

Best Selling Nonfiction Books

Textual Analysis for the Social Sciences by. Alex Chae

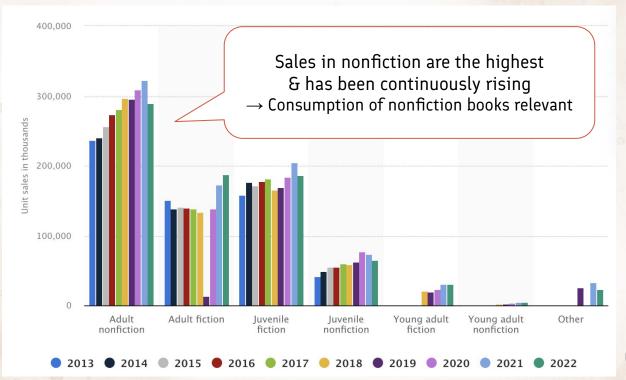


RESEARCH QUESTION



How is people's consumption of nonfiction books related to social issues?

IMPORTANCE



(Statista, 2023)

IMPORTANCE & LITERATURE

- Popular books = commercial interests + cultural forces
 - Reflect **social, cultural preferences** (Smiraglia, 2017)
- Nonfiction best-sellers in specific areas
 - Sociology Jargon-free, about American society, poverty, racial inequality (Gans, 1997)
 - Children's nonfiction books change with WW2, Civil War, women's liberation (Rahn, 1991)
- Why do people read?
 - O Pleasure, keep up with current events (78%), research, for work/school (Pew Research Center, 2012)

My project:

- Using a dataset of a wider time range (1931-2023)
- Comparison with what is happening in society at the same time

DATA



New York Times # 1 Best-Selling Nonfiction Books 1931-2023

- 786 Books in total
- Wikipedia & Goodreads summaries
- Title



New York Times Articles 1931-2020

- Headline
- Leading paragraphs
- Proxy for social issues

METHODS

Topic Models with publish year as covariates

Change in topics in best-selling books & NYT articles overtime

Word Count + Sentiment Analysis + Abstractness

- Title length changes in best-selling books & NYT articles
- Abstractness changes in best-selling book titles & NYT article headlines
- Sentiment changes in best-selling book titles & NYT article headlines

TOPIC MODELING



LDA Topic model

For summary/ lead paragraphs of each decade: (1930s, 1940s, 1950s, 1960s, 1970s, 1980s, 1990s, 2000s, 2010s)

- Ran a LDA topic model with k=7, 10, 15
 - k=5 too broad, k=20 too specific
- Found topics that occurred in 2+ models

Preprocessing:

Remove stopwords, numbers, punctuation
Remove words with < 3 letters
All lowercase

Articles:

Remove very common words (today, yesterday, said, announced, united, states, new, york, mr, mrs, american, made, january... december, one, two, three, last, week, city, year, would, next, first, per, held, city)

Topics in Best-selling Books:

Decade	Topics	
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	

Topics in NYT Articles:

Decade	Topics	
1930s	Public policy, Foreign trade, Stocks/ Business, Education	
1940s	War & government/ politics, British, Germans, Labor, Business, Trade, Men	
1950s	International politics, Communism/ Soviet Union, Government, War, World economy, School	
1960s	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men	
1970s	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)	
1980s	Sales, Company earnings, Government earnings, Police	
1990s	Family, Companies, University, Police	
2000s	Family, School/ University, Leisure, Death	
2010s	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work	

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

1940s: Both discuss "war"

Both, Books only, Articles only

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

1940s: Both discuss "war"

Books focus on Americans, US Articles focus on other countries

Both, Books only, Articles only

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

1940s: Both discuss "war"

Books focus on Americans, US
Articles focus on other countries

"Motherhood" appear for the first time in both

Books discuss more personal topics

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

1940s: Both discuss "war"

Books focus on Americans, US Articles focus on other countries

"Motherhood" appear for the first time in both

Books discuss more personal topics

Books discuss *academic* topics Articles discuss *financial* topics

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

1940s: Both discuss "war"

