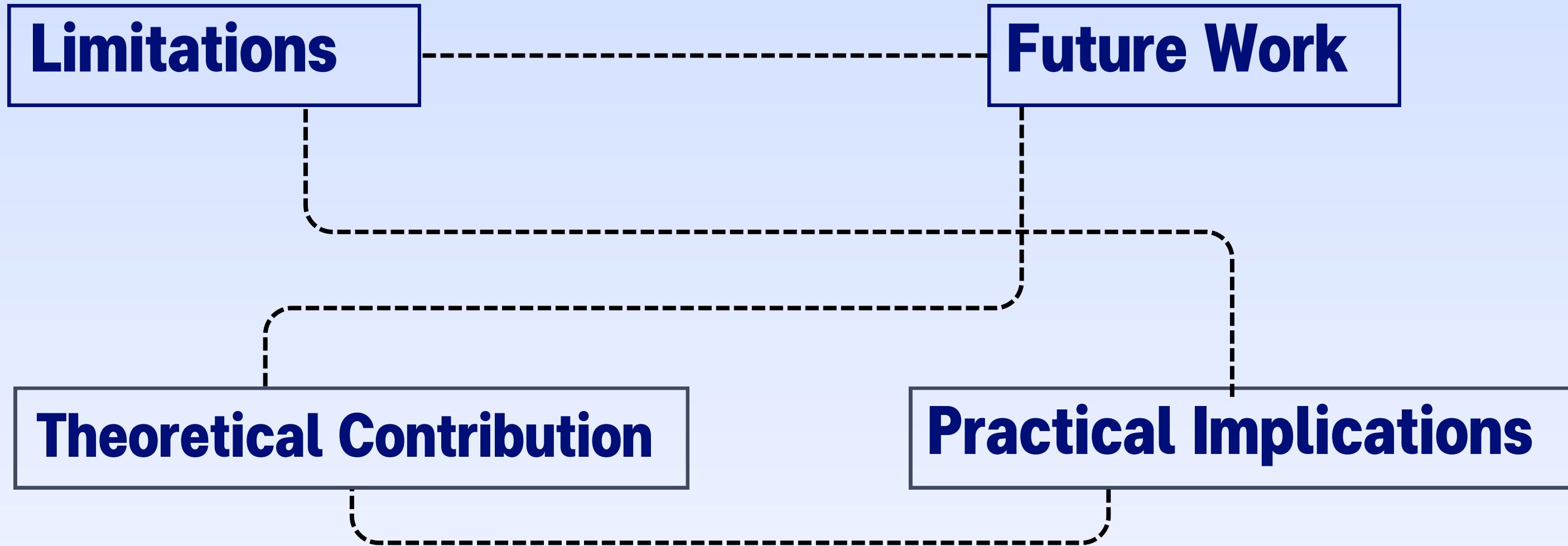
HYPOTHESIS EVOLUTION

Hypothesis Number	Description	Results
H1	Reviews with verified purchase status are more likely to be perceived as helpful compared to non-verified reviews.	▶ Supported across all models. Verified status had the strongest effect ($\beta = 0.555$, $p < .001$)
H2	Reviews with a more positive emotional tone are more likely to receive higher helpfulness votes.	▶ Partially supported. Sentiment had a small but significant effect ($\beta = 0.085$, $p < .001$)
H3	The positive effect of emotional tone on helpfulness could be stronger when the review is from a verified purchase	▶ Supported. Strong interaction effect ($\beta = 0.147$, $p < .001$)
H4	Product-related characteristics, such as price and review age, could moderate the relationships between emotional tone, verified status, and perceived helpfulness.	▶ Not supported. Interaction terms tested but not significant.

