Authorship Attribution Leveraging Idiolect Analysis

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Research Objective

Can we encode an author's unique idiolect purely from linguistic features?

- Compute Biber linguistic features on each text sample to represent an author's style
- Determine if learning an author's idiolect impacts authorship attribution

Background

- Style is crucial in interpreting a message from a given text
- Methods of representing style have proven to be impactful in areas such as forensic linguistics
- We leverage Biber linguistic features as a representation of an author's style

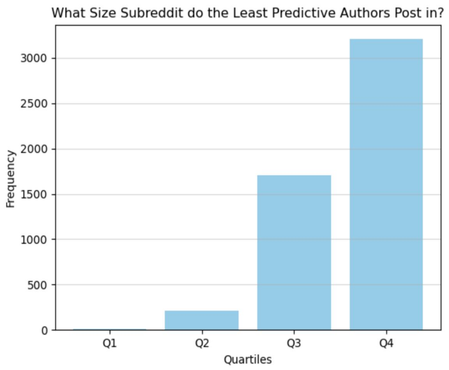
Dataset Creation

- Downloaded ~ 1.4 TB of compressed reddit posts including relevant metadata
- Filtered out posts to have a minimum of 250 words and ensured each author had at least 10 posts
- Computed linguistic features on each post and aggregated on author

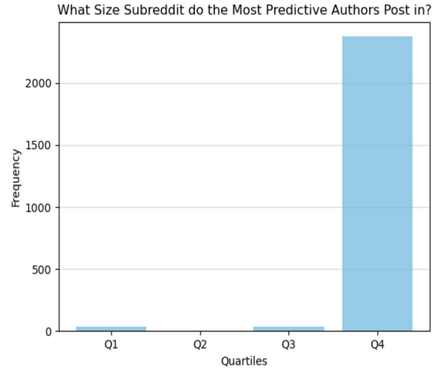
Next Steps

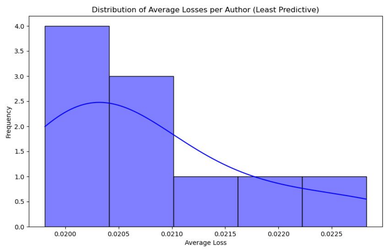
- Preprocess more datasets such as wiki and books
- Determine which settings an author is more likely to write in their own unique style
- Train a classifier to determine whether a given piece of text is indicative of an author's style
- Apply method to authorship attribution

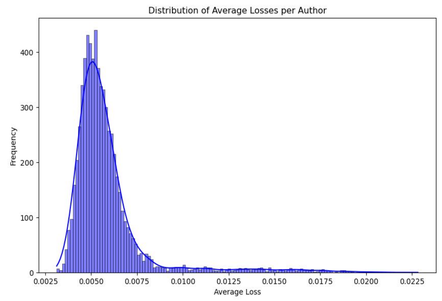
Results/Takeaways

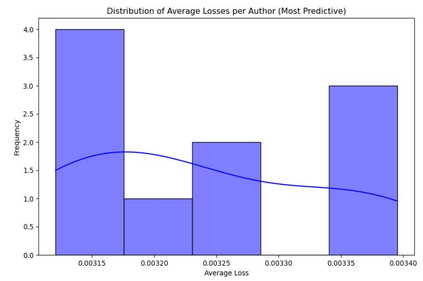


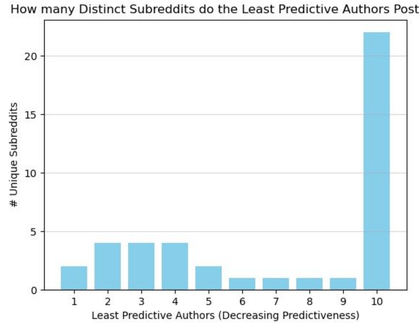
- More predictive authors seem to exclusively come from larger subreddits where less predictive authors have more variance in subreddit size



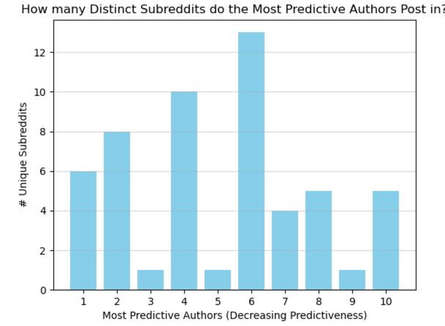








- Generally the least predictive authors post in a more concentrated number of subreddits compared to more predictive authors



Data Example

Post: I hate to sound like typical reddit but I don't care, dump your boyfriend. You've known him for 8 months whereas the nanny had been there since before your husband died. She was a second mother to them since you (understandably) were busy taking care of the business he left behind…
Biber Encoding: [0.5, 0.0, 1.0, 1.0, 0.5, 2.75, 2.0, 4.0, 2.0, 0.8291561976…]