Books focus on Americans, US Articles focus on other countries

"Motherhood" appear for the first time in both

Books discuss more personal topics

Books discuss academic topics Articles discuss financial topics

1990s~: Family is a big topic for both

	Books Topics	Articles Topics
1930s	Everyday life, Classics, Death, Family, Literature, Revolutions	Public policy, Foreign trade, Stocks/ Business, Education
1940s	Germans, Military, War, Transportation (planes, boats), Growing up, Travel, Freedom	War & government/ politics, British, Germans, Labor, Business, Trade, Men
1950s	Literature, Americans, US history, Academics, Science, Christianity, Growing up	International politics, Communism/ Soviet Union, Government, War, World economy, School
1960s	Literature, Presidents (especially Kennedy), US history (war), Environment	Education, Vietnam war, War, Soviet Union, Stocks, Labor, Men
1970s	Sexuality, Health, Diet & Women, Literature, Motherhood	Death, Education, Military, Soviet Union nations, Family (mother, wife, son)
1980s	Physics (particles, gravity, relativity, quantum), Education, Literature	Sales, Company earnings, Government earnings, Police
1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/ University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work

1940s: Both discuss "war"

Books focus on Americans, US
Articles focus on other countries

"Motherhood" appear for the first time in both

Books discuss more personal topics

Books discuss academic topics Articles discuss financial topics

1990s~: Family is a big topic for both

Books discuss political, racial issues
Articles report crime/ death

Comparison of Content:



Books

- Personal, emotional topics
- Academic topics
- US-focus
- Life→ Politics

Common

- Topics around conflicts (war, crime)
- Family

Articles

- Business/ Finance
- Foreign issues
- Politics → Life

TITLE LENGTH

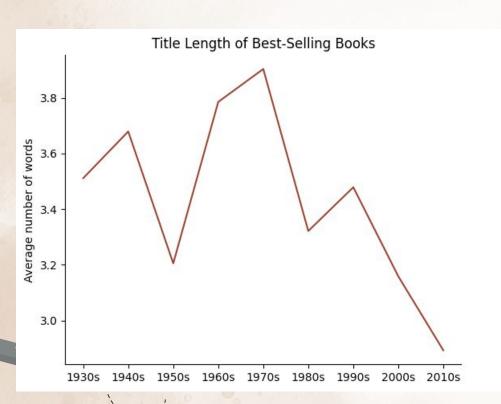
Books:

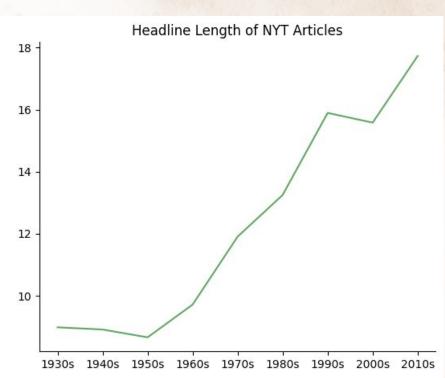
	title_length
publish_era	
1930s	3.511364
1940s	3.679245
1950s	3.205128
1960s	3.785714
1970s	3.903846
1980s	3.321429
1990s	3.478723
2000s	3.158273
2010s	2.892377

Articles:

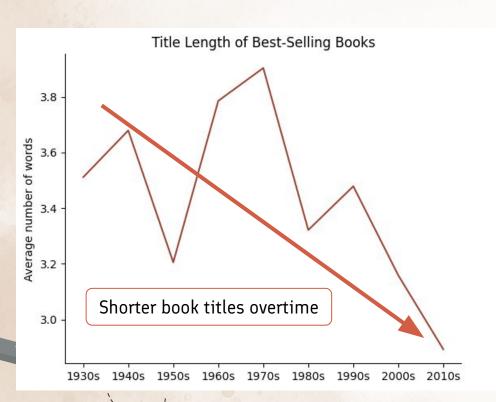
	title_length
publish_era	
1930s	8.984544
1940s	8.912609
1950s	8.661171
1960s	9.716355
1970s	11.907633
1980s	13.249593
1990s	15.895857
2000s	15.582549
2010s	17.730070

