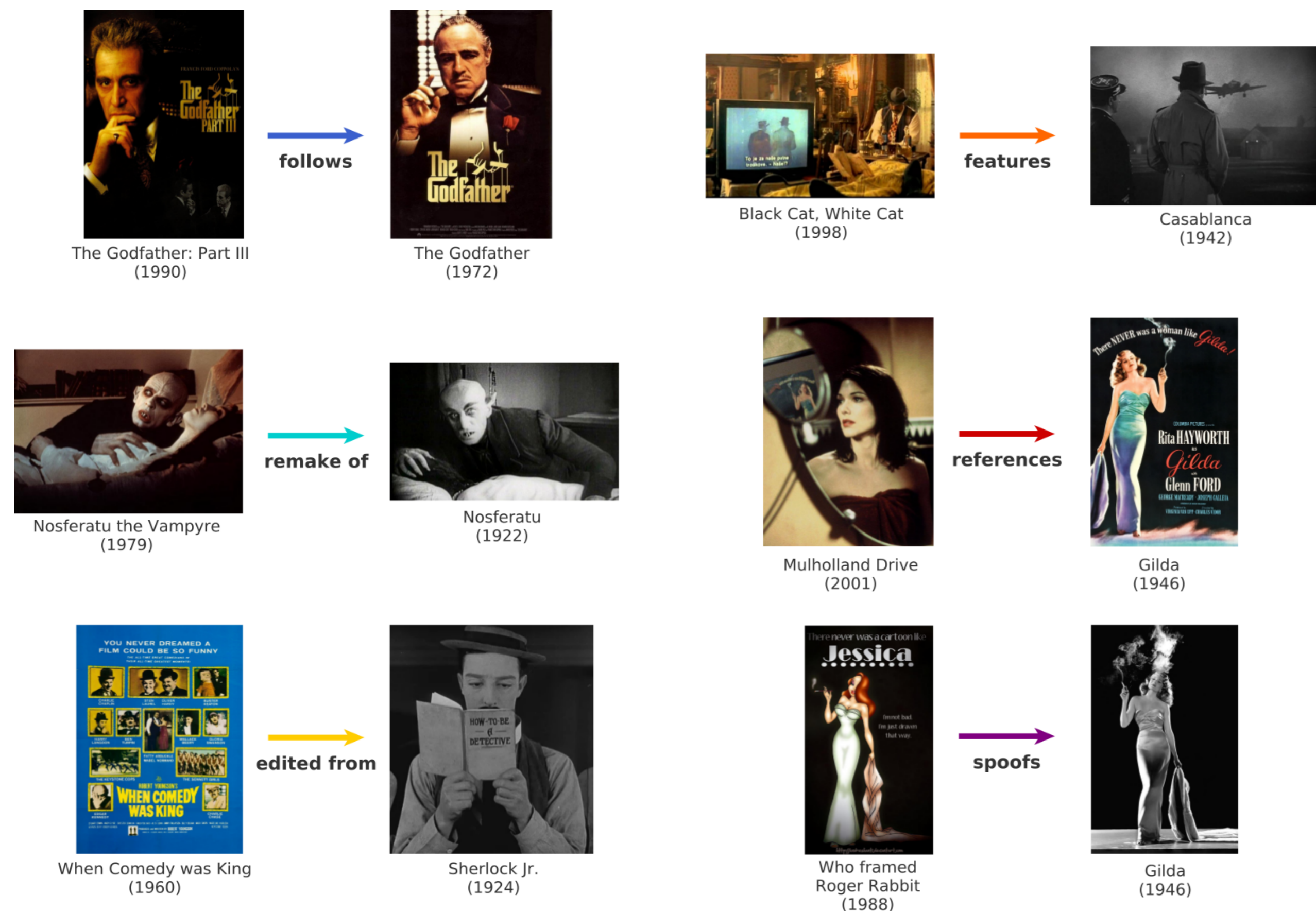


Film Citations



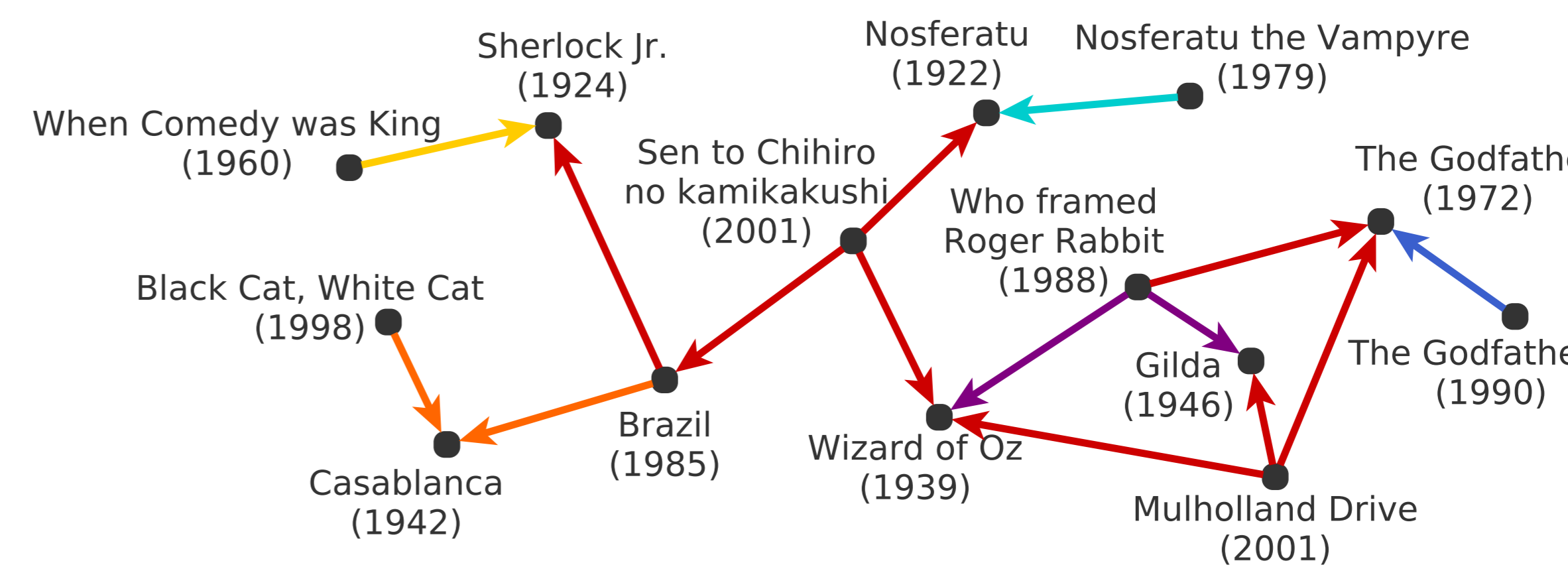
The Film Citation Network

IMDb dataset

- Internet Movie Database [1]
- Largest English film website
- 58 million registered users
- Content is generated collaboratively by users

Network statistics

- 40,008 feature films
- 105,876 film citations
- 3,896 components
- 6 types of citations



Research Question: What are the most influential films?

How to define “influential”?

- Was the film profitable?
- Is the film famous?
- Is the film memorable?
- Is the film sophisticated?
- Is the film ... ?

