



lileipisces.github.io

EXTRA: Explanation Ranking Datasets for Explainable Recommendation

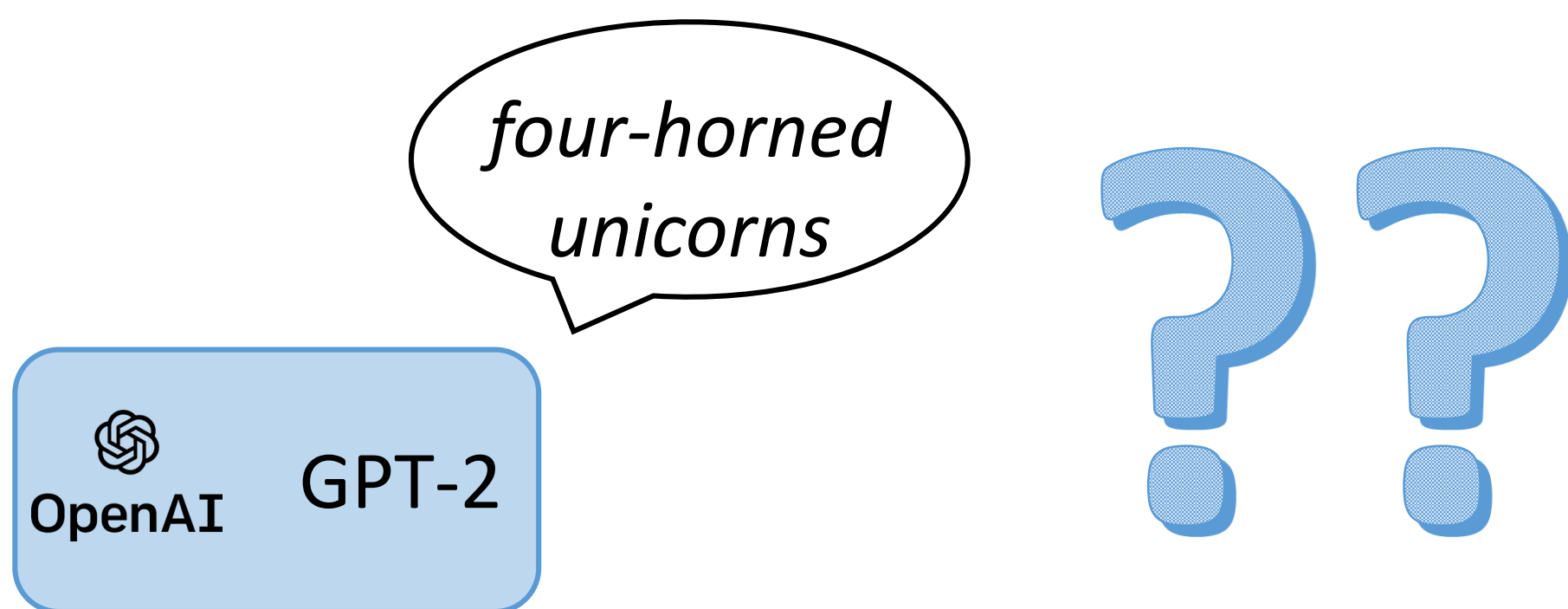


Lei Li¹, Yongfeng Zhang², Li Chen¹

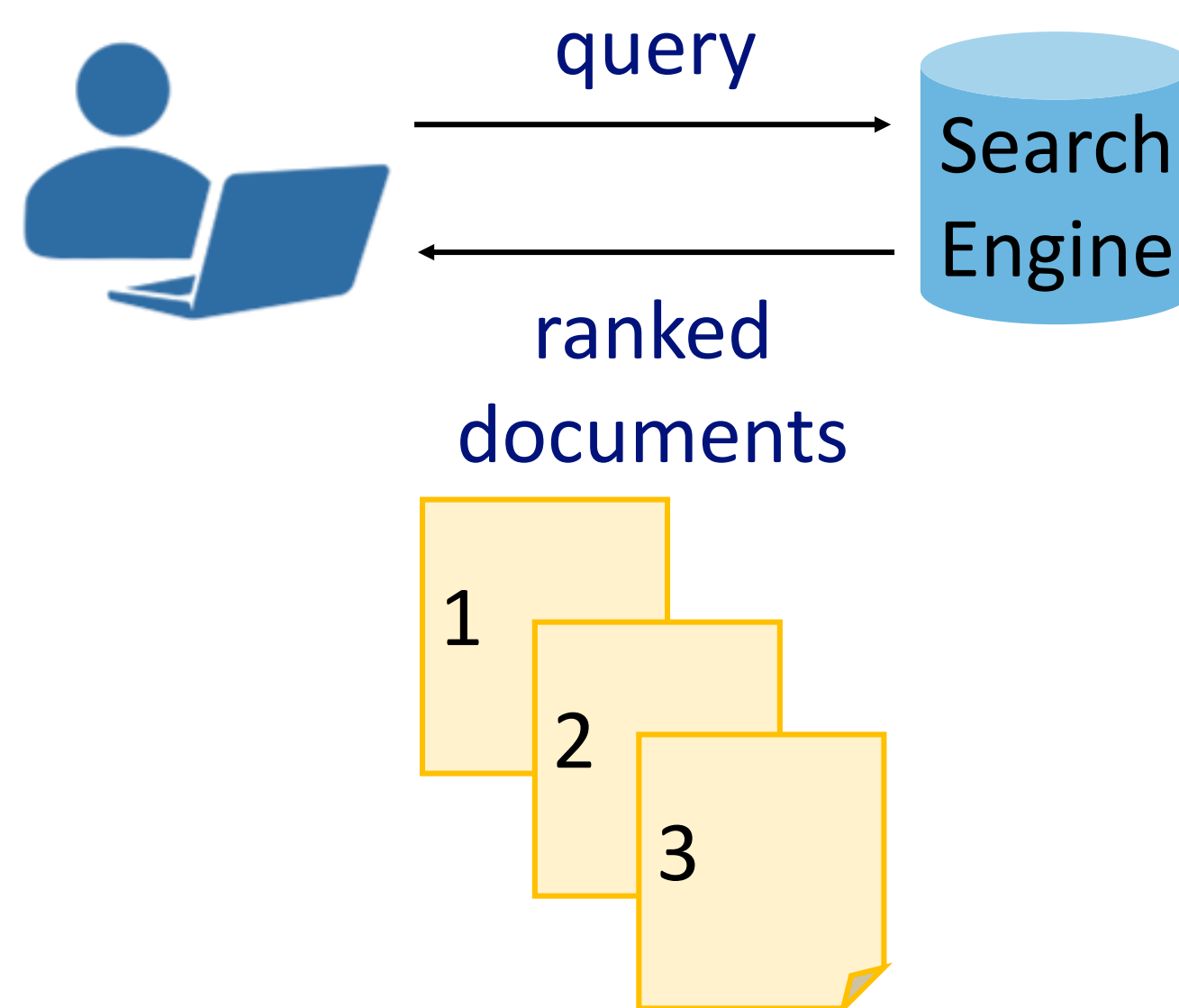
¹{csleili, lichen}@comp.hkbu.edu.hk, ²yongfeng.zhang@rutgers.edu

