

Operationalization

- Decompose narrativity into Agent, Events, World, and each of the axes has a 5-point Likert scale (Bamman et. al. 2025)
- An Arc of Narrative has three categories: Staging, Plot Progression, and Cognitive Tension (Alberhasky & Durkee 2024)
- Three factors that characterize the degree of narrativity: Suspense, Curiosity, and Surprise (Steg et. al. 2022)

Estimation

- Manual labeling (Bamman et. al. 2025)
- Regression models to predict a scalar value
 - Unigram bag-of-words, parts of speech, concreteness, agenthood, first-person pronouns (Bamman et. al. 2025)
- Masked language models to predict a scalar value
 - BERT, RoBERTa, DeBERTa, and ModernBERT with a linear layer (Bamman et. al. 2025)
- Prompting large language models for a rating of narrativity
 - GPT 4.1, Gemini 2.5 Pro, and Claude Opus 4 with three examples (Bamman et. al. 2025)
- LIWC with 5 segments
 - 15 narrative measurements per song (3 variables * 5 segments) (Alberhasky & Durkee 2024)
- Multilevel regression models with interaction terms
 - Using segment, genre, and their interaction to predict the frequency of words in each category (Staging, Plot Progression, and Cognitive Tension) (Alberhasky & Durkee 2024)

Analytical Dimensions

- Gender
 - Use word2vec to generate word embeddings for words that represent gender and words that represent traits. Calculate the cosine similarity between traits and male or female respectively. The difference of the similarity measures can quantify gender biases. (Boghrati & Berger 2023)
- Narrativity over time
 - 1960 – 2024 (Bamman et. al. 2025)
- Genre
 - Hip hop, Country, Contemporary R&B, Pop rock, Synth-pop, Rock, Dance-pop, Pop, Soft rock, Funk, Soul, Disco (Bamman et. al. 2025)
 - Different genres of music differ in their core narrative structure (Alberhasky & Durkee 2024)
- Prestige
 - Grammy-nominated songs vs. other songs from the same album (Bamman et. al. 2025)
- Popularity
 - Popular songs may contain an atypical narrative structure (Alberhasky & Durkee 2024)
- Audio features
- Singer-songwriter vs. just singer
- Shift in emotions

References

- Alberhasky, Max, and Patrick K. Durkee. “Songs Tell a Story: The Arc of Narrative for Music.” *PLOS ONE*, vol. 19, no. 5, May 2024, p. e0303188. *PLoS Journals*, <https://doi.org/10.1371/journal.pone.0303188>.
- Bamman, David, and Sabrina Baur. *Measuring the Stories in Contemporary Songs*.
- Boghrati, Reihane, and Jonah Berger. “Quantifying Cultural Change: Gender Bias in Music.” *Journal of Experimental Psychology: General*, vol. 152, no. 9, Sept. 2023, pp. 2591–602. 2023-63694-001, *EBSCOhost*, <https://doi.org/10.1037/xge0001412>.
- Steg, Max, et al. “Computational Detection of Narrativity: A Comparison Using Textual Features and Reader Response.” *Proceedings of the 6th Joint SIGHUM Workshop on Computational Linguistics for Cultural Heritage, Social Sciences, Humanities and Literature*, edited by Stefania Degaetano et al., International Conference on Computational Linguistics, 2022, pp. 105–14. *ACLWeb*, <https://aclanthology.org/2022.latechclfl-1.13/>.