Exploring Social Influence via Posterior Effect of Word-of-Mouth Recommendations

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Word-of-mouth recommendation influences user evaluation?

• Word-of-mouth recommendation
  – Affects decision making? Yes.
  – Affects posterior evaluation? Not clearly explored yet.
• We observe that a user is likely to post a higher rating to a movie recommended by a friend
• The phenomenon is statistically significant.
• Does that imply influence? If yes, how to quantify the influence?
Verifying causality

• Two possible explanations to the phenomenon
  – Common factor (independent model)
  – Causality (influential model)

• We verify that a word-of-mouth recommendation indeed directly influences a user’s evaluation in more than 97% cases.
Quantifying social influence

• Quantify social influence with rating raise

\[ x_{u,i} = U_{u,i}^+ - U_{u,i}^- \quad f_{u,v} = \frac{\sum_{i \in I_{uv}} \hat{x}_{v,i}}{|I_{uv}|} \]

- \( x \): rating raise
- \( U \): user evaluation
- \( I \): friend set
- \( f \): social influence

• Factors related to social influential individuals
  – Number of friends
  – Ability to earlier discover excellent movies