Unlimited Power of Anime?

Measuring the Impact of
'Cool Japan' through Anime's
Media Presence
*A Semi-Supervised Topic
Modelling approach*

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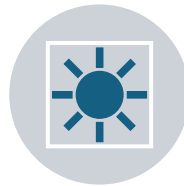# Presentation Outline

THEORETICAL FOUNDATION

WHAT EVEN IS SEMI-SUPERVISED TOPIC MODELLING?

SHINY PLOTS AND TABLES

DISCUSSING MY RESULTS

IMPLICATIONS FOR COOL JAPAN

Research Agenda

- One of the guiding principles behind Cool Japan is the idea that interest in one aspect of Japanese culture leads to a more broad interest in other aspects of Japan and Japanese culture (METI 2013)

- Anime is one of the key cultural exports of Japan and a central theme in the marketing efforts of the "Cool Japan" initiative (Frondosa 2023)

- If the idea behind Cool Japan works, then we should witness an increase in connections between Anime and other topics.

- Let's call this idea the "**Anime spillover effect.**"

- How does the amount of topics covered alongside anime develop with the broader increase in interest in Anime?

Expectations

Anime started out as niche topic and is reported on just as this.

Due to the spillover effect, alongside increased interest in anime, we should witness a broader range of topics in media coverage associated with Anime over time

Hypothesis
With increased interest in anime, anime becomes associated with an increasing amount of other topics of interest.

How to test this idea?

Analysing Media coverage!

Dataset

Objective: To explore the representation and themes associated with the term "anime" in The New York Times.

Data Source: Articles from The New York Times mentioningthe word "anime".

Why The New York Times?

Data Availability: Extensive archive available through ProQuest

Relevance and Influence: The New York Times is known for its comprehensive coverage and influence in shaping public discourse.

Data Collection

Source: Query on the ProQuest archive of NYT articles

Results: 1267 available articles featuring the word „anime" from 1981 until 2023

Manually removed articles without text and without reference to Japan (e.g. „Jardin anime - 3rd act of Le Corsaire" ballet)

Further removed editorial notes and links towards NYT social media accounts
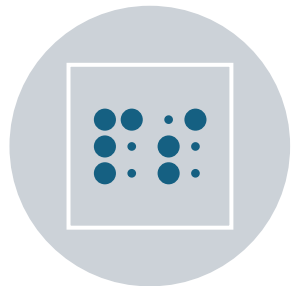
Data Cleaning and Preprocessing

Stopword Removal: Applied an English language stopword dictionary to remove common words without semantic meaning (e.g. the, she, that, one,…)

Symbol and Time Mention Removal: Cleansed the text of symbols and specific time references.

Word Stemming: Standardized words to their root forms to ensure consistency in analysis.

Feature Selection: Excluded features (words) appearing in fewer than 10 articles to focus on prevalent themes.

