Binary Gender Distinctions in Film Dialogs

Original Authors: Alexandra Schofield & Leo Mehr (2016)

Presenter: Westley-Morgan Thatcher

This paper asserts that film is a representation of perceptions of societal constructs and thus we can use it to analyze Society.

Abstract

The authors recognized that they did systemic harm with their study by participating in nonbinary and transgender erasure and part of the repair is to not recreate the study with a new data set.

Authors' Note (Schofield & Mehr, July 2020)

01

Background

Key Concepts

Representation

Only 33% of film characters in the study's data were female

Gendered Speech

The idea that men and women use language differently in systematic ways (e.g., in politeness, topic choice, or sentence structure).

Context Matters

Communication can change depending on whether people are talking to someone of the same or a different gender.

Main Research Question(s)

As Stated:

How does dialogue in films describe gender, identifying linguistic and structural differences in speech for men and women and in same and different-gendered pairs?

In Layman Terms:

How do men and women talk differently in movies?

How do two women talk to each other vs. two men?

How does a man talk when he's speaking to a woman, and vice versa?

02

Methodology

"Film speech between the two gender classes differs significantly."

Hypothesis

Methodology

01 Examined the individual characters' speech to classify them as male or female

02 Isolated interesting lexical and structural differences in male and female speech.

03 Subdivide these features by film genres and determined "whether features are systematically different across all genres or whether distinguishing features differ on a per-genre basis"

04 Focus in on conversations between two characters to identify the binary genders of the speakers

05 Explore the features and beliefs established by previous studies like Tannen 1991

Controlling Data

01 Selected an equal number of male and female characters from each film

02 Selected characters with only non-trivial amounts of speech (i.e. 3 unique conversations, 10 utterances, and 1000 words spoken in total); disqualifies 45% of dataset characters

03 “Leave-one-label-out” splits were used to control for the language trends of particular screenwriter(s) of a particular movie