DISCUSSION



DISCUSSION



Key Insights

Not all reviews are equal

Verified + Emotion is key

Emotion alone ≠ trust

Future Directions

Platforms should rethink ranking

Highlight verified & emotional reviews

Study across cultures and time

THANK YOU

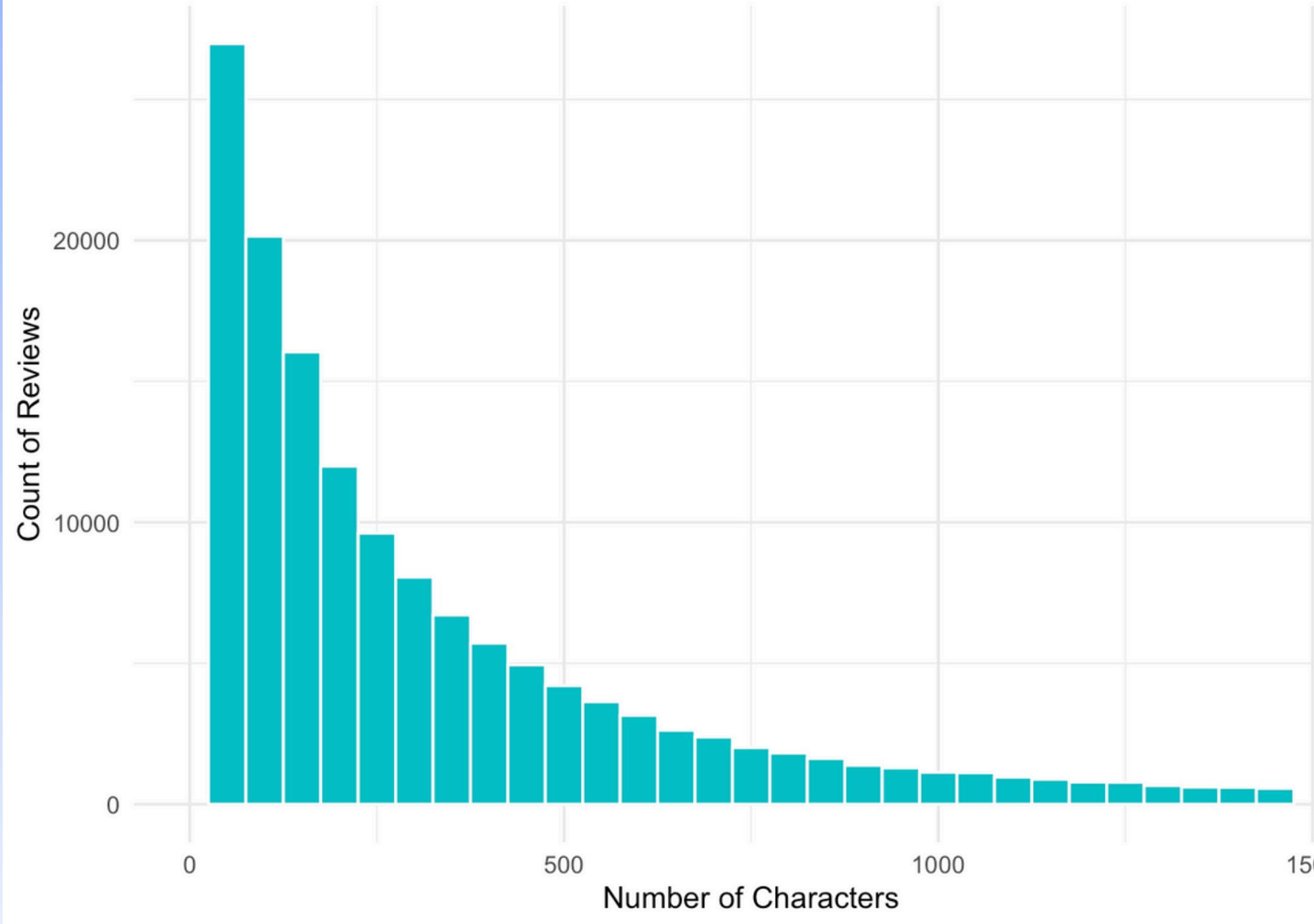
Any Questions?