Traditional measures of success

- Box office revenue
- Audience numbers
- Awards
- Critical acclaim

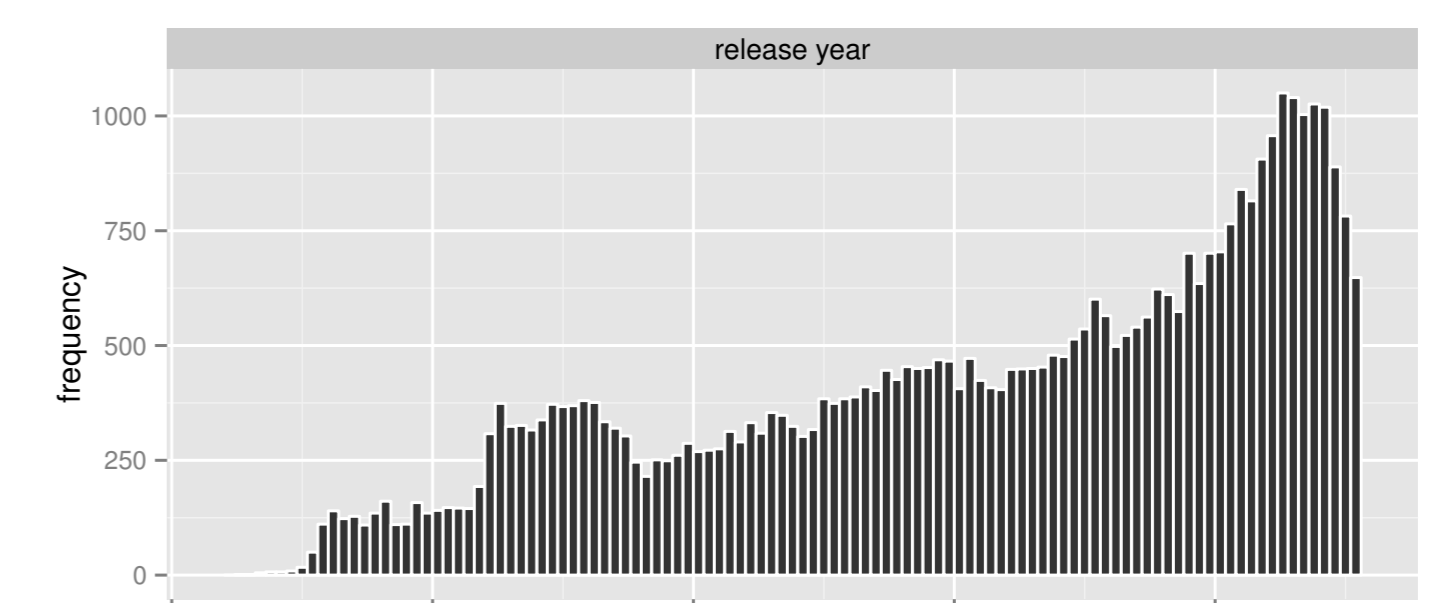
Problems of traditional measures

- Inflation adjustment
- Subjective bias
- Number of existing films
- Critics are not filmmakers

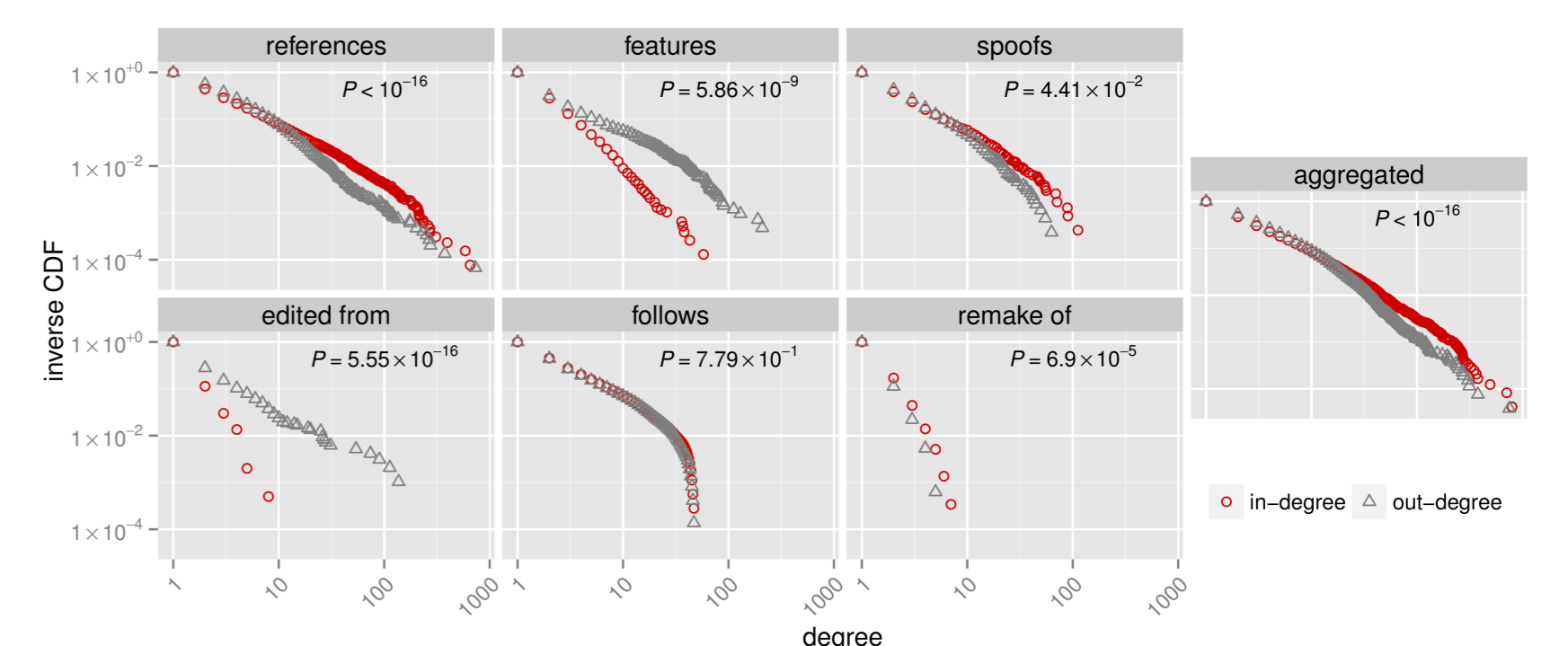
A new, bibliometric approach [2] [3]