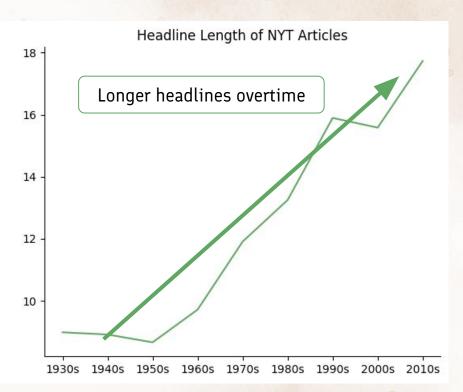
TITLE LENGTH





TITLE LENGTH





ABSTRACTNESS

Hypernym: a word with a broad meaning that more specific words fall under (ex. Color→ red)

→ Few hypernym = More abstract

Books:

	hypernym_count
publish_era	
1930s	3.128815
1940s	3.945597
1950s	2.724359
1960s	4.155688
1970s	3.299334
1980s	3.753231
1990s	4.067980
2000s	3.934238
2010s	4.133857

Article:

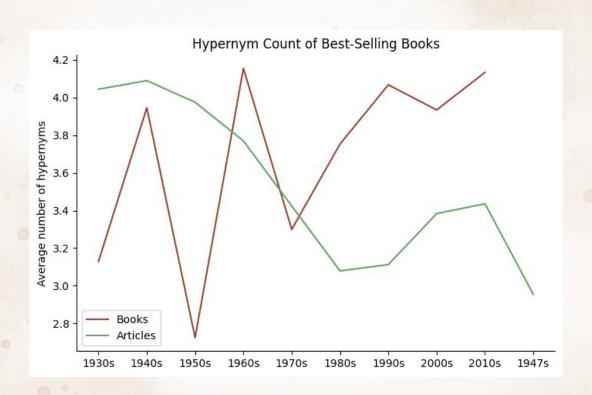
publish_era	hypernym_count
1930s	4.044540
1940s	4.090253
1950s	3.975163
1960s	3.769702
1947s	2.954698
1980s	3.078738
1990s	3.112456
2000s	3.383220
2010s	3.435756

Preprocessing:

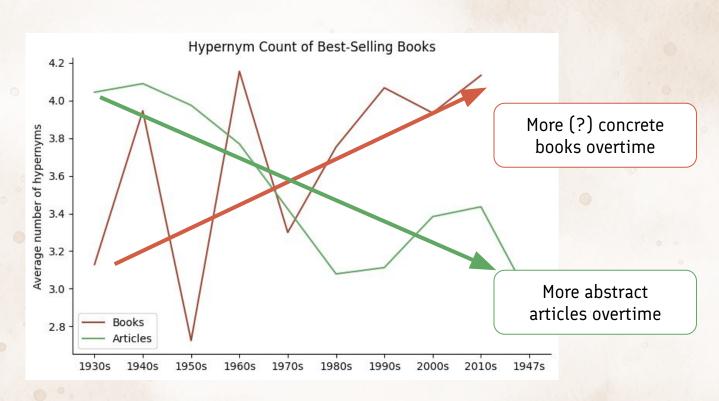
Remove stopwords, numbers, punctuation, words with < 3 letters

All lowercase

ABSTRACTNESS _Mean number of hypernyms



ABSTRACTNESS _Mean number of hypernyms



ABSTRACTNESS Proportion of words with < 1 hypernym

Books:

	proportion_abs
publish_era	
1930s	0.385227
1940s	0.369811
1950s	0.456410
1960s	0.464059
1970s	0.491107
1980s	0.432653
1990s	0.410279
2000s	0.374229
2010s	0.396978