BIBLIOGRAPHY

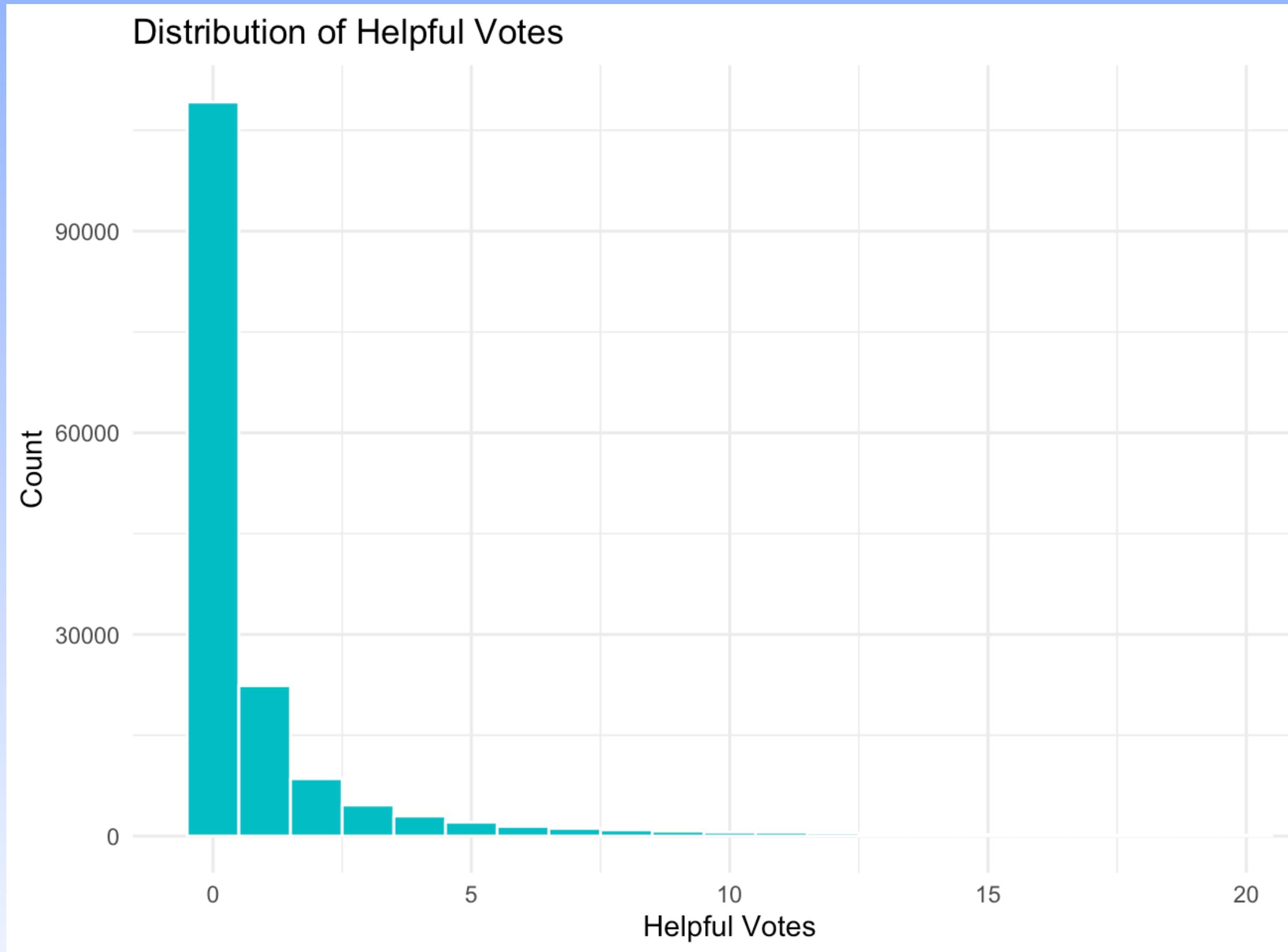
- Mudambi, S. M., & Schuff, D. (2010). What makes a helpful online review? A study of customer reviews on Amazon.com. *MIS Quarterly*, 34(1), 185–200. <https://ssrn.com/abstract=2175066>
- Ghose, A., & Ipeirotis, P. G. (2011). Estimating the helpfulness and economic impact of product reviews: Mining text and reviewer characteristics. *IEEE Transactions on Knowledge and Data Engineering*, 23(10), 1498–1512. <https://doi.org/10.1109/TKDE.2010.188>
- Hou, Y., Li, J., He, Z., Yan, A., Chen, X., & McAuley, J. (2024). Bridging language and items for retrieval and recommendation. arXiv. <https://arxiv.org/abs/2403.03952>
- Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. Yale University Press
- Yin, D., Bond, S. D., & Zhang, H. (2014). Anxious or angry? Effects of discrete emotions on the perceived helpfulness of online reviews. *MIS Quarterly*, 38(2), 539–560.

