**Question 1: Paper Review**

**Title:** Algorithmic Effects on the Diversity of Consumption on Spotify

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**Motivation:** The motivation of this paper is to understand what role algorithmic recommendation plays in long and short term user retention and conversation. This will help drive Spotify’s reach an understanding of its users.

**Summary:** The paper begins with an introduction. Millions of users digest user-driven and algorithmic driven content on the internet. By the end of this study, they hope to achieve an understanding on the implication of using said recommendation algorithms and how it affects their users. They also want to measure the diversity over time of their users.

Next, the paper goes in to related work. They focus on explaining the filter bubble effect of recommender algorithms. These can drive users into a rabbit hole where they cannot escape. This is important to consider when researching the long and short term effects of these engines.

After related work, the paper goes into the data they used for the study, how they encode songs into vectors, and the generalist-specialist score. They used Spotify’s data on their millions of users. A massive database that can clearly give the researchers answers to what they are looking for. Next, the paper talks about how they take music from songs to data that can be analyzed. To do this, they use work2vec and train it on user-generated playlists to attain accurate cosine similarities between songs. After that, the authors talk about the generalist-specialist score. This is how they quantify the difference between users who have a narrow music taste versus a user who likes a wide variety of music.

The researchers found that musical diversity was more common in users that were more active. They also found that users were more similar if you looked at their recommended songs versus their organic songs. Another interesting finding was that as users’ GS score went up (higher GS score means user listens to less types of music) the more likely they were to churn. When a user first joins the app, they found that lower GS scores were at most 35% more likely to buy a premium subscription. They found that in general, users who’s’ GS scores go up also become less likely to churn.

**Approach and contributions:**

* The authors used a data analysis approach to establish the results by evaluating the GS score of different users to be able to gain different insights
* The main findings of this paper was that higher GS scores generally result in higher churn and less long term profit overall for Spotify
* The important of this work is showing the effects of recommendation engines on users of online platforms
* The paper builds on the work of others studying the algorithmic effects of recommendation engines on users of online platforms

**Areas for improvement:**

* Study of more recommendation engines to see if this conclusion is generalizable