- Treat films as sources of inspiration
- Include the filmmakers voice
- Measure importance through influence
- Combine multiple types of citations where appropriate
- Find films that are central in the network

Network Characteristics



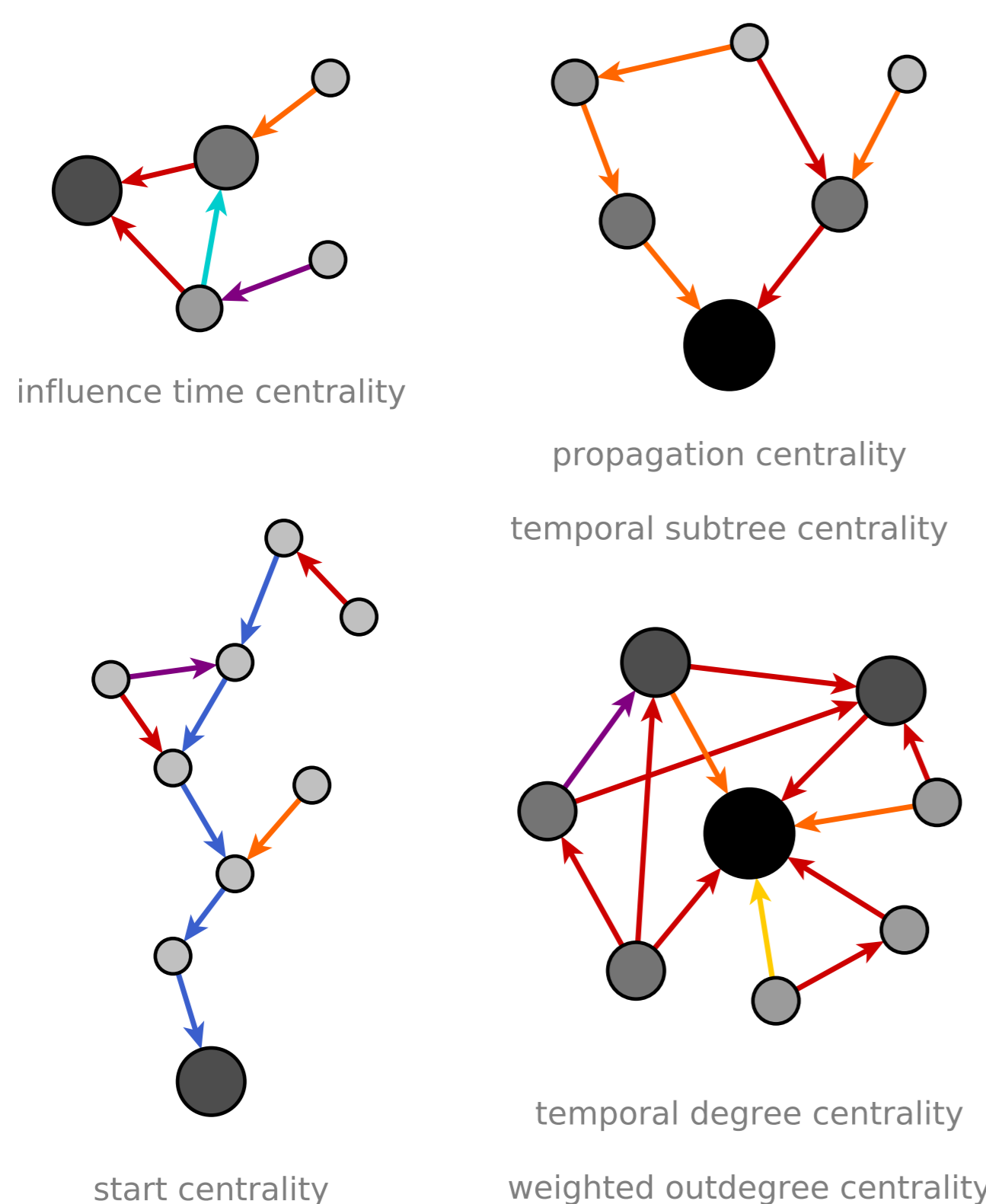
- Multiple edge types (multiplex)
- Time ordering of nodes
- Directed acyclic network (DAG)