Introduction

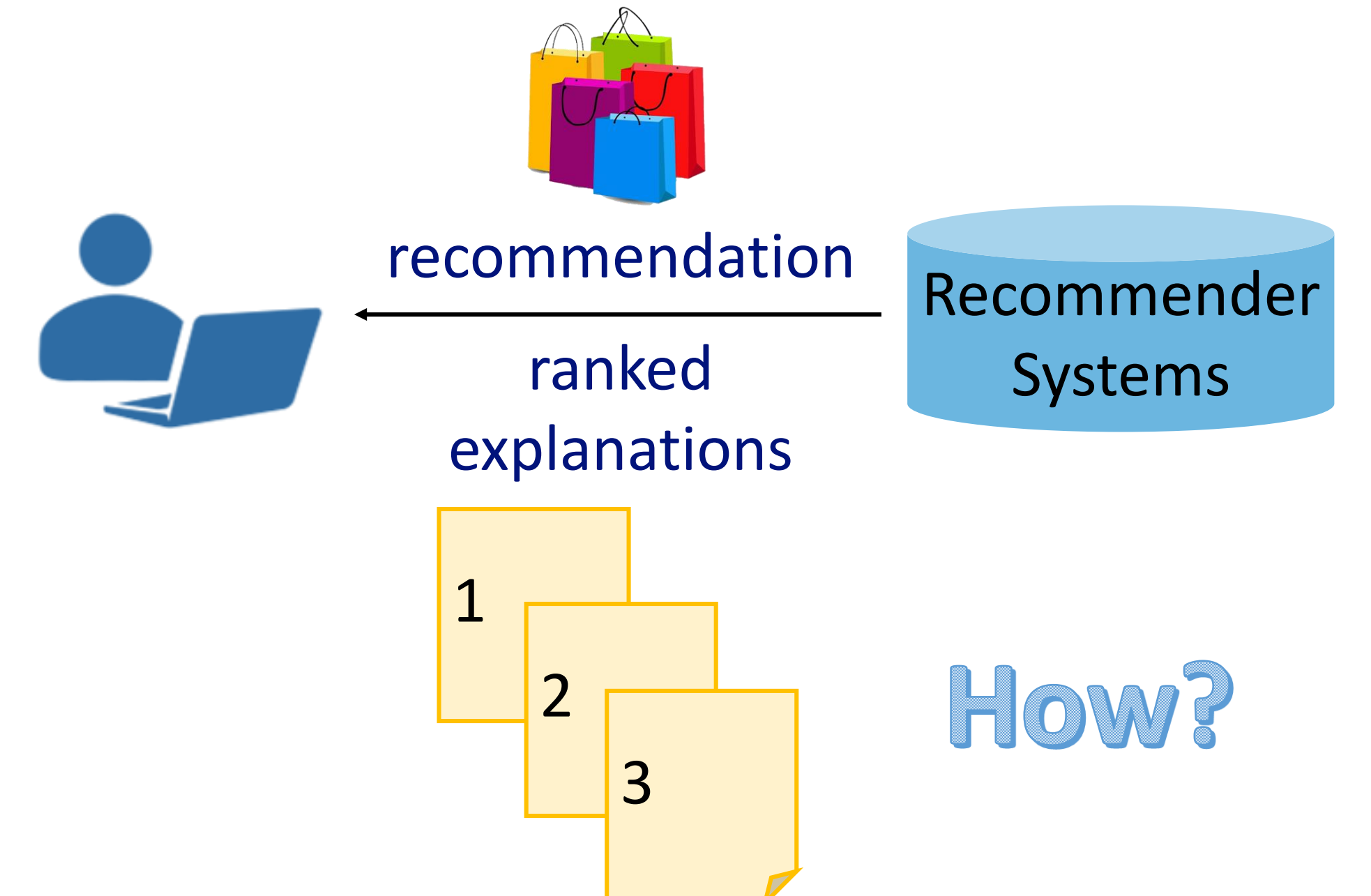
Natural Language Generation



Information Retrieval

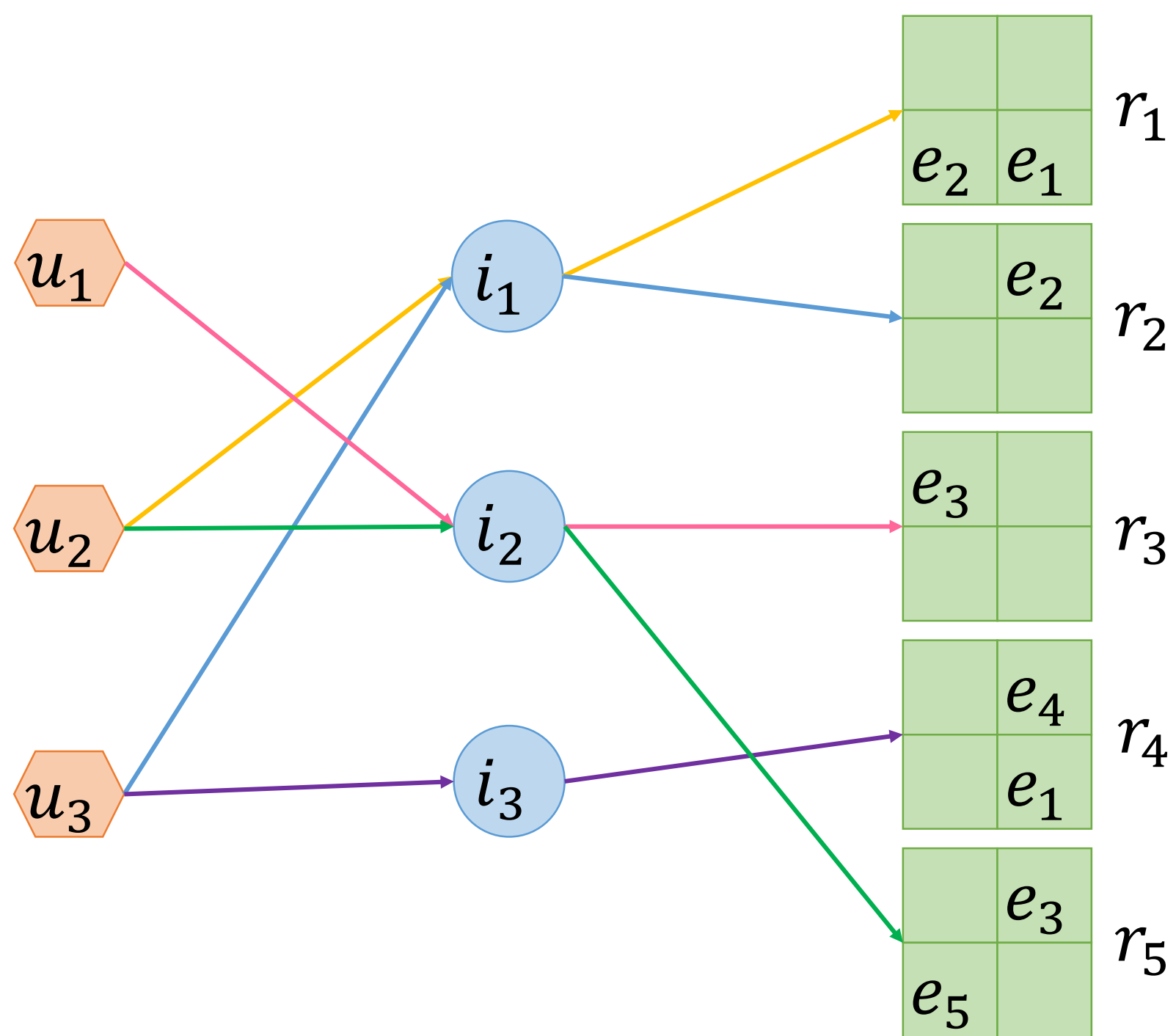


Explanation Ranking



Construction of User-Item-Explanation Interactions

User-Item-Review (Explanations)



Wisdom of the Crowd

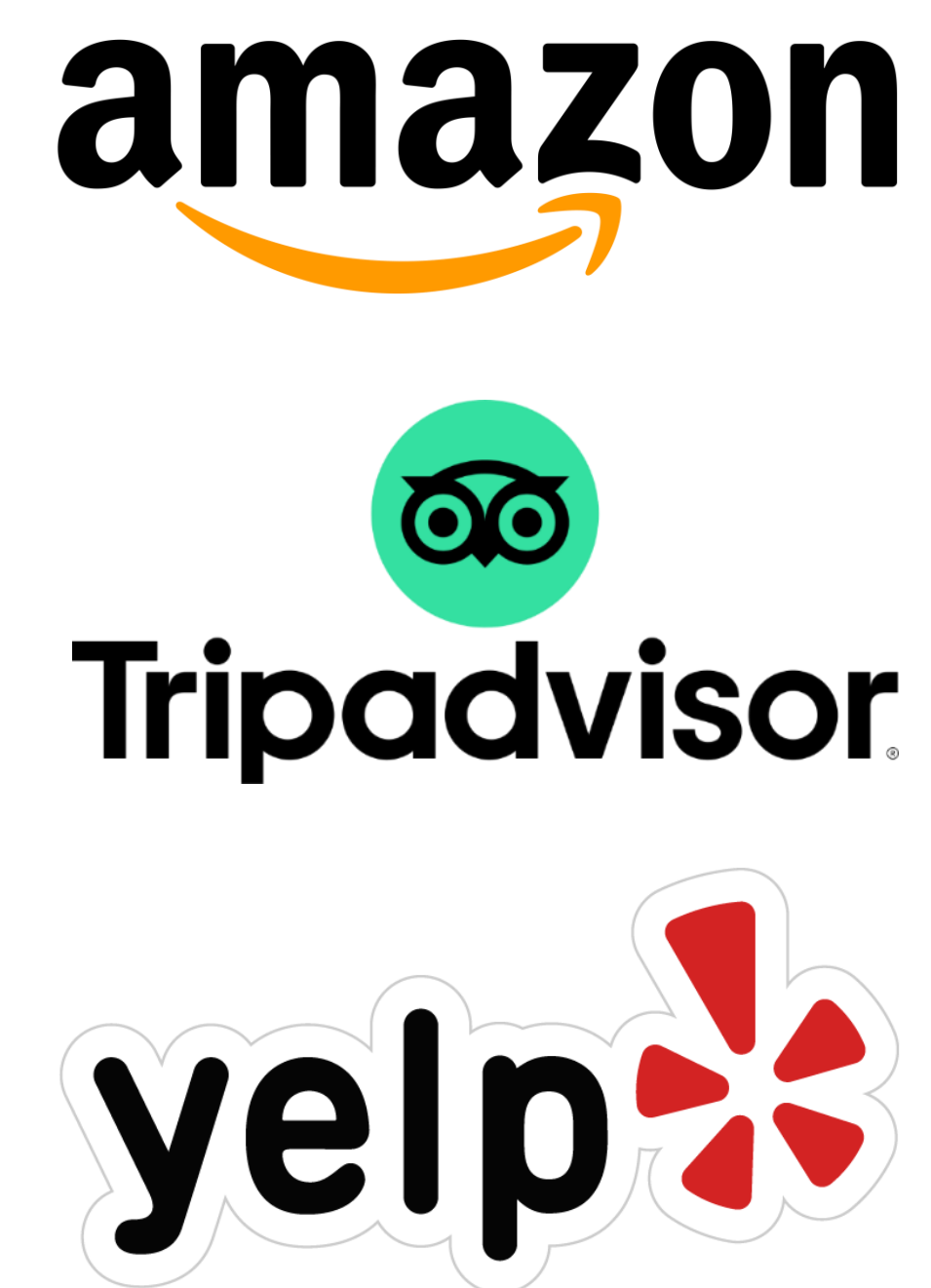
★★★★☆ **Excellent movie**
Reviewed in the United States on January 11, 2012
Verified Purchase
I love Brad Pitt and always watch his movies, and I'm rarely disappointed, and wasn't this time. Moneyball is a great movie based on a true story, you don't have to be into baseball to get the movie but it does help if you know a little. The story was really good and gives the viewer an understanding of how hard it is for small budget major league baseball teams to compete with teams like the Yankees and others where money is no object. I really enjoyed this film, great story and acting.

