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ENGINEERED INEQUALITY: MUSICAL TAXONOMIES AND STREAMING RECOMMENDERS SYSTEMS

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Background literature

Despite academic efforts to understand streaming classification and recommendation (Maasø & Spilker 2022; Hesmondhalgh et al. 2023) it is still unclear which musical taxonomies are used by music streaming platforms. Previous research addressing algorithmic recommendation and genre (Seaver 2022; Goldschmitt and Seaver 2019; Krogh 2020; Johnson 2020), remains unclear. By taxonomies here I mean the classification systems of music genre, mood, instruments and other musical elements that provide the software infrastructure for navigation, product design, distribution and recommendation in streaming platforms.

Previous studies suggest that streaming platforms tend to focus on categories such as mood and genreless playlists to market their music catalogues (Krogh: *ibid.*; cf. Leight 2019). However, genre continues to be a crucial element in music streaming success (Brackett 2016; Johnson 2020). Music streaming employees (McDonald, *everynoiseatonce.com*) argue that genre is a dynamic element that is not organised hierarchically for music recommendation. Significant differences exist between overtagged content – often white, male, Western artists and audience – and undertagged genres (Johnson: *ibid.*), which inevitably leads to higher exposure and revenue for certain artists and genres. Within this public debate about bias, streaming platforms have not adopted notions of common good as public service media (Ferraro et al. 2022). Instead, they have integrated technocentric critiques in their PR (Spotify 2018a, 2018b), promising to deliver specialised knowledge and curation to navigate infinite catalogues (Seaver: 2022). Previous studies also address the role of human editorial curation (Goldschmitt and Seaver 2019; Bonini and Gandini 2019; Bonini and Magaudda 2023), and employees' influence in categorising and marketing music. There are also considerable differences between industry PR and their internal strategies (Seaver 2022).

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Research questions and method

In light of this existing literature and ignited from the recognition that no musical taxonomy can be perfect nor neutral, this paper investigates what musical taxonomies are currently used by streaming services, and the kinds of cultural visions and understandings of music cultures are inscribed in these taxonomies. It aims to illuminate how might musical taxonomies in streaming services may influence music cultures and understand whether music streaming taxonomies contain Western biases or forms of cultural imperialism. To answer these questions, I conducted research following a mixed-methods approach that combines three different forms of data collection. First, an interface analysis of six MSPs and the metadata coding standards used to create musical taxonomies in digital services (n=2). Second, ongoing discourse analysis of PR materials produced and distributed by streaming platforms, and ethnographic fieldwork at seven music industry conferences. And third, interviews with industry stakeholders (n=6) and to a lesser extent, researchers (n=2), start-ups, and a public institution representative.

Findings

My research findings confirm that the standards currently followed by the music industry fall short of any systematic or sensible understanding of culture, organology, or genre classification at the stages of metadata creation, standardisation or curation (see DDEX 2023 for standardisation; see Musiio 2023 for automated tagging) with some overrepresented genres and cultures over others.

Fieldwork in industry conferences and interviews demonstrated that although the need to improve taxonomical indexing and metadata features in corporate conversations, there is a significant disparity between the issues emphasized by the industry, and other culture-impacting problems that remain peripheral or disputed. Industry stakeholders promote automation in tagging, use of unique metadata identifiers and other measures of technical accuracy, highlighting the neutrality of these tools. They also encourage the idea of genreless curation. Yet, some voices acknowledge that metadata standards are still in an early phase of development and are oftentimes ignored, seeing genre and language as central in the development of products and marketing, and difficult to code in English.

Engineered inequality, meaning the hardwiring and reproduction of cultural inequality into software systems, also features in the management of user-generated content and quality control. The QC process of DDEX – the most widely adopted set of coding standards in the industry – is managed by 144 members, unequally distributed around the world. DDEX and music industry representatives admitted at the 2023 Metadata Summit the existence of inaccuracies in 5-10% of the catalogue, mostly in content from indies and self-releasing artists, who should be either trained or eradicated from the data value chain. There are also contradictions in approaches to user-generated content. The industry proposes technical solutions to absorb and monetise user-

generated data and successful content such as playlists. Moreover, the editorial practices of major platforms that further de-standardise metadata for streaming products are not challenged.

The same occurs in MSPs editorial and internationalisation practices. Taxonomical indexing, curation, and editorialisation remain divided in separate divisions or completely subcontracted. This atomisation prevents a holistic vision of editorialised products and taxonomical strategy. In addition to previously-existing class, gender, and nationality inequalities in the music industry as a whole (Jones 2020), the current lack of workforce diversity is only acknowledged at managerial levels. Often small, non-diverse teams of curators cover large areas of the world, without local expertise in the regions where streaming platforms may be expanding into. Developers also focus on launching beta products for Western markets, subsequently implementing them in the rest of the world. The emphasis of music industry and streaming PR is placed on visible diversity, such as international curation and discovery.

Theoretical analysis and Conclusions

The potential harms that the industry currently focuses on mitigating contrasts with the wider cultural impacts produced and the public marketing discourse of music streaming platforms. The music and streaming industries work to improve poor quality metadata and incoherent taxonomies to prevent the development of poor recommender systems and products, especially because they impact the creation and collection of revenue. Absent from product analysis and industry discussions are the ongoing cultural impacts of these malfunctioning software infrastructures, which reproduce and repackage engineered forms of musical misinformation and inequality, to the extent that some streaming products simply digitalise musical orientalism and audio tourism as it already existed in the recorded music industry before the appearance of streaming (Kassabian 2004; Sprengel 2021) and create new cultural spaces for platformed racism (Matamoros-Fernández 2017).

From a sociocultural perspective, the evidence presented in this paper confirms Saha's (2021) postcolonial cultural economy approach, whereby contemporary media institutions exploit ideas about diversity and global reach for economic performance, instead of addressing the root causes of this lack of diversity, or acknowledging how media effectively makes culture in the interaction between industry, policy and users. This evidence also calls for systematic international or governmental oversight of streaming platforms' impacts on music cultures. More empirical research also needs to be conducted on the cultural impacts on users and audiences.

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