1219 articles survived ☺
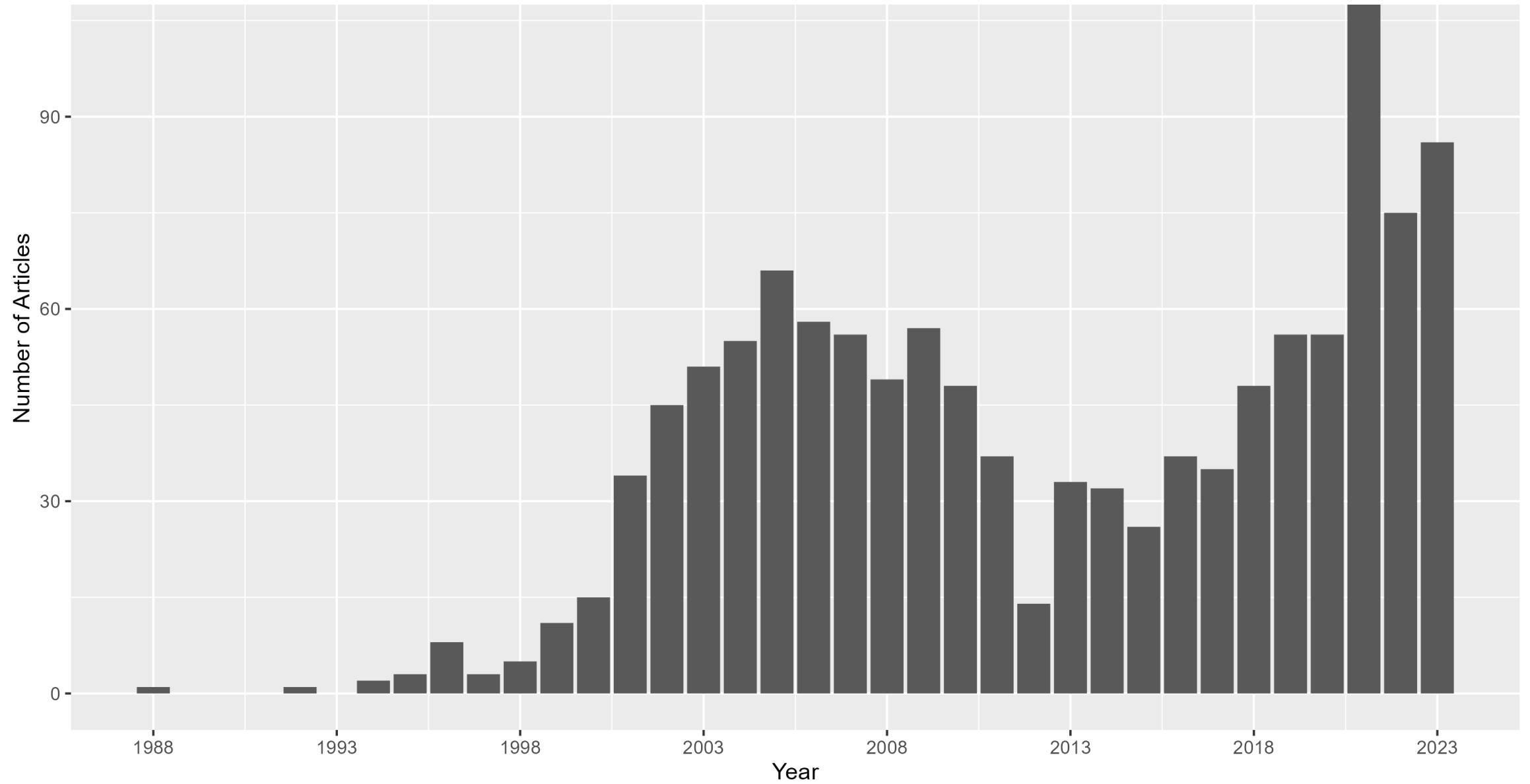
1219 articles survived ☺

Observations

Strong trend of increase in articles featuring anime

Peaked in mid 2000's and during COVID lockdowns, Interest remains high

Is this only a New York Times phenomenon or a broader trend?

Matches data of search prevalences (Google Trends 2024)

Semi-Supervised Topic Modeling (STM)