APPENDIX

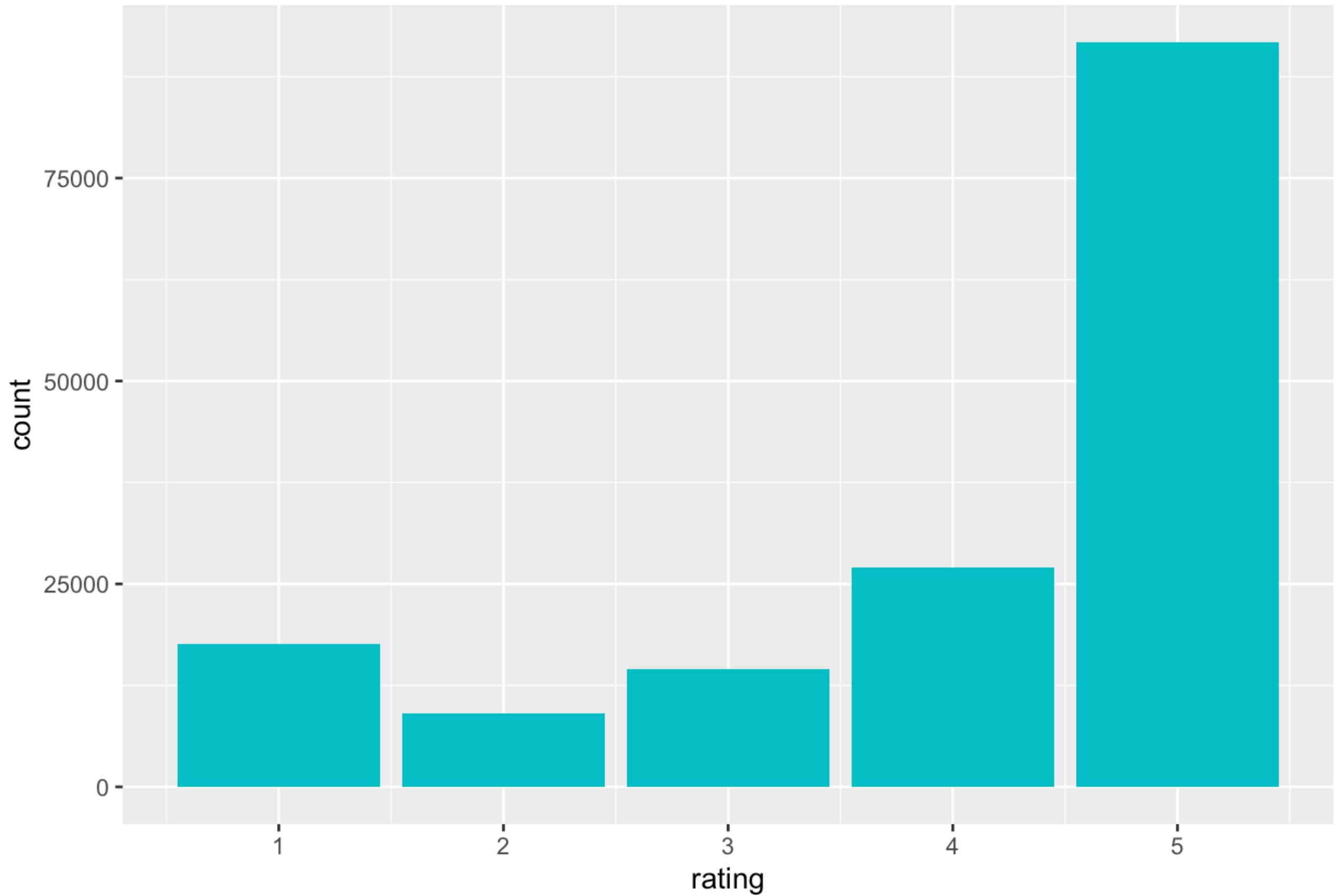
Distribution of Review Lengths



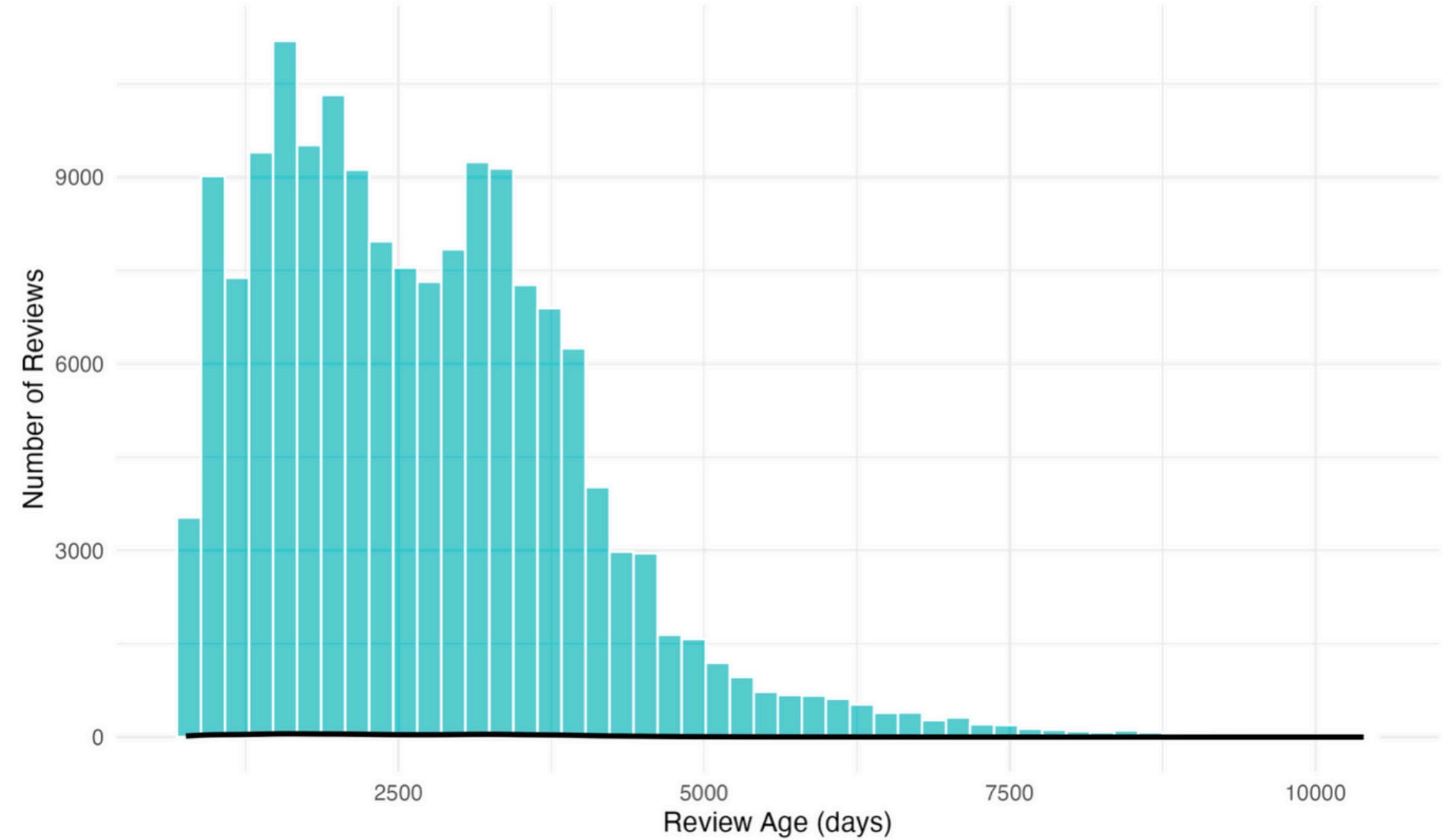
