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Why not to use popularity scores from platforms

The hidden biases of YouTube data

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General Online Research, March 6-8, 2019

Biases in platform data

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Issues in CSS / big data literature

- Meaning of "likes," "retweets," etc. unclear (boyd & Crawford, 2012; Lomborg & Bechmann, 2014; Ruths & Pfeffer, 2014)
- "Hidden biases" due to social inequalities of usage (Crawford, 2013)
- Intransparent algorithms in platforms
  - E.g., Twitter's "trending" algorithm (Gillespie, 2012)

Biases in platform data

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Background: Research on digital fragmentation

- Fears about "echo chambers" (Sunstein, 2007) and "filter bubbles" (Pariser, 2011)
- Main factors
  - More content available online
  - More selective user behavior
  - Selection through platform design
- How to determine the **reach of online content**?

Digital fragmentation

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A multi-method approach

- Platform data
  - Content structures
  - Popularity scores
- Usage data
- Survey

Popularity of YouTube content

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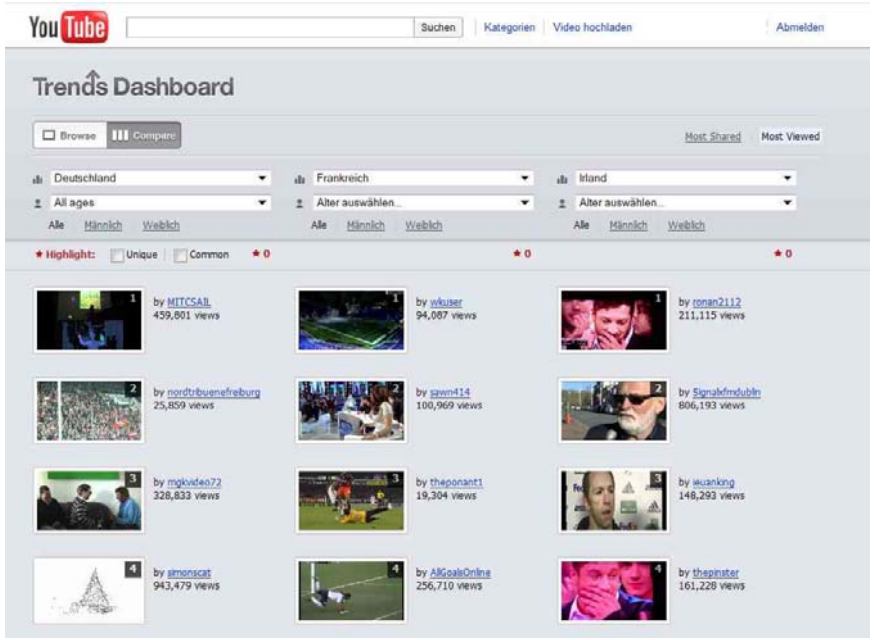
Platform information: Popularity scores

- Content analysis
  - YouTube daily top 10
  - “Trends” in Germany
    - Trends Dashboard (now defunct)
  - March through August, 2014
- 1,164 unique videos



Top 10 YouTube videos

1,165 videos from German top 10, 03-08/2014

Digital fragmentation

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Popularity of YouTube content

- Survey
  - Online access panel (Respondi)
  - First week of September, 2014
  - 1,665 respondents, aged 18-69
  - Representative for German online users
- YouTube use
  - Reach of online video platforms
  - Recognition of popular YouTube videos

Popularity of YouTube content

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Survey

- Video platforms highly popular
  - 50% of online users access video platforms at least once per week
  - [ARD/ZDF Online Study 2014: 45%; Koch & Liebholz, 2014]
- (Almost) daily users of video platforms
  - +24% aged 18-29
  - +11% male
  - +13% highschool graduates [Abitur]