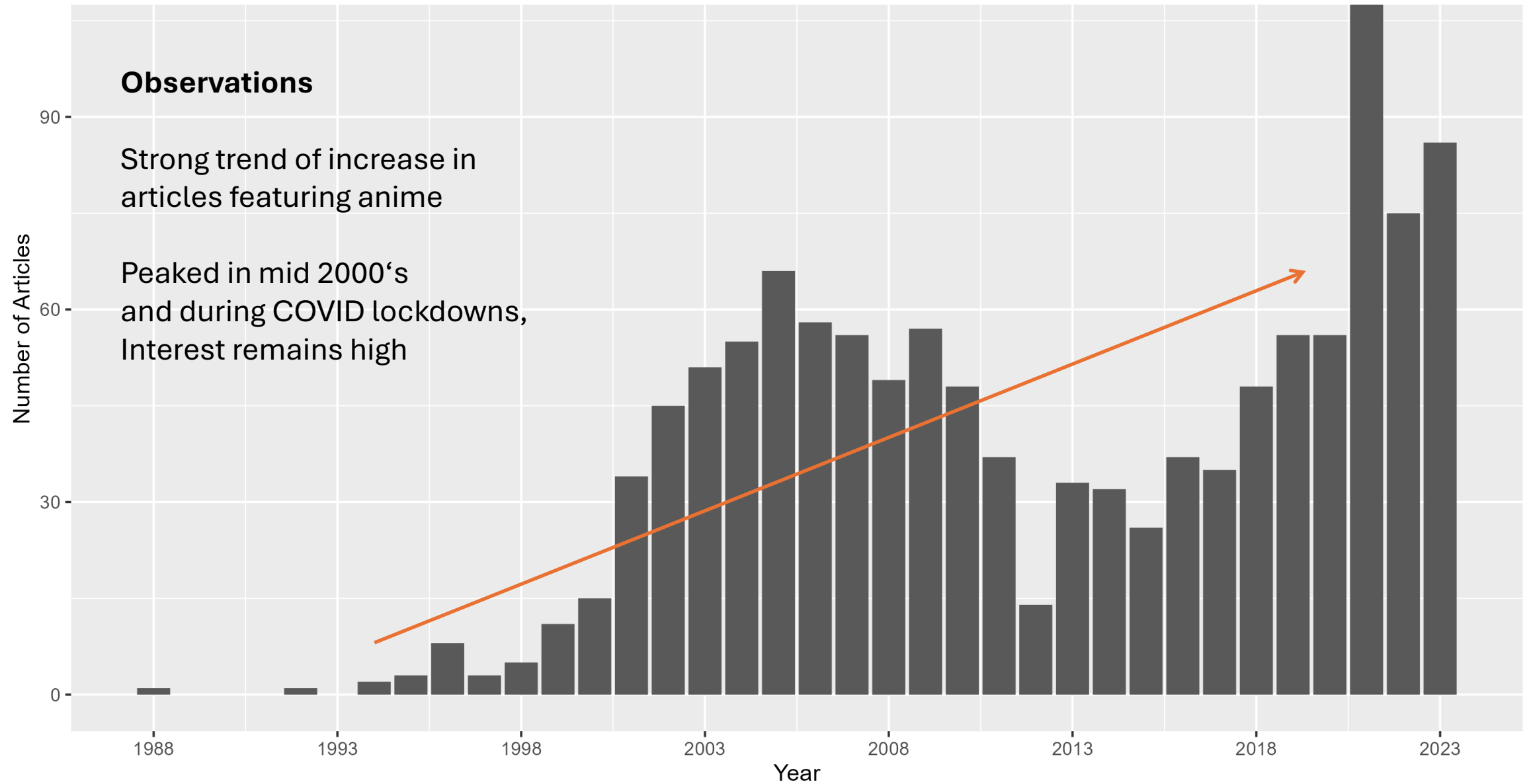**Latent Topics:** STM (Roberts et al. 2019) can uncover latent topics in text document corpora.

Co-occurrence & Exclusivity: Words within topics co-occur and are exclusive and can be grouped by the model in training

Supervised Component: Covariates can be added to the model that are expected to influence topic proportions (Time!)

Main challenge: User needs to define number of topics prior to modelling.

Estimating topic numbers: Several statistics can be used for finding the optimal number of topics (Sigl 2018)

