Innovative Methods for Video-On-Demand Research September 2024, Utrecht University

**Measuring discoverability and prominence of European and domestic works: presenting a first methodological toolbox**

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**Context**

Within streaming studies, scholars have concentrated on delineating the diversity of (mostly US streaming services’) video-on-demand offerings. They often do so through the lens of capturing the existence of particular domestic or regional offerings (with a dominant focus of European presence) within catalogues (Iordache et al., 2023a; b; Iordache & Raats, 2023; Garcia Leiva & Albornoz, 2021; Albornoz & Garcia Leiva, 2022; Baschiera & Re, 2019; Scarlata and Lobato, 2023; Navarro & Monclus, 2021; Smits, 2022; Bengesser et al. 2024; Aranzubia, 2021) or by scrutinizing investment patterns of global streaming services (Afilipoaie et al. 2021; Iordache et al. 2023c), mainly through a focus on these players’ originals. Often, these analyses set out from a comparative angle, either comparing titles from two or more countries of origin, comparing two or more streaming services, or comparing offerings of the same player in two or more markets. Through these analyses, researchers have elucidated how catalogues of global streaming services, despite the presence of a significant diversity of titles, seem to continue to reinforce existing balances and imbalances in content and language diversity, predominantly favoring US and Anglo-Saxon markets. This occurs despite the announced commitment of global streamers to invest in domestic content as part of their expansion strategies (García Leiva et al., 2024; Afilipoaie et al., 2021).

However, analyses of catalogues themselves do not provide sufficient evidence to capture actual diversity of offerings, as they do not show how visible diversity of these particular titles is (i.e. exposure diversity), let alone capture the diversity of consumption. Explorative research shows for example how some global streamers license larger volumes of older short films which are only visible when actively searching for them through the search function (Iordache et al. 2024); a strategy most likely to be able to fit the 30% quota laid out in the Audiovisual Media Services Directive since 2018 (Ranaivoson et al. 2023). In recent years, scholarly attention has therefore increasingly shifted towards the concepts of “discoverability” and “prominence”, which pertain to the likelihood of consumers encountering and viewing content and the visible placement of content. In Europe, aside from the 30% quota for European works (and the possibility for Member States to introduce investment obligations in the form of levies or direct investments – or combinations thereof), the Audiovisual Services Directive mandates that those European works also need to be prominently visible (Garcia Leiva, 2024; Farchy et al. 2024). Member States, in implementing this obligation, have outlined specific measures, such as promoting EU works in campaigns, including EU or national works in catalogues, and enabling users to search for EU works in various languages. The ways in which these specifications are formulated differ according to the specific context of European markets.

Systematic monitoring of the placement of works and titles across catalogs remains limited due to several reasons: (i) the substantial diversity of catalogues and streaming platforms; (ii) the multiple ways in which prominence can be measured; the subjective nature of what is considered to more prominent than others from a user viewpoint; the pace in which catalogues are constantly adapted and renewed and the fact that recommender systems offer personalization of interfaces, which could make catalogues significantly different for different users. Nonetheless, analyzing the how prominence is shaping content diversity in streaming offerings is highly crucial, and becoming even more crucial in a streaming landscape in which global and local streaming services compete alongside each other for subscriber attention and retention, and where catalogue size is – as a consequence of the audience consumption of several offerings in parallel – less determining a streamers’ success.

**Objectives and method**

This paper contributes to the study of measuring prominence and discoverability of streaming offerings. It aims to contribute to a more systematic analysis of prominence measurement by mapping and comparing existing analyses of prominence and the different considerations made. Based on extensive review of different ways of interface analysis, as well as the development of own explorative research, we outline the methodological considerations researchers need to make when developing a sound methodology for capturing prominence and discoverability. The paper brings these different considerations together and aims to provide a toolbox that can be further used and developed for further analyses on streaming and could potentially serve as the basis for policymakers and regulators to measure performance of obligations laid out for streaming services. Our contribution thereby also builds further on the 2024 overview and categorization of streaming diversity studies by Lobato, Scarlata and Wils.

**Mapping prominence studies and considerations to make**

Lobato, Scarlata and Wils (2024) divide streaming studies on diversity in three distinct categories: *catalog studies* (examining content diversity), *interface studies* (examining content diversity and exposure diversity) and *audience studies* (examining exposure diversity). Measuring prominence fits in the second category; however, and also noted by Lobato et al.(2024), the three distinct categories are interlinked and could theoretically be part of a combined research set-up on prominence. For example, is content that is fully or mostly financed by streamer investments is more likely to be presented visibly by recommender systems? (which requires a combination of offerings and interface analysis). Specifically with regard to prominence measurement, methods and research foci differ markedly. Scholars within the PSM-AP project, for example, have, building on scheduling studies and setting out from the lens of ‘transprogramming’, analyzed prominence of titles and content in the prime space of public service media VOD portals (Bruun & Lassen, 2024; Bruun et al. forthcoming). In the same project, researchers also examined prominence of public service media content in their VOD portal based on reversed engineering of user profiles (Lassen et al. 2018), a method also used by Pajkovic (2022) and Bucher (2018). In the examples above and other studies in the field, considerations were made as (i) the scope of players and portals involved, (ii) the choice of devices to examine prominence, and (iii) the extent to which tiles and lanes are captured, (iv) the way users dealt with profile data and the impact on title positioning within catalogs.