★★★★★ **Great family movie!**
Reviewed in the United States on May 22, 2013
Verified Purchase
We all loved this movie! As always, great effects, great story and acting! Harry Potter never disappoints! I would highly recommend this movie!

★★★★★ **A GREAT FAMILY MOVIE**
Reviewed in the United States on September 3, 2013
Verified Purchase
This movie has it all. Enjoyable characters, jokes, nice story line that an adult can appreciate too. If you have kids ages between 5 and 10 this movie is a great entertainment. Additionally, if you wish to have a break from tough guy movies, this is the one.

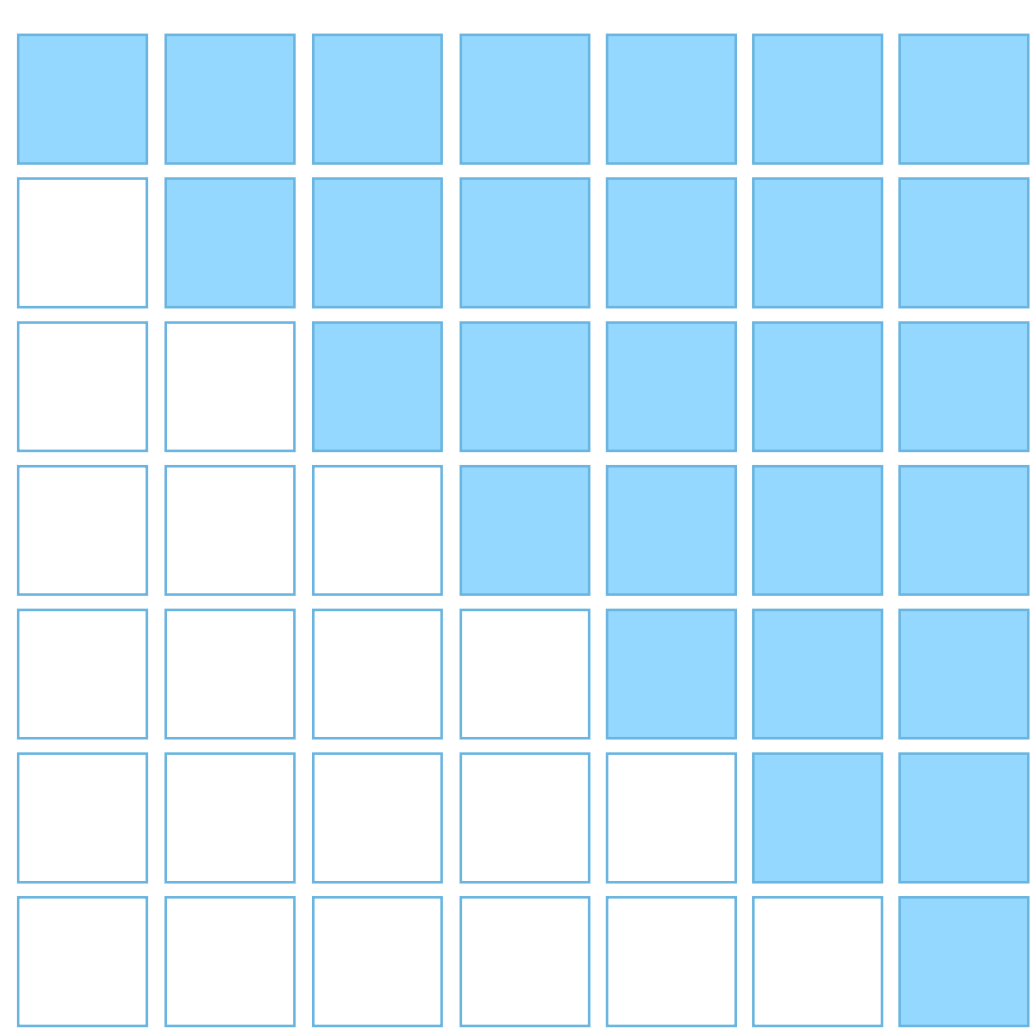
Co-occurring!