Popularity of YouTube content

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Survey

- Popularity of YouTube videos

Popularity of YouTube content

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YouTube usage behavior

- Clickstream data
  - Nielsen panel of 54,790 German users
  - YouTube usage in June, 2014
    - 8,147 users
    - 433,235 video views
    - 244,925 unique videos
      - 87% viewed by one user each
    - 109,093 channels
      - 80% viewed by one user each

Popularity of YouTube content

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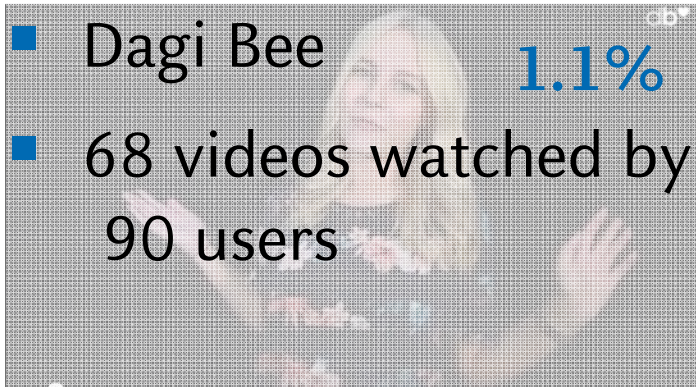
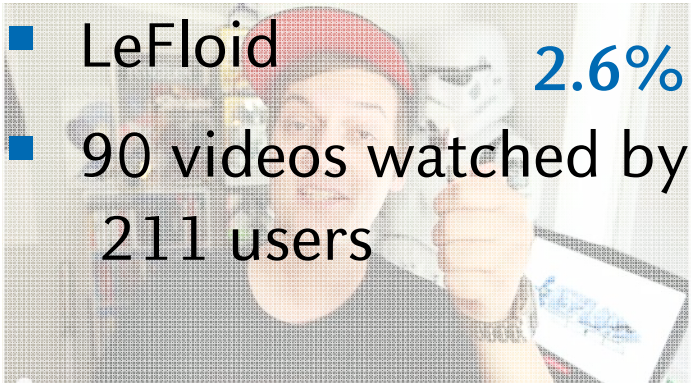
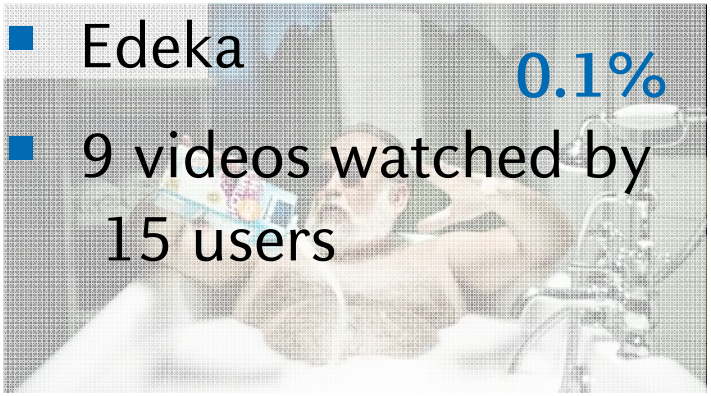
Clickstream data