Centrality Indices

Network centrality indices based on:

- Different citation types
- Time span of influence
- Number of influenced films
- Propagation of influence

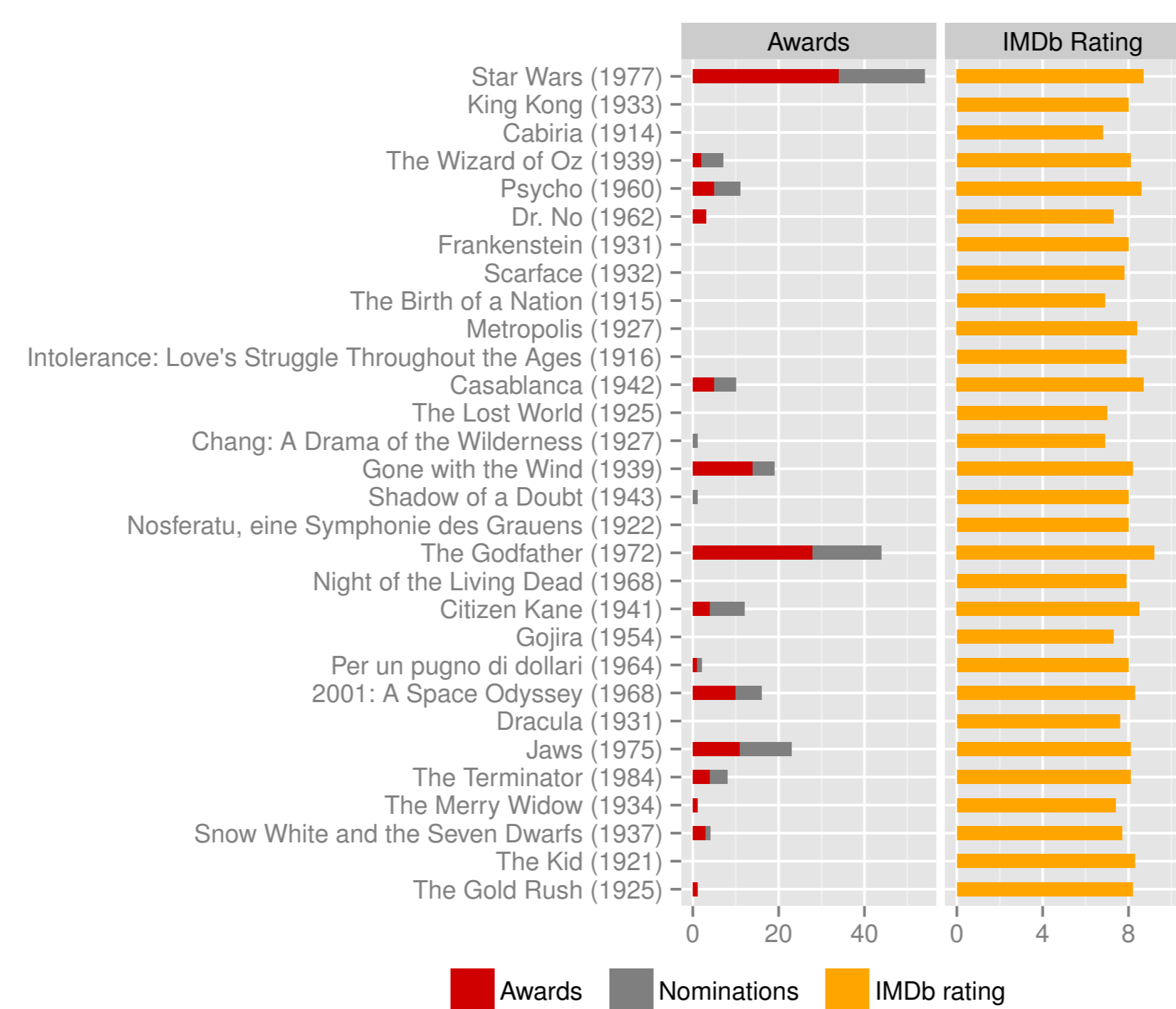


Ranking / Results

