Game-Theoretic Models of Information Overload in Social Networks

A Presentation for CS886

Christian Borgs,
Jennifer Chayes,
Brian Karrer,
Brendan Meeder,
R. Ravi,
Ray Reagans,
Amin Sayedi

Presented by Krishna Vaidyanathan

University of Waterloo

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Background

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- Increasing irrelevant updates on social media newsfeeds, or information overload.

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- Symmetric: requires consent from both sides to maintain tie - eg., Facebook.
- Asymmetric: requires consent from only one side to maintain tie - eg., Twitter.
- Authors mainly look at asymmetric social networks.

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- Makeup of newsfeed becomes very important to user.
- Mix of newsfeed is determined by the activity level of user's friends.
- *How much one hears from one particular friend is not in user's control.*

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  - Rate of sending updates is key decision variable.
  - Updates from friends are useful, but excessive updates have diminishing value.
  - Users can be partitioned as producers and consumers of information (80 - 20 rule).

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- Engagement: Users get frustrated by high update rate of followees and leave the social network.

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- Producer i updates at a frequency (rate) of r_i.
- Payoff for producer i is r_i times the number of followers he/she has.

References

Borgs, C., Chayes, J., Karrer, B., Meeder, B., Ravi, R., Reagans, R., & Sayedi, A. (2010). Game-theoretic models of information overload in social networks. In Algorithms and Models for the Web-Graph (pp. 146-161). Springer Berlin Heidelberg.

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