- Popularity of YouTube channels, June, 2014







Popularity of YouTube content

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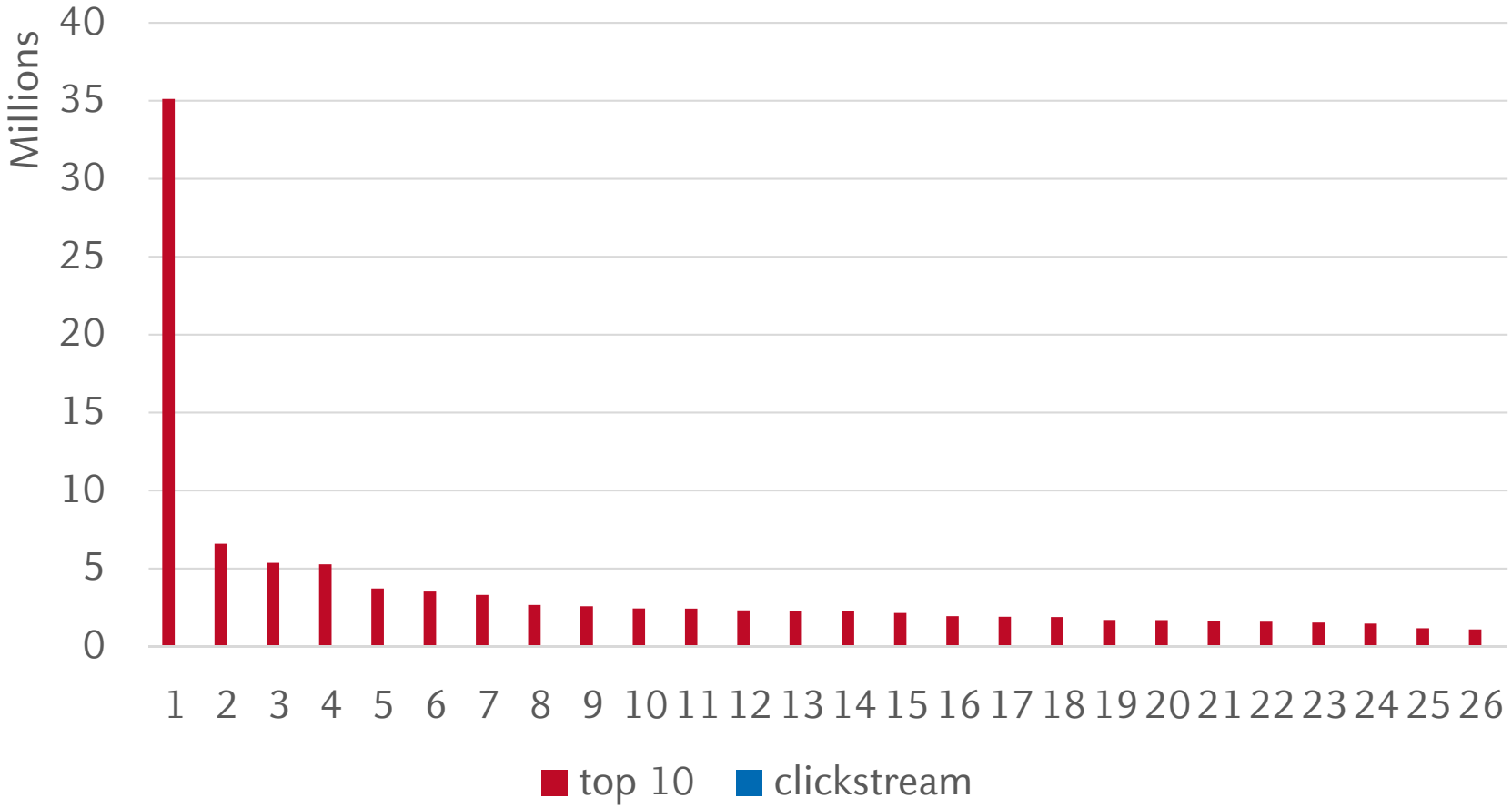
Comparing platform and clickstream data

- 26 videos from top 10 with 1 million+ views (June, 2014)