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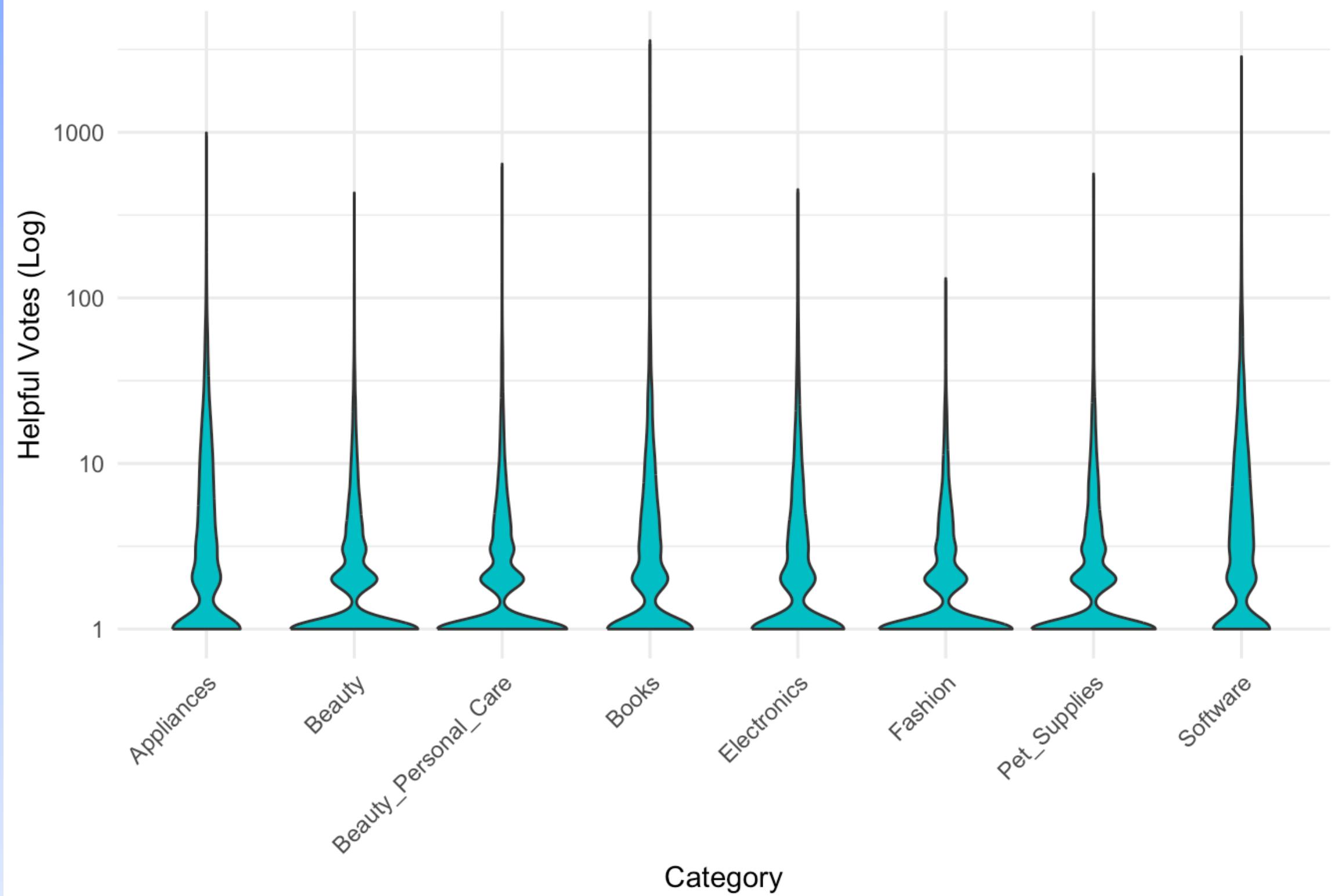
Distribution of Star Ratings