- Combine ranks of individual centrality indices r into one ranking for films X :

$$i(X) = \frac{1}{|\mathcal{R}|} \sum_{r \in \mathcal{R}} \frac{1}{\log(i_r(X) + 1)}$$

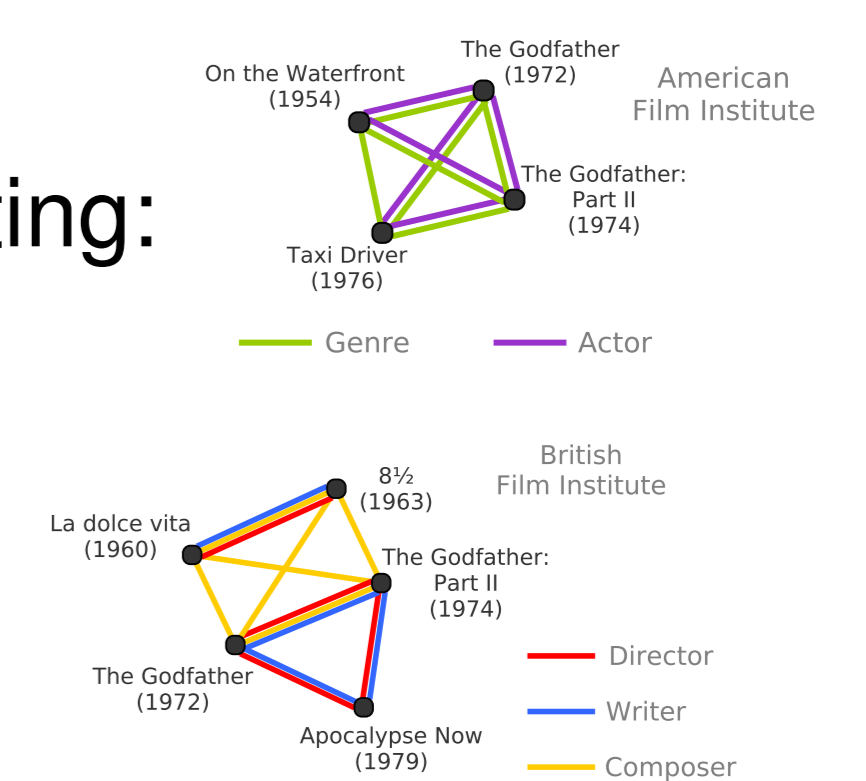
- There is no correlation to awards, nominations and average IMDb ratings



