Item-Item Collaborative Filtering: Strengths and Weaknesses

Two Intuitions

- Item-Item as a more efficient User-User
- Item-Item as an aggregated Product-Association Recommender

Early Experiences

- Item-Item Very Successful in Commercial Applications
- Big Disappointment in MovieLens

What Happened?

- Amazon used Item-Item widely
  - Claims great success in recommendation
  - Helps people find products of interest
- MovieLens users were switched, and many complained
  - Claimed that recommendations were too obvious
  - Lack of bold recommendations and predictions

What Happened?

- Item-Item is not the same as User-User
  - Very difficult for item-item to discover highly different items to recommend
  - User-User by default will elevate items that a close neighbor loves, even without much evidence
  - Another consequence was that item-item predictions tended to be less extreme (since they were grounded in more data)

What Was Learned?

- Item-Item is much faster and more stable for domains with many more users than items
  - Stability makes it possible to pre-compute and store item-item correlations
- Item-Item is also substantially more "conservative" in its recommendations and predictions
  - Can be good for shopping, consumption tasks
  - May be frustrating for browsing/entertainment

What Next?

- Predictions can be re-scaled if that better suits users (OrdRec is an approach for mapping a ranked list onto an arbitrary prediction distribution)
- Matrix factorization techniques (next course) present an interesting (and different) point in this design space.

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