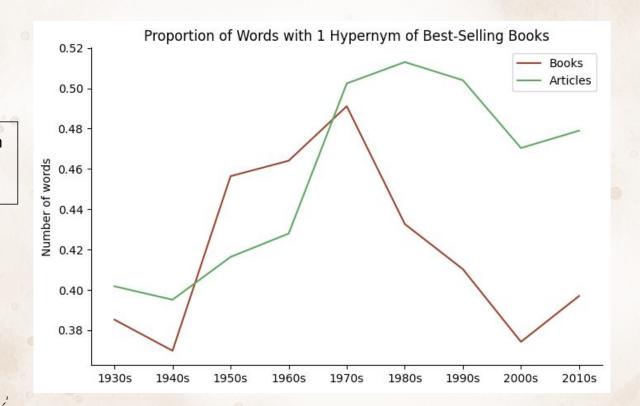
Article:

publish_era	proportion_abs
1930s	0.401781
1940s	0.395119
1950s	0.416356
1960s	0.427941
1970s	0.502386
1980s	0.513005
1990s	0.503989
2000s	0.470359
2010s	0.478981

Higher proportion = More abstract!

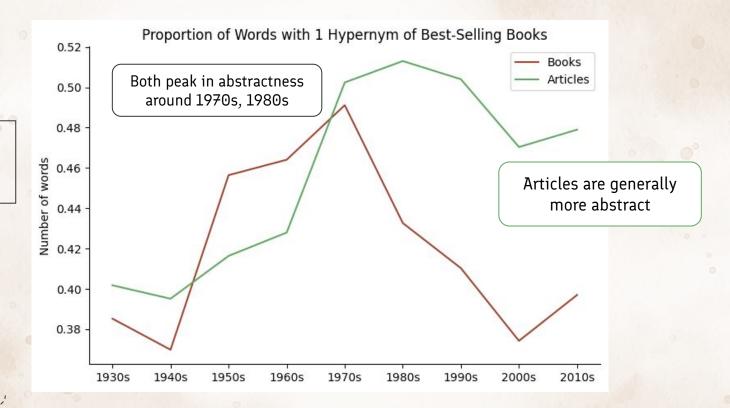
ABSTRACTNESS Proportion of words with < 1 hypernym

Higher proportion
=
More abstract!



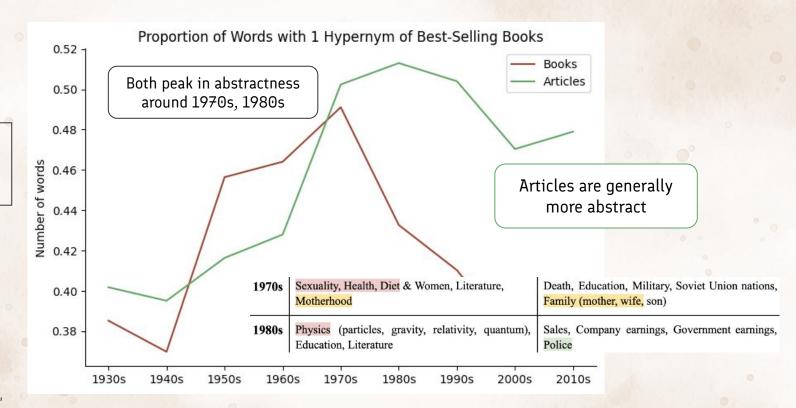
ABSTRACTNESS _ Proportion of words with < 1 hypernym

Higher proportion
=
More abstract!



ABSTRACTNESS _ Proportion of words with < 1 hypernym

Higher proportion = More abstract!



SENTIMENT (VADER)

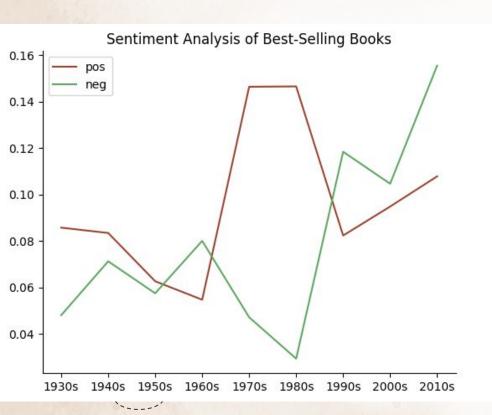
Books:

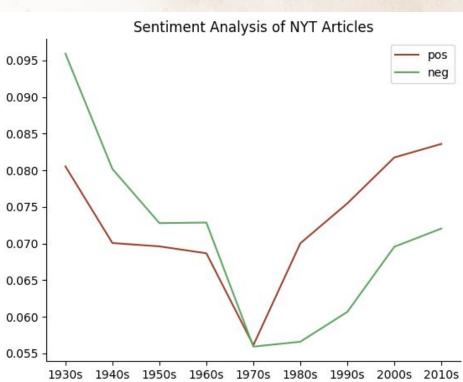
publish_era 1930s 0.047977 0.866318 0.085705 1940s 0.071189 0.845415 0.083396 1950s 0.057410 0.880000 0.062590 1960s 0.080000 0.865357 0.054643 1970s 0.047058 0.806538 0.146423 1980s 0.029250 0.824196 0.146571
1940s 0.071189 0.845415 0.083396 1950s 0.057410 0.880000 0.062590 1960s 0.080000 0.865357 0.054643 1970s 0.047058 0.806538 0.146423
1950s 0.057410 0.880000 0.062590 1960s 0.080000 0.865357 0.054643 1970s 0.047058 0.806538 0.146423
1960s 0.080000 0.865357 0.054643 1970s 0.047058 0.806538 0.146423
1970s 0.047058 0.806538 0.146423
1980s 0.029250 0.824196 0.146571
0.020200 0.021100 0.110071
1990s 0.118404 0.799287 0.082309
2000s 0.104626 0.800576 0.094791
2010s 0.155511 0.736686 0.107798

Article:

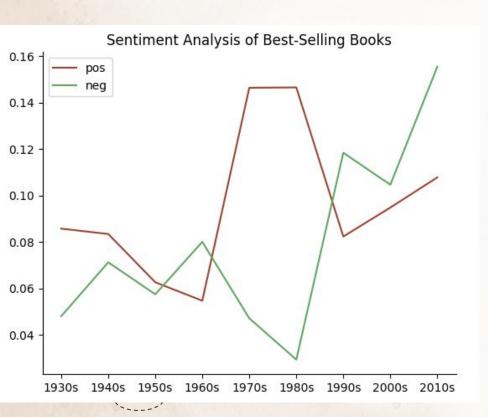
publish_era	neg	neu	pos
1930s	0.095908	0.823494	0.080528
1940s	0.080183	0.849685	0.070071
1950s	0.072787	0.857578	0.069611
1960s	0.072861	0.858434	0.068667
1970s	0.055931	0.887939	0.056126
1980s	0.056602	0.873350	0.070032
1990s	0.060672	0.863845	0.075481
2000s	0.069560	0.848695	0.081744
2010s	0.072041	0.844358	0.083591

SENTIMENT Book vs. Article





SENTIMENT Book vs. Article



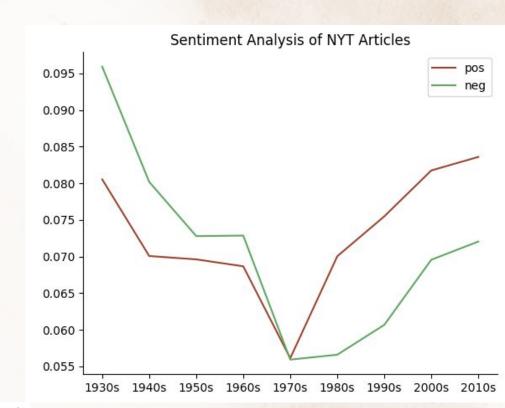
- Positive & negative sentiments are almost opposites
 - i.e. When books have positive sentiments, they don't have negative sentiments
- 1980s: Most positive & least negative

1980s

Physics (particles, gravity, relativity, quantum), Education, Literature

SENTIMENT Book vs. Article

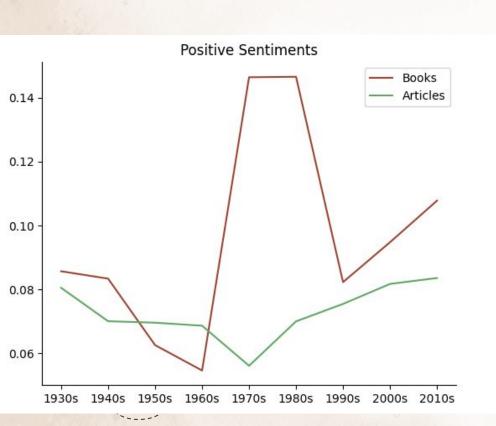
- Positive & negative sentiments show similar patterns
 - When books are more positive, they are also more negative
- 1970s: Least positive & least negative

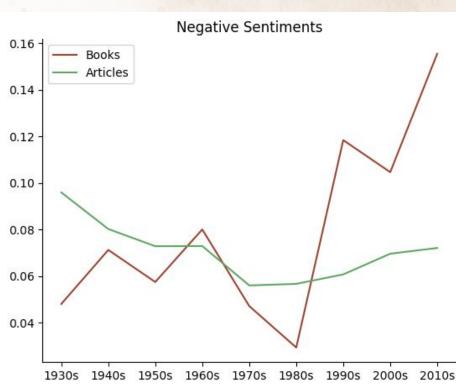




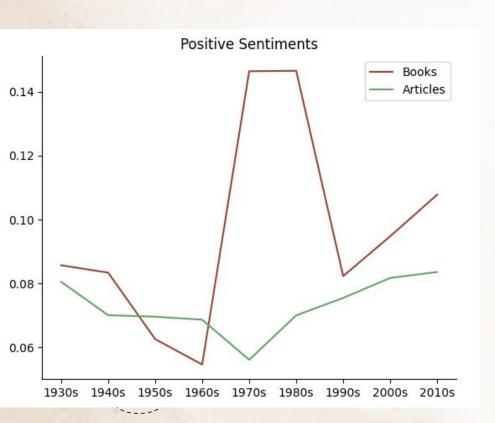
Death, Education, Military, Soviet Union nations, Family (mother, wife, son)

SENTIMENT Positive sentiment vs. Negative sentiment



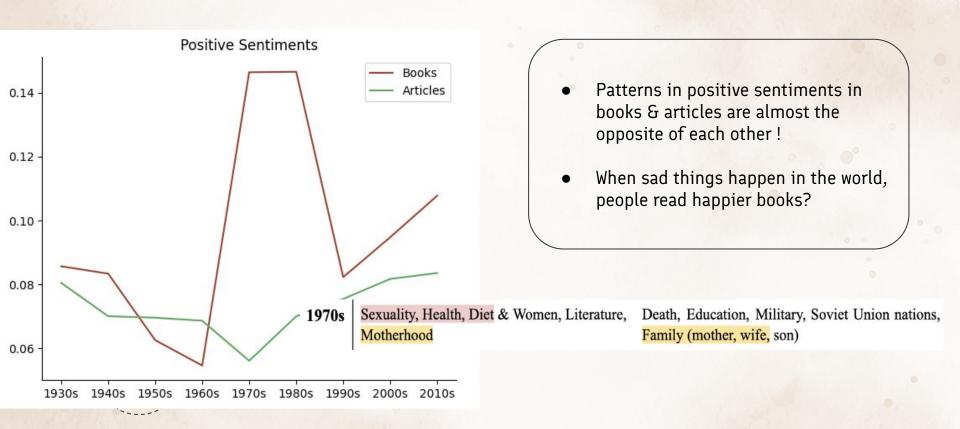


SENTIMENT Positive sentiment vs. Negative sentiment



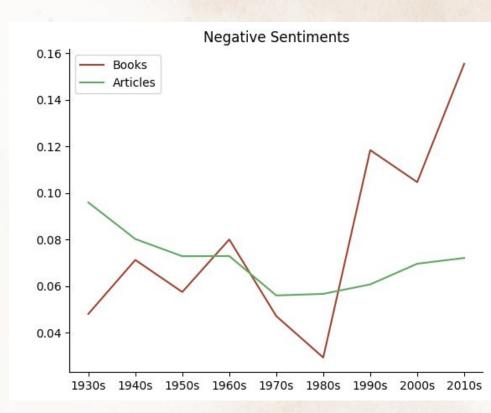
- Patterns in positive sentiments in books & articles are almost the opposite of each other!
- When not-so-happy things happen in the world, people read happier books?