03

Findings

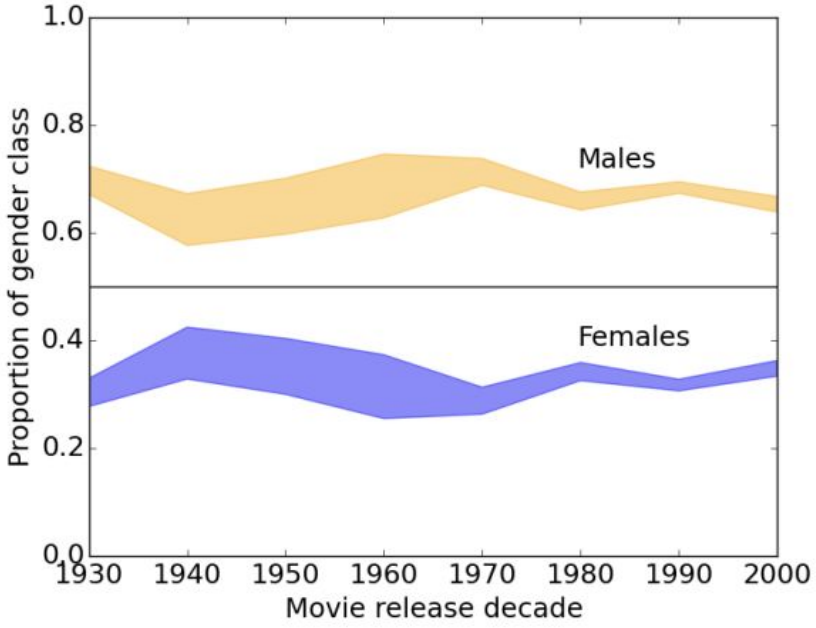
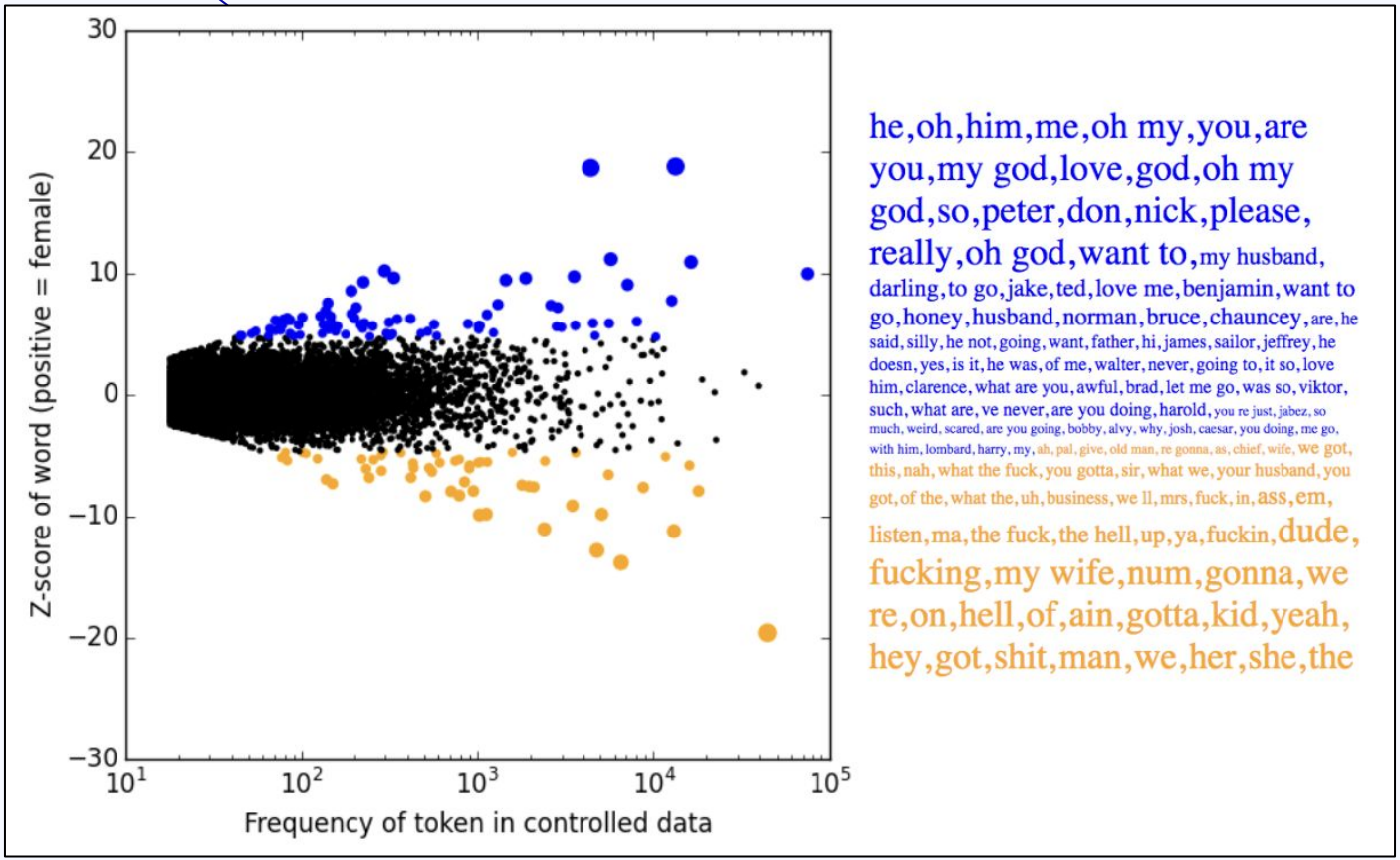


Figure 1: Proportion of character gender representation in movies, bucketed by decade, shaded by standard error.

