

Analyzing the Commentator Network Within the French YouTube Environment

Authors : Kurt Maxwell Kusterer, Sylvain Mignot, Annick Vignes

Abstract : To our best knowledge YouTube is the largest video hosting platform in the world. A high number of creators, viewers, subscribers and commentators act in this specific eco-system which generates huge sums of money. Views, subscribers, and comments help to increase the popularity of content creators. The most popular creators are sponsored by brands and participate in marketing campaigns. For a few of them, this becomes a financially rewarding profession. This is made possible through the YouTube Partner Program, which shares revenue among creators based on their popularity. We believe that the role of comments in increasing the popularity is to be emphasized. In what follows, YouTube is considered as a bilateral network between the videos and the commentators. Analyzing a detailed data set focused on French YouTubers, we consider each comment as a link between a commentator and a video. Our research question asks what are the predominant features of a video which give it the highest probability to be commented on. Following on from this question, how can we use these features to predict the action of the agent in commenting one video instead of another, considering the characteristics of the commentators, videos, topics, channels, and recommendations. We expect to see that the videos of more popular channels generate higher viewer engagement and thus are more frequently commented. The interest lies in discovering features which have not classically been considered as markers for popularity on the platform. A quick view of our data set shows that 96% of the commentators comment only once on a certain video. Thus, we study a non-weighted bipartite network between commentators and videos built on the sub-sample of 96% of unique comments. A link exists between two nodes when a commentator makes a comment on a video. We run an Exponential Random Graph Model (ERGM) approach to evaluate which characteristics influence the probability of commenting a video. The creation of a link will be explained in terms of common video features, such as duration, quality, number of likes, number of views, etc. Our data is relevant for the period of 2020-2021 and focuses on the French YouTube environment. From this set of 391 588 videos, we extract the channels which can be monetized according to YouTube regulations (channels with at least 1000 subscribers and more than 4000 hours of viewing time during the last twelve months). In the end, we have a data set of 128 462 videos which consist of 4093 channels. Based on these videos, we have a data set of 1 032 771 unique commentators, with a mean of 2 comments per a commentator, a minimum of 1 comment each, and a maximum of 584 comments.

Keywords : YouTube, social networks, economics, consumer behaviour

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