Datasets with MovieLens Format



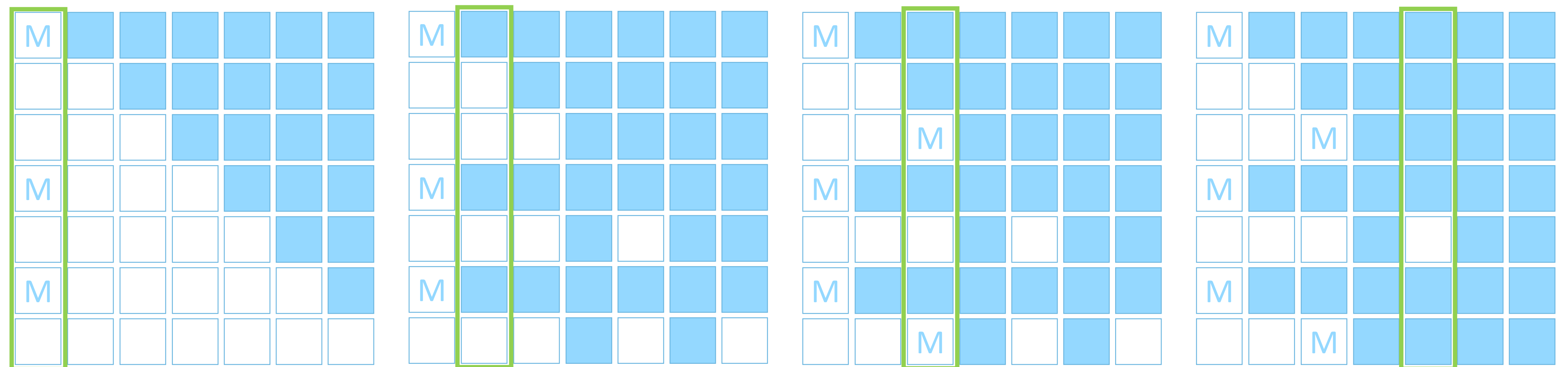
Sentence Grouping via Locality-Sensitive Hashing (LSH)

Naïve Approach



V.S.

Our Efficient Approach



□ Sentence similarity computation ■ Computation omission □ Query step in LSH M Matched sentence

Pilot Experiments for Explanation Ranking

Experiments

Problem Definition

$$\text{Top}(u, i, N) := \arg \max_{e \in \mathcal{E}} \hat{r}_{u,i,e}$$

Existing Methods

- Random
- Collaborative Filtering (CF)
 - Revised UCF
 - Revised ICF
- Tensor Factorization (TF)
 - CD
 - PITF

PITF's Ranking on Amazon Movies & TV

Top-5	Bottom-5
The acting is superb	Good B-movie
The cast is first rate	The final Friday
The acting is wonderful	This was a great event
The main character	Dead alive
The acting is first rate	A voice teacher and early music fan

Conclusion

- This work creates new datasets
- Future plans:
 - Develop new ranking methods
 - Conduct online experiment
 - Extend to images for visual explanation

Acknowledgments

- RCG/HKBU12201620
- NSF IIS-1910154 and IIS-2007907