Furthermore, a lot of these studies share a number of common characteristics with existing VOD mapping studies: firstly, in most typologies, genre labels or classifications are based on choices of the researchers making cross-research comparisons more difficult. Second, the geographic scope of countries/regions included in studies are usually limited to Europe and Australia; thirdly, the players scrutinized are often limited to large (US-originated) streamers present in most markets; fourth, the research draw an increasing part of it collection on data aggregated through Justwatch or the European Audiovisual Observatory or data collection through collaboration with or purchasing of data from third-party consultants (of which Ampere Analysis is the market leader); fifth, all of the research here builds on a combination of qualitative and quantitative analyses; sixth, despite the modest uptake of digital methods and AI-assisted tools, all research requires significant manual data cleaning given the lack of systematic data; all research is based on a snapshot or very limited in timespan. Lastly, the research provides a snapshot, and follow-up research or research encompassing a longer timeframe is lacking, yet especially important given the dynamic of placement in catalogs (see also Lobato et al. 2024).

Research on prominence could – given the extent of considerations made – benefit from a more systematic vocabulary and categorization that presents the different forms of potential research as well as the considerations researchers should address when developing a research design, detailing the strengths and limitations of each approach. The toolbox presented in this paper consists of four types of considerations. The first consideration defines the type of comparison researchers pursue. We distinguish three:

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| **N** | **Comparison** |
| 1 | Comparing different VOD services in the same market  | N-number of players included |
| 2 | Comparing same services in different markets | N-number of markets included |
| 3 | Comparing the same VOD catalogs at different moments in time | N-number of moments in time when the analysis is made |

The second series of considerations involves the ‘type’ of prominence that the research focuses on. Here a selection of one or more research foci could be pursued.

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| **F** | **Research focus** | **Explanation** |
| 1 | Paratext | Analysis of paratext (eg. are ad campaigns including EU titles) |
| 2 | Search | Analyzing how the search function works, how much metadata is added |
| 3 | Categorization | Analyzing the way specific (eg. EU or domestic) content is labeled in categories and collections |
| 4 | Full catalog visibility | Analyzing volumes of all EU or local titles visible in tiles |
| 5 | Catalog position Visibility  | Analyzing prominence according to the position where it is visible  |
| 6 | Title position visiblility | Searching for visibility of specific titles, either based on a selection of titles, or linked to specific factors (e.g. titles released in a specific period, titles added in the catalogue at a specific time, etc.)  |
| 7.  | Autoplay prominence | Analyzing how the title is presented in the thumbnail and trailer |
| 8. | Tile presentation analysis | Analyzing how the title is presented in the thumbnail |

A third set of considerations involves choices with regard to the extent of rows (or *swimlanes*) and extent to which row titles are captured (i.e. the extent to which a viewer would have to click right to get access to the a particular title). If heavily based on practical aspects (available resources in time, research budget and available researchers/research assistants).

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| **C** | **Choices made in counted rows and titles** |
| 1 | Levels of capturing content vertical | Only landing page? Entire catalogue? Specified number of scrolls down? |
| 2 | Levels of capturing content horizontal | Only landing page? Entire catalogue? Specified number of scrolls tot he right? |

For the above, additional considerations involve the type of device(s) used to capture the visibility of content, as recommender systems might diversify display of content according to consumption through a mobile device, a laptop or desktop, or a smart-tv or other form of connection device to a television set. A fourth and final series of considerations - undoubtedly the most challenging - involves considerations related to the use of one or multiple accounts used to analyze prominence of content on interfaces. Here Lobato et al. (2024) also point to the growing, yet still limited use of digital methods and automated capturing of catalogue interfaces that might benefit cost-and time efficiency, yet the same time create new obstacles for qualitative interpretation of results.

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| **Personalization**  |
| Blank account | No single account is really blank |
| Variation based on viewing behaviour: different accounts with typical or atypical (e.g. genre-based accounts) | N-number of accounts; burdensome to train |
| Variation based on demographs: different accounts with several different demographs | Difficult to assess whether prominence is result of manipulation |
| Variation based on ‘trained’ profiles (like/not like, favourites, etc.) | Difficult to assess whether promiennce is result of manipulation |

**In conclusion**

The paper recognizes the growing richness of studies on interfaces and presentation of content as part of a much broader field of streaming (catalog) studies. By deconstructing the different considerations to be made when developing a measurement tool, we underscore the difficulties of measuring prominence and discoverability, as this involves a number of arbitrary choices that might impact findings, to be undertaken in a research context characterized by a dependence on the untransparent workings of streaming players’ recommender systems.

Yet, by creating transparence on those considerations, and by systematically bringing them together in a categorization or typology, researchers could potentially develop clear choices according to the research questions asked; a categorization of considerations could enable to systematically analyze how particular outcomes are affected through choices made in the research design and, on top of that, a more systematized model might facilitate descriptions of methodology sections in academic publications where word count often prevents elaborating on different methodological considerations that do can impact the visibility of works. Lastly, the explorative toolbox should also be seen as a plea to increase collaboration within the highly rich yet still developing field of streaming research; scholars often analyze diversity of catalogues, content and packaging in highly similar ways, yet often set out from own custom-made categorizations or genre labels. Connecting the different dots through harmonization of research considerations, could contribute to increase large-scale collaboration and comparability of steaming catalogs. The paper furthermore argues for increasing cross-over between the research on recommender systems within data science and engineering, that might provide ways to enable thorough analysis. At the same time, we argue that studying prominence from a social science or – more specifically – media industries’ perspective requires at least complementing with qualitative analyses, given the highly context-dependent design, strategies and placement of streaming services, which is where media studies could markedly contribute to the field of computer engineering and recsys studies.

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