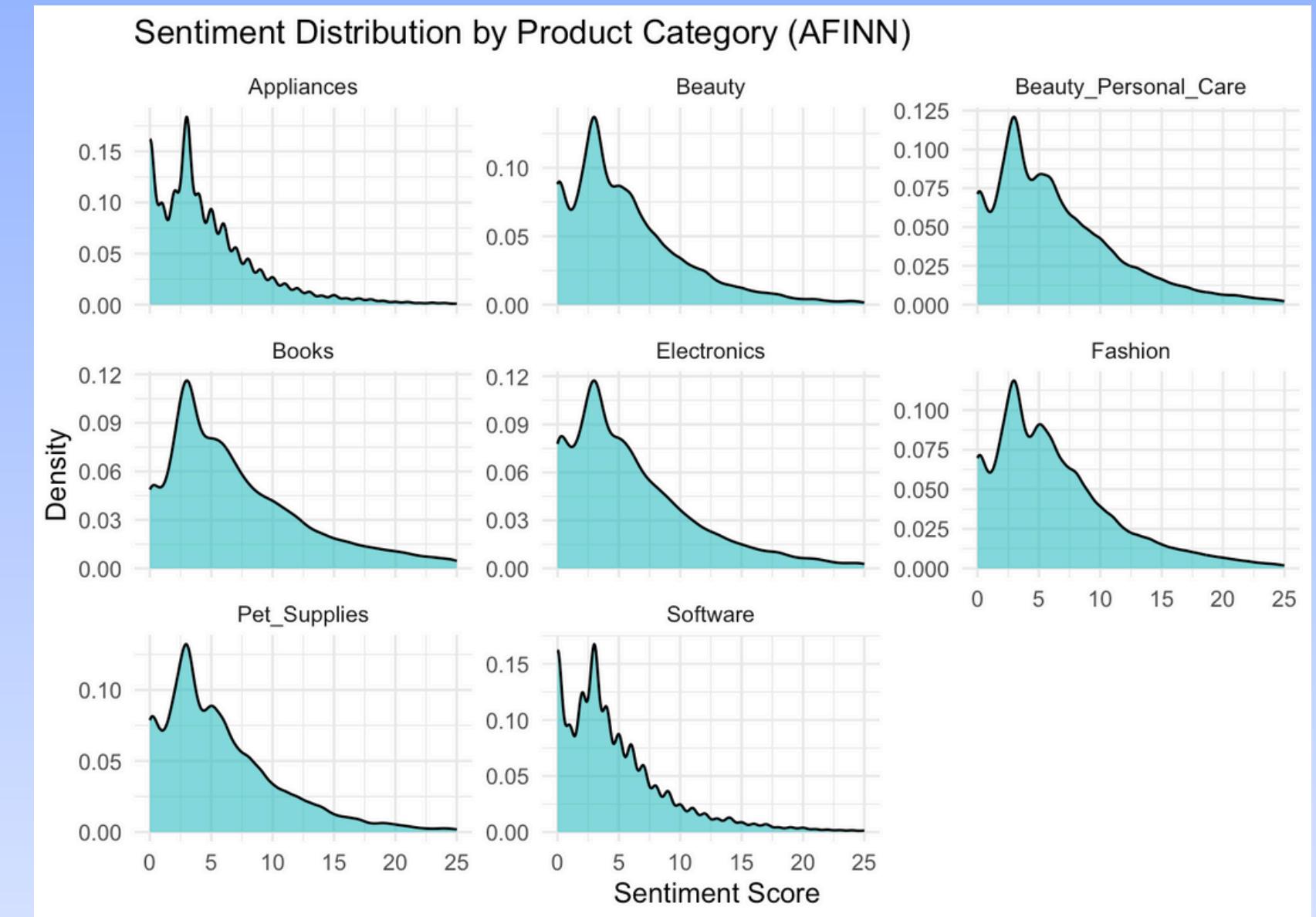