Evaluation vs. Top-Lists

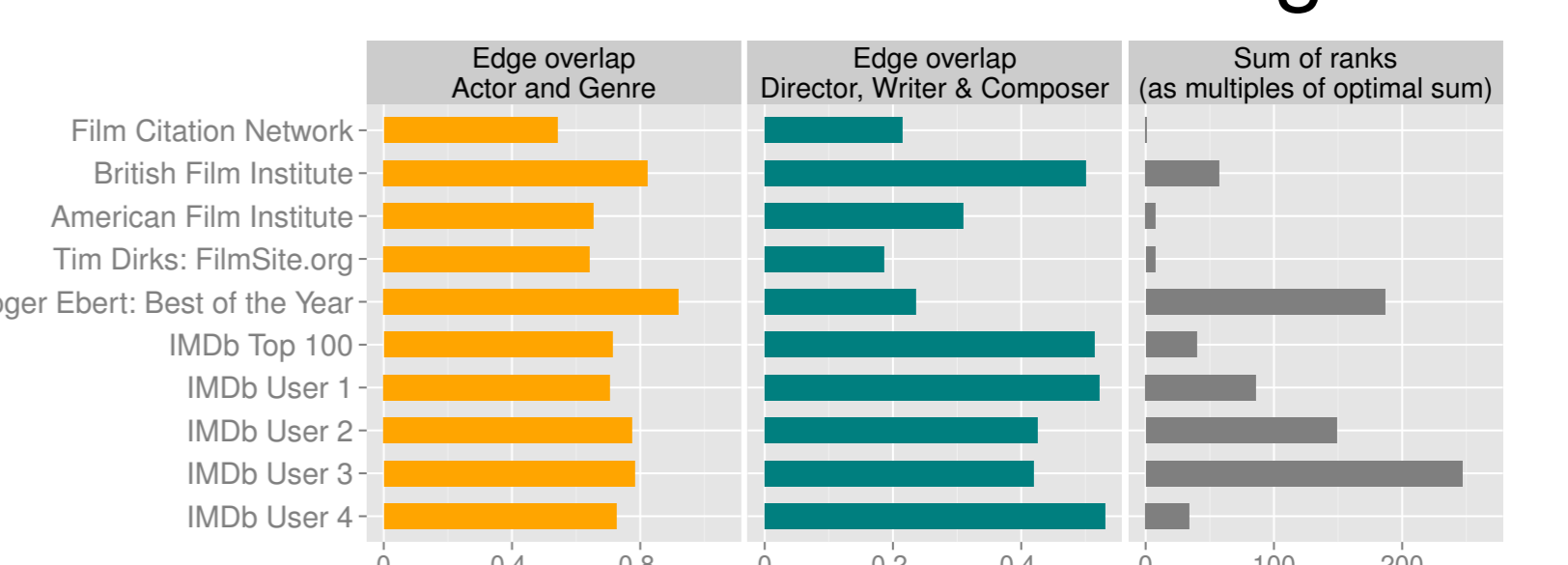
Evaluation of diversity

- Comprehensive top-lists should contain a diverse selection of films (minimal overlap)
- Amount of typecasting: Actor & Genre
- Creative elements: Director, Writer & Composer



Evaluation of similarity

- Intuition: Cinematic milestones should be ranked high
- Compare to top-lists by summing the ranks of their films in our ranking



References

[1] The Internet Movie Database. <http://www.imdb.com/interfaces/>

[2] A. Spitz and E.-Á. Horvát: **Measuring long-term impact based on network centrality: unraveling cinematic citations.** *PLOS ONE* 9(10): e108857, 2014.

[3] A. Spitz and E.-Á. Horvát: **A cookbook of cinematic delicacies that do not expire.** *Leonardo Journal, MIT press*, 47(3):271, 2014.

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