Words are as exclusive as possible to a topic as they are frequent

Model diagnostics by number of topics

Diagnostics indicate the optimal number of topics
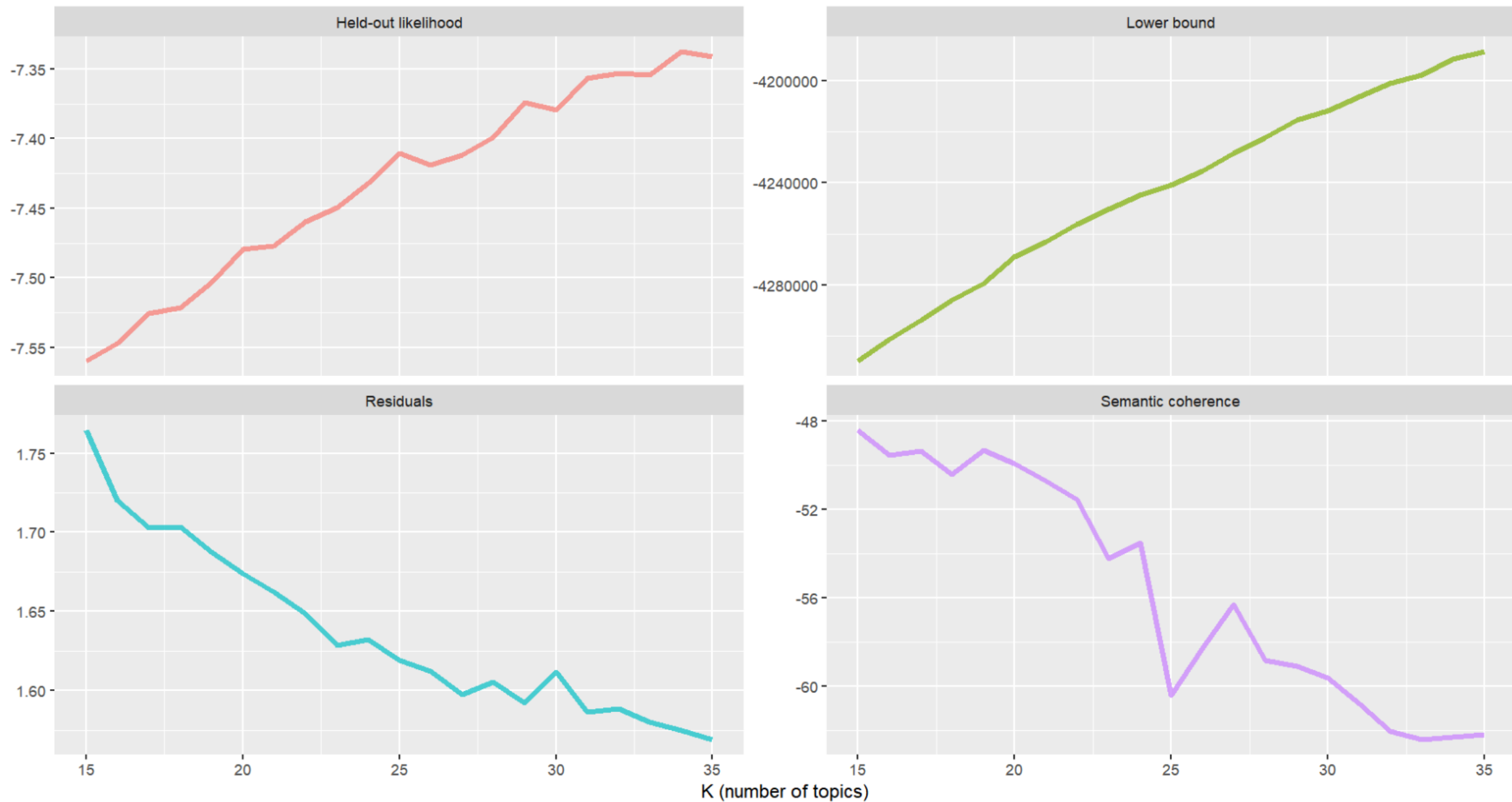
Mean of Exclusivity and Semantic Coherence
Across Different Numbers of Topics (K)
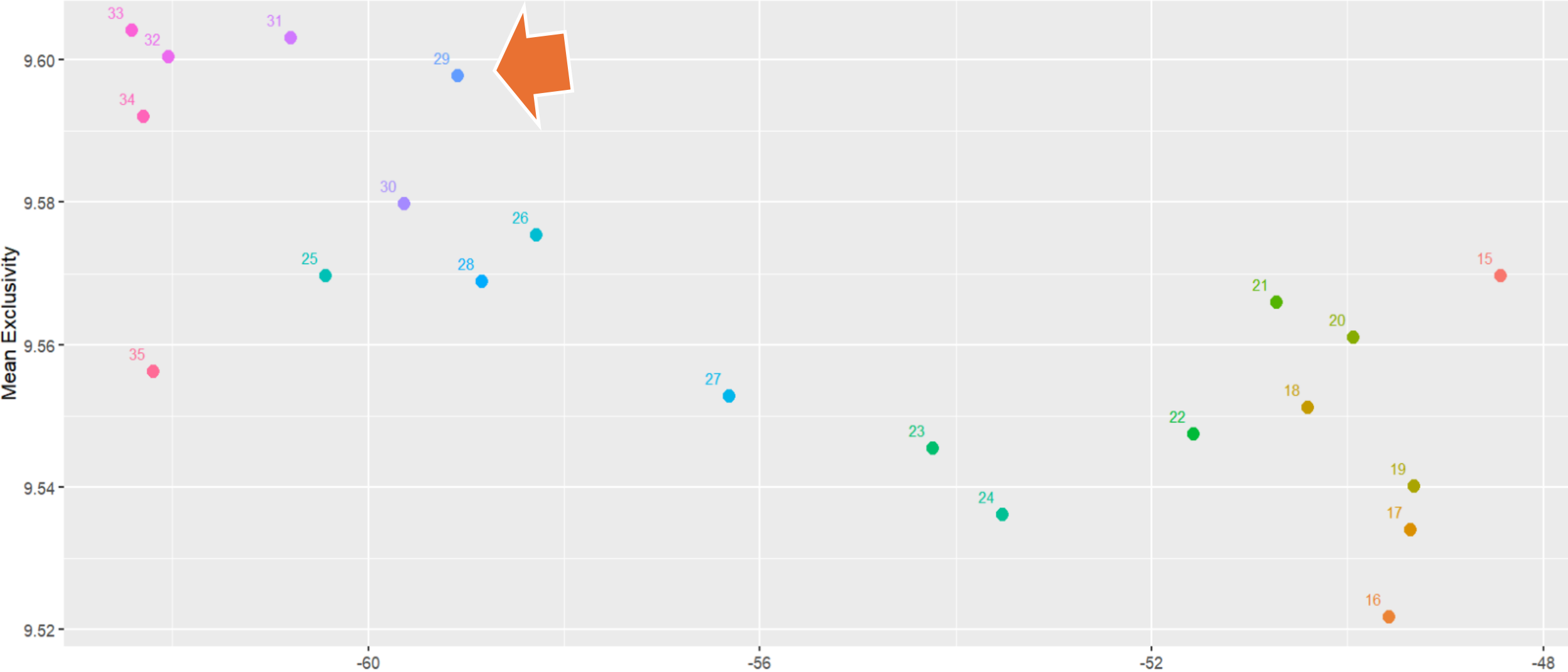
Example Output

