Structured Collaborative Filtering

**User Profile Expansion**

**Motivation**

Items that tend to occur together: movie series or by the same director. E.g., Lord of the Rings, Star Wars, etc.

These movies could be considered *synonyms*.

**Experiments**

We expand every user profile with potential synonym movies (i.e., the S most similar items).

Expanded terms (synonyms) are included using an inner Boolean OR (i.e., infinite p-value).

**Example**

A user shows interest for two items:

- The Boolean model is too rigid: too loose or tight
- Extended Boolean model: more discriminative

**Future Work**

Additional user profile expansion methods to set dynamically the threshold

Combination of this method with recently proposed normalization methods in [Bellogín et al, 2011]

**Inferring User Profile Structure**

**Motivation**

Subprofiles in recommendation

E.g., users A and B have similar tastes in movies but different in music

User profiles could thus be decomposed into *phrases*.

**Experiments**

Each profile is defined as soft OR’s of cohesive subprofiles

Each subprofile is also composed of soft OR’s of item ratings

Subprofiles are found by performing clustering (using the Weka library) on genre and similarity values among items:

- K-means (K=50)
- X-means (worse results than K-means)

Uniform p-value for all the subprofiles

**References**