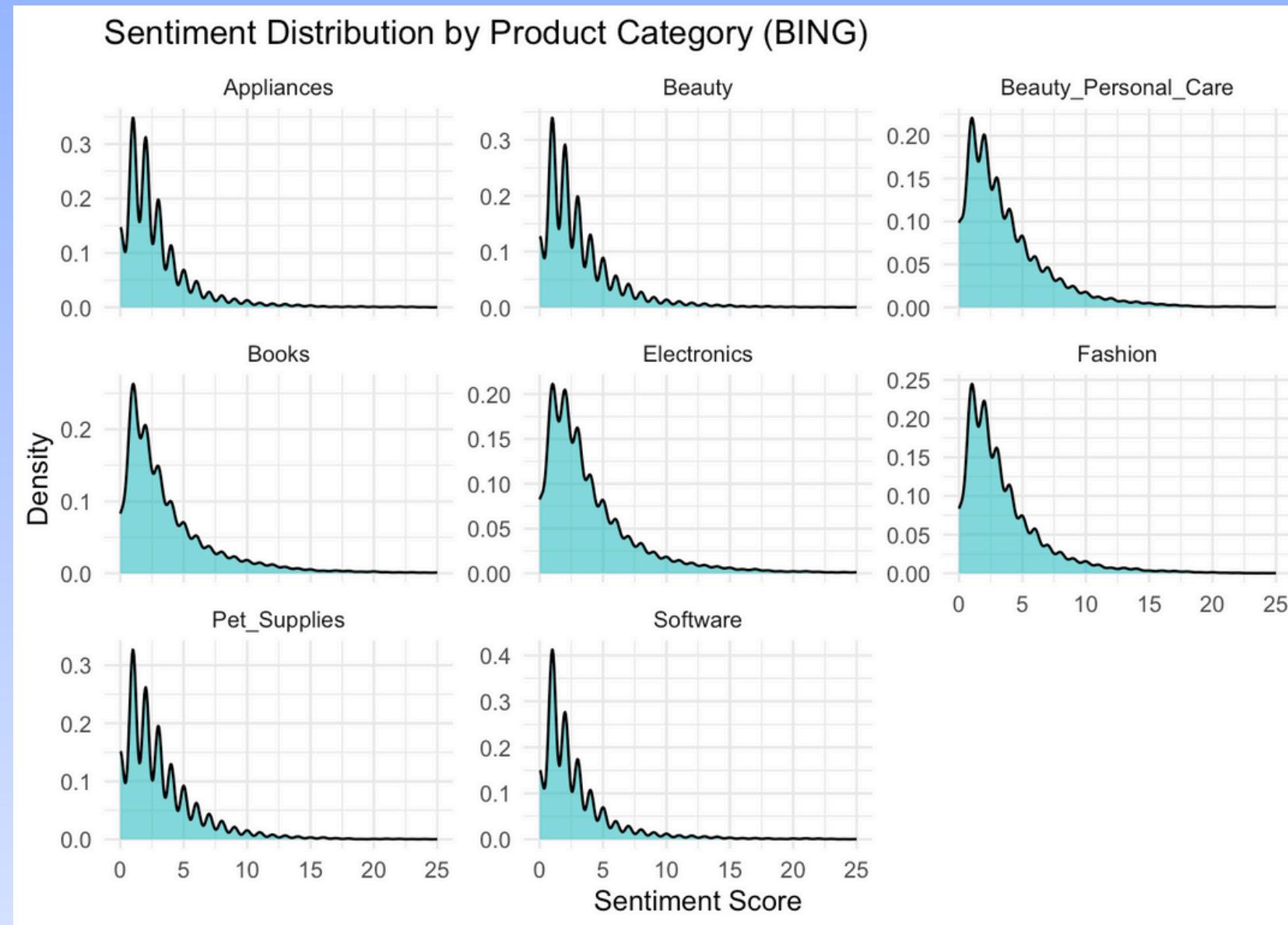