Topic 1 Top Words:

- Highest Prob: film, movi, anim, rate, time, stori, director, pg-13, direct, scott
- FREX: pg-13, dargi, kon, rate, tarantino, scott, holden, sequenc, minut, blu-ray
- Lift: singer-songwrit, pg-13, kino, holden, oshii, kon, tarantino, paprika, mamoru, dargi
- Score: pg-13, dargi, kon, singer-songwrit, film, blu-ray, tarantino, holden, oshii, scott

Topic 2 Top Words:

- Highest Prob: anim, cartoon, televis, network, seri, charact, episod, time, program, childre
- FREX: network, cartoon, nickelodeon, cabl, televis, episod, broadcast, viewer, boondock, simpson
- Lift: mate, powerpuff, boondock, nickelodeon, clone, rerun, squarep, network, naruto, spongebob
- Score: mate, nickelodeon, network, boondock, powerpuff, cabl, cartoon, episod, fox, dvd

Topic Labelling

Entertainment & Media (Topics): Cinema & Ratings, Animation & TV, Gaming & Fantasy, Streaming & Drama, Hollywood Cinema

Arts & Culture (Topics): Art Exhibitions, Performing Arts, Cultural Events, Dance & Festivals, Cultural Heritage

Fashion & Lifestyle (Topics): Fashion Trends, Culinary Trends, Asian Beauty

Technology & Digital Media (Topics): Digital Media, Social Media Discourse

Business & Industry (Topics): Retail & Entertainment, Auto Design & Racing, Music Industry

Sociopolitical Issues (Topics): Urban Housing, Governance & Funding, Political Dynamics

Japanese Culture & Anime (Topics): Anime & Manga, Studio Ghibli Films

Creative Arts (Topics): Comic Culture, Modern Art, Film Directing

Sports (Topics): Sports & Japan

Topics by prevalence
With the top words that contribute to each topic

Topic	Top words
Cinema & Ratings	film, movi, anim, rate, time, stori
Anime & Manga	japanes, japan, anim, manga, charact, tokyo
Modern Art	art, artist, paint, galleri, murakami, museum
Streaming & Drama	seri, season, netflix, stori, stream, episod
Fashion Trends	fashion, design, dress, wear, model, photograph
Animation & TV	anim, cartoon, televis, network, seri, charact
Music Industry	music, song, album, video, band, sound
Dance & Festivals	film, danc, festiv, dancer, video, director
Retail & Entertainment	compani, product, store, market, netflix, toy
Culinary Trends	citi, restaur, street, food, bar, tokyo
Comic Culture	comic, black, book, charact, fan, fiction
Education & Campus	school, student, colleg, children, famili, read
Hollywood Cinema	movi, film, star, studio, disney, war
Film Directing	direct, film, play, star, documentari, director
Digital Media	video, peopl, compani, user, onlin, servic
Ghibli Films	miyazaki, film, anim, studio, ghibli, spirit
Political Dynamics	offici, polit, republican, unit, democrat, citi
Social Media Discourse	peopl, post, twitter, media, social, china
Gaming & Fantasy	game, player, play, final, video, time
Urban Housing	hous, day, time, peopl, live, job
Sports & Japan	polic, fox, olymp, time, peopl, japan
Cultural Events	street, children, avenu, museum, art, york
Asian Beauty	asian, hair, white, american, women, makeup
Art Exhibitions	art, museum, street, artist, paint, galleri
Rap & Hip-Hop	time, peopl, rap, hip-hop, record, start
Auto Design & Racing	car, design, contest, japanes, includ, machin
Governance & Funding	york, fund, peopl, nuclear, societi, govern
Performing Arts	theater, music, street, opera, perform, west
Cultural Heritage	napl, citi, rome, church, day, greek

0%   10%   20%

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Yearly Topic Proportions

Group

Cinema & Ratings
Animation & TV
Art Exhibitions
Auto Design & Racing
Performing Arts
Fashion Trends
Digital Media
Retail & Entertainment
Cultural Events
Social Media Discourse
Gaming & Fantasy
Sports & Japan
Education & Campus
Urban Housing
Anime & Manga

Film Directing
Modern Art
Music Industry
Ghibli Films
Comic Culture
Culinary Trends
Dance & Festivals
Asian Beauty
Governance & Funding
Rap & Hip-Hop
Political Dynamics
Streaming & Drama
Cultural Heritage
Hollywood Cinema

Topic Correlations

Which topics are likely to appear together in the same article?