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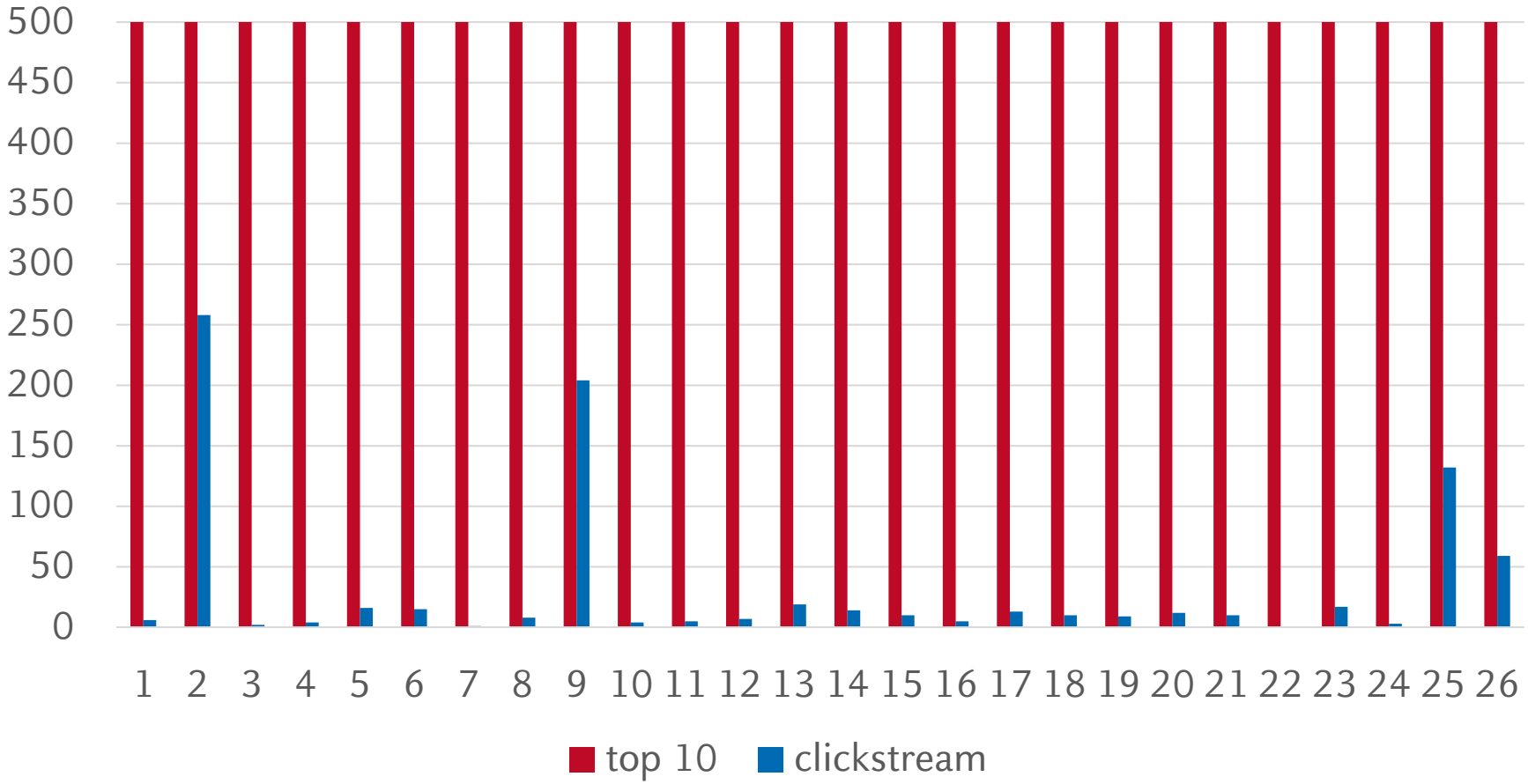

Conclusion

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Why not to use popularity scores

- Popularity scores and clickstream data capture different aspects of YouTube "use"—with different biases
- Over- and underrepresentation (age)
  - Validity of age in clickstream data doubtful
  - Small (sub)samples and idiosyncratic YouTube preferences
  - Limitations of assessing use on content level with survey
- (How) does YouTube favor advertisers and/or influencers?

- Which dataset captures reach of YouTube content best?
  - ...to ultimately assess digital fragmentation?

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Thank you

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Out now: *Beyond filter bubbles and echo chambers. The integrative potential of the Internet.* Berlin: Digital Communication Research.
www.digitalcommunicationresearch.de/v5/

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