Distribution of Review Age (days)



Helpful Votes Distribution by Category





Summary Table of Review Characteristics by Product Category and Verification Status

Category	Verified	N	Avg. Helpful	Avg. Length	Avg. Rating	AFINN (Mean)	BING Negative (%)	BING_Neutral (%)	BING Positive (%)
Appliances	FALSE	10,000	4.0101	603.4338	3.5373	4.1143	22.6	11.8	65.6
Appliances	TRUE	10,000	1.0633	182.2477	4.3709	2.9848	12.0	16.9	71.1
Beauty	FALSE	10,000	1.1168	407.0899	4.0934	6.4621	10.6	9.4	79.9
Beauty	TRUE	10,000	0.9438	173.3011	3.9459	3.6838	12.3	15.9	71.7
Beauty_Personal_Care	FALSE	10,000	0.9665	547.6680	4.2207	8.0643	7.3	7.6	85.1
Beauty_Personal_Care	TRUE	10,000	1.4629	205.3649	4.1837	4.0799	10.2	15.0	74.8
Books	FALSE	10,000	3.4181	1,011.0256	4.2368	8.9436	15.9	7.3	76.8
Books	TRUE	10,000	1.8300	258.6933	4.5323	5.1852	7.1	12.2	80.6
Electronics	FALSE	10,000	2.2149	720.9100	4.0539	7.0550	11.0	7.5	81.5
Electronics	TRUE	10,000	1.1367	274.7588	4.1737	3.8549	10.3	12.7	77.0
Fashion	FALSE	10,000	0.5423	385.5604	4.0454	7.7787	7.8	8.5	83.7
Fashion	TRUE	10,000	0.6527	156.2549	3.9543	4.3936	9.5	14.6	75.9
Pet_Supplies	FALSE	10,000	1.2027	543.4696	4.1049	6.3143	13.5	10.3	76.2
Pet_Supplies	TRUE	10,000	1.2369	229.5851	4.1526	3.6489	13.3	15.6	71.1
Software	FALSE	10,000	5.4032	743.7768	3.1550	3.9447	22.0	11.8	66.1
Software	TRUE	10,000	4.2113	150.0952	3.8596	2.9209	11.2	19.6	69.2

Standardized Coefficients from Models

	Model 1: NB	Model 2: Interaction
(Intercept)	0.070*** (0.019)	0.063*** (0.019)
verified_purchaseTRUE	0.555*** (0.014)	0.570*** (0.014)
sentiment_score	0.086*** (0.010)	0.031** (0.012)
bing_score	-0.036*** (0.010)	-0.079*** (0.012)
review_length	0.765*** (0.007)	0.778*** (0.007)
rating	-0.184*** (0.007)	-0.184*** (0.007)
review_age	0.394*** (0.007)	0.388*** (0.007)
price	0.057*** (0.006)	0.055*** (0.006)
categoryBeauty	-0.385*** (0.026)	-0.362*** (0.026)
categoryBeauty_Personal_Care	-0.361*** (0.026)	-0.339*** (0.025)
categoryBooks	-0.421*** (0.026)	-0.412*** (0.026)
categoryElectronics	-0.520*** (0.025)	-0.492*** (0.025)
categoryFashion	-0.808*** (0.027)	-0.781*** (0.027)
categoryPet_Supplies	-0.377*** (0.025)	-0.342*** (0.025)
categorySoftware	0.867*** (0.025)	0.909*** (0.025)
verified_purchaseTRUE × sentiment_score		0.147*** (0.022)
verified_purchaseTRUE × bing_score		0.192*** (0.024)
Num.Obs.	152213	152213
AIC	397695.5	397221.3
BIC	397854.5	397400.1
Log.Lik.	-198831.768	-198592.647
F	2419.450	2153.717
RMSE	1.7e+13	1.9e+13

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Standardized Coefficients from ZINB Model

	(1)
(Intercept)	0.070*** (0.019)
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