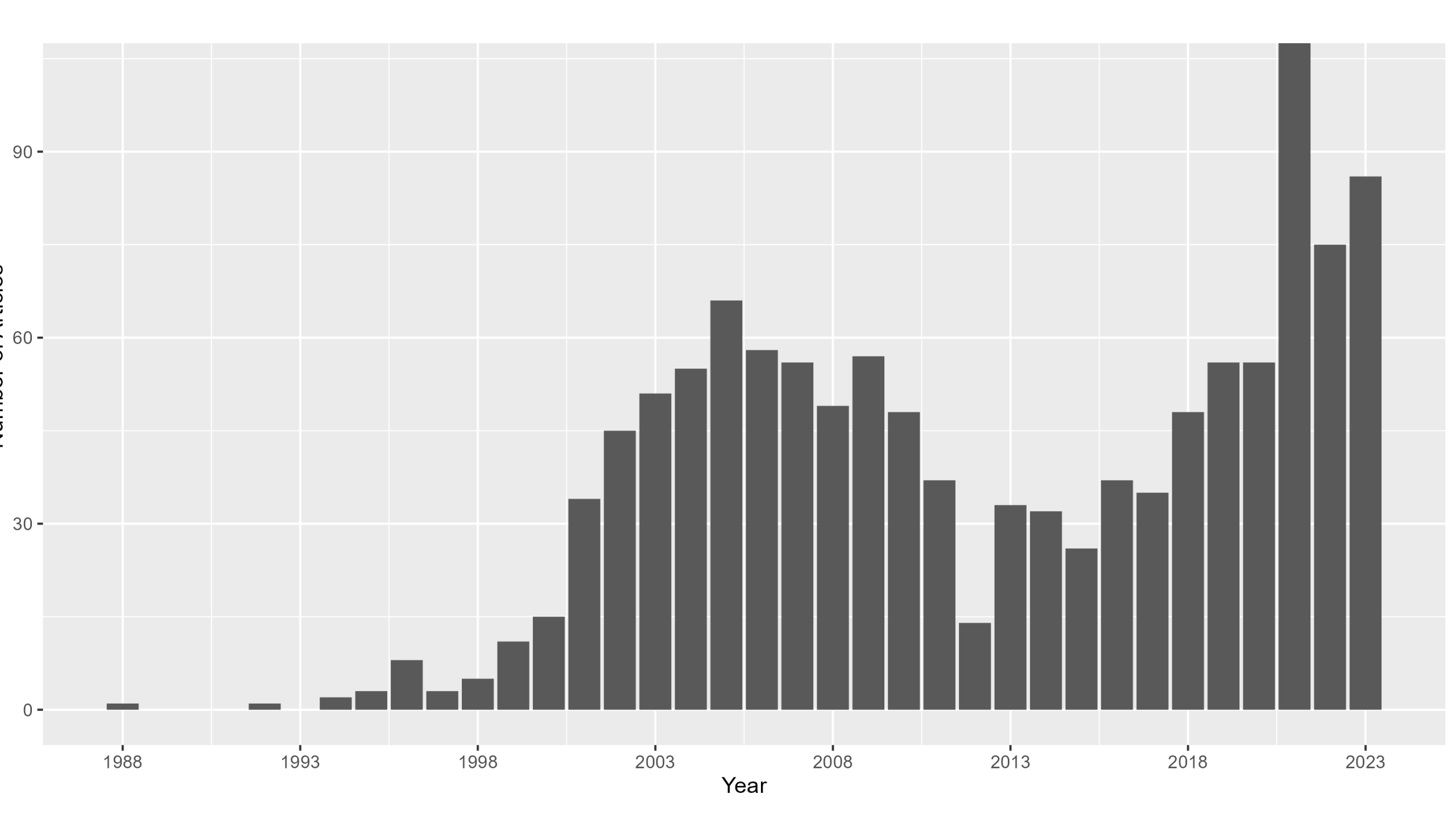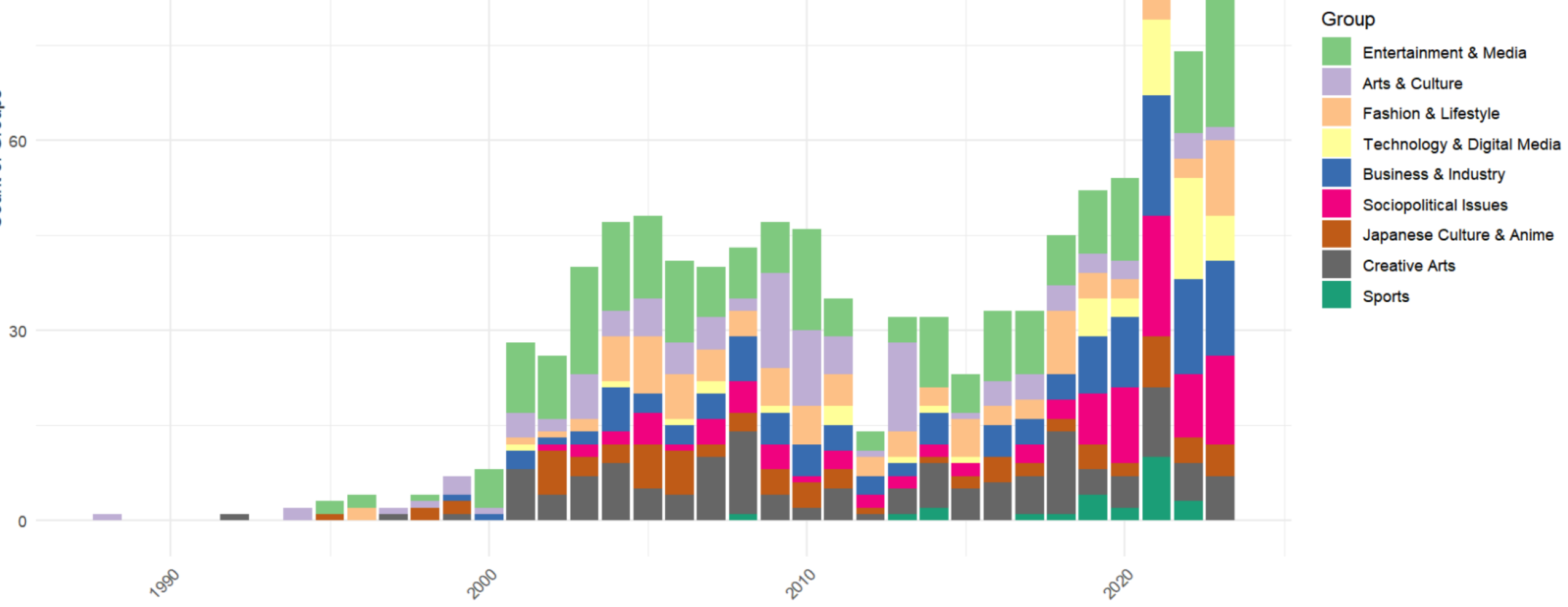- **Entertainment Cluster**: Articles discussing *Hollywood Cinema* often detail *Film Directing* techniques, while those on *Anime & Manga* frequently reference *Ghibli Films*.
- **Cultural Dynamics**: Pieces on *Culinary Trends* tend to explore *Cultural Heritage*, and those focusing on *Fashion Trends* commonly link to *Asian Beauty* concepts.
- **Digital Media Correlation**: Discourse around *Social Media* intersects with *Digital Media* impacts, just as *Gaming & Fantasy* connects with *Comic Culture* in digital entertainment.
- **Socio-Economic Insights**: *Education & Campus* articles typically involve *Urban Housing* issues, and *Governance & Funding* is often discussed alongside *Political Dynamics*.

Yearly Group Counts

Group

- Entertainment & Media
- Arts & Culture
- Fashion & Lifestyle
- Technology & Digital Media
- Business & Industry
- Sociopolitical Issues
- Japanese Culture & Anime
- Creative Arts
- Sports

Analysis

Data shows clear diversification of topics alongside the increase in number of articles per year

Suggest that the idea behind Cool Japan has merit
I find evidence that alongside the increased coverage of anime, the number of topics it relates to increases.

People with interest in Anime are possibly more likely to find out about these topics

Limitations

- I found correlational evidence but no causal evidence.
- How does the relationship between increased interest and amount of topics connected behave for other aspects of Japanese culture?
  - Food: Ramen, Sushi, Sukiyaki (likely less broad range of topics)
  - History and Heritage: Samurai, Ninja, Traditional Clothing
  - Music: J-Pop, City-Pop
- Would the results differ with the inclusion of more data sources?

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