SENTIMENT _Positive sentiment vs. Negative sentiment



SENTIMENT Positive sentiment vs. Negative sentiment

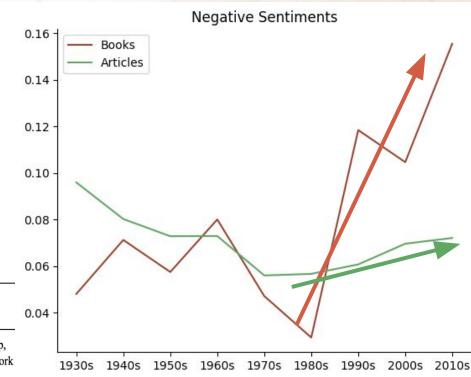
- In the beginning, somewhat similar patterns in negative sentiments
 - i.e. When sad things happen, people read sad books
- Then starts to diverge after 1980s
 - Books become more "negative" than articles



SENTIMENT _Positive sentiment vs. Negative sentiment

- In the beginning, somewhat similar patterns in negative sentiments
 - i.e. When sad things happen, people read sad books
- Then starts to diverge after 1980s
 - Books become more "negative" than articles

1990s	Literature, Economy, Love, Family, Americans, Public health/ Virus	Family, Companies, University, Police
2000s	US presidents (especially Obama, Bush), Literature, Politics, Conflicts, Family	Family, School/University, Leisure, Death
2010s	"Black" as a race, Politics, Women, Politicians (Obama, Hillary Clinton, Trump), Finance/business	Family (wife, daughter), Education, Friendship, Children, School, Death (of young people), Work



Comparison of Titles:







Books

- Become shorter
- More concrete
- Pos & Neg sentiments move opposite

Common

Decreasing negative sentiments -1980s

Articles

- Become longer
- More abstract
- Pos & Neg sentiment move together

CONCLUSION & IMPLICATIONS

- For specific topics, books reflect social patterns
 - Wars, international conflicts, Family
- Otherwise, books & social issues tell different stories in different styles
 - Abstract vs. Concreteness
 - Positive vs. Negative sentiments
- Reason for reading books is not only to keep up with current events
 - Read about personal, emotional topics that are not part of the public discourse
 - Searching for a different sentiment than what is prevalent in articles



LIMITATIONS

01

Data

More accurate proxy of nonfiction book content & social issues with

- Actual book chapters / Summary by author or publisher
- Most read NYT articles by year

02

Why?

This was an observational study and does not show why books & articles are similar or different

- More expansive data on choice of books based on demographics
- Focusing on each topic (politics, family, international conflicts, education)

References

Data:

New York Times Developer API https://developer.nytimes.com/docs/books-product/1/routes/lists/best-sellers/history.json/get
Hawkes Publication, New York Times Adult Hardcover Best Seller Number Ones Listing Non Fiction by Date. https://www.hawes.com/nol_nf_d.htm
Kaggle

https://www.kaggle.com/datasets/tumanovalexander/nyt-articles-data

https://www.kaggle.com/datasets/parsonsandrew1/nytimes-article-lead-paragraphs-18512017

Works Cited:

Gans, H.J. (1997). Best-Sellers by sociologists: An exploratory study. American Sociological Association, 26(2), pp.131-135.

Pew Research Center. (2012). The general reading habits of Americans.

https://www.pewresearch.org/internet/2012/04/04/part-2-the-general-reading-habits-of-americans/

Rahn, S. (1991). An evolving past: The story of historical fiction and nonfiction for children. *The Lion and the Unicorn, 15(1),* pp.1-26. https://doi.org/10.1353/uni.0.0034.

Smiraglia, R. (2007). The "Works" Phenomenon and Best Selling Books. Cataloging & Classification Quarterly, 44 (3-4), pp.179-195, DOI: 10.1300/J104v44n03_02

Watson, A. (2023). *Unit sales of printed books in the United States from 2013 to 2022, by category.* Statista, https://www.statista.com/statistics/422648/print-book-sales-usa-by-category/?locale=en



Thank you!

Textual Analysis for the Social Sciences by. Alex Chae