Genre	M	F		MM	FM	FF	
action	735	295	**	562	434	40	****
adventure	486	184	**	388	284	17	****
animation	82	34		68	41	5	
biography	156	63		128	80	13	
comedy	857	430		695	636	147	
crime	750	299	**	604	427	68	**
drama	1645	830		1278	1192	195	****
family	74	40		43	62	9	
fantasy	314	158		246	232	42	
history	95	42		80	46	5	**
horror	365	245	***	209	338	89	*
music	67	35		62	48	4	**
mystery	496	243		403	364	63	**
romance	660	372	*	463	566	119	*
sci-fi	502	205	*	381	321	27	****
thriller	1240	575		918	810	133	***
war	114	29	**	99	48	3	
western	79	40		66	51	12	

Table 1: Chi-squared test results on number of characters of each gender and number of gender relationship pairs given gender proportions. The character gender test is done in comparison to the 33% female baseline expectation for that number of characters, whereas the gender-pairs are with respect to the expected proportion of gender pairs were one to randomly draw two characters for each of the relationships observed. Only genres with more than 100 observed characters with assigned gender were included. Stars mark significance levels of $p = 0.05*, 0.01**, 0.001***$, and $0.0001****$.


30
20
10
0
−10
−20
−30
Z-score of word (positive = female)
10^1
10^2
10^3
10^4
10^5
Frequency of token in controlled data
he,oh,him,me,oh my,you,are you,my god,love,god,oh my god,so,peter,don,nick,please, really,oh god,want to,my husband, darling,to go,jake,ted,love me,benjamin,want to go,honey,husband,norman,bruce,chauncey,are,he said,silly,he not,going,want,father,hi,james,sailor,jeffrey,he doesn,yes,is it,he was,of me,walter,never,going to,it so,love him,clarence,what are you,awful,brad,let me go,was so,viktor, such,what are,ve never,are you doing,harold,you re just,jabez,so much,weird,scared,are you going,bobby,alvy,why,josh,caesar,you doing,me go, with him,lombard,harry,my,ah,pal,give,old man,re gonna,as,chief,wife,we got, this,nah,what the fuck,you gotta,sir,what we,your husband,you got,of the,what the,uh,business,we ll,mrs,fuck,in,ass,em, listen,ma,the fuck,the hell,up,ya,fuckin,dude, fucking,my wife,num,gonna,we re,on,hell,of,ain,gotta,kid,yeah, hey,got,shit,man,we,her,she,the

Category	Key	Features
Lexical	LEX	unigrams, bigrams, trigrams
Vader Sentiment Scores	VADER	VADER scores for positive, negative, neutral, and composite value
Valence, Arousal, and Dominance	V/A/D	average scores across scored words
Structural	STR	average tokens per line, average token length, type to token ratio
Discourse	DIS	Δ average tokens per line, Δ average token length, Δ type to token ratio, unigram similarity

Table 2: List of feature groups. Δ indicates the absolute, unsigned difference between the text for each speaker. We discarded LEX features that arose fewer than 5 times.

Features	Accuracy±Std. Error
Baseline	50.0±0.3%
STR	55.2±2.1%
Unigrams	67.4±1.7%
LEX	**71.7±1.9%**
LEX + STR	**72.0±1.9%**
LEX + STR + VADER	**72.2±1.2%**

Table 3: Performance of single-speaker gender classification. Bolded outcomes are those statistically insignificantly different from the best result (using a two-tailed z-test).

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Technology

Tools Used

Cornell Movie-Dialog Corpus

617 film scripts with 3015 pre-existing gender labels (remaining labels obtained by cross-referencing common Baby Name websites)

Natural Language ToolKit (NLTK)

Stanford POS Tagger (Toutanova et al 2003)

VADER Sentiment Labels (Hutto and Gliber 2014)

Scikit-Learn (Python Library)

List of 13,915 English words with scores describing valence, arousal and dominance (Warriner et al., 2013)

05

Commentary

Commentary

I appreciate the accountability in the 2020 Authors' Note about them contributing to/participating in nonbinary erasure

I wonder if they could recreate the study to analyze speech based on the intersection of minority identity (POC or Queer) and gendered speech in film.

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Quiz

Question 1

What is one gendered stereotypes about normal speech utilized in this paper?

A) Males use language primarily as a means of retaining status and attention.

B) Female-Female Pairs talk the most amongst each other

C) Female speech is often characterized as more emotional, cooperative, and tentative.

D) Male speech is framed as assertive, logical, and direct.

Question 2

What dataset did Schofield & Mehr use for their study of film dialogue?

A) A set of 100 modern TV show scripts

B) The Cornell Movie-Dialogs Corpus

C) Transcripts of radio talk-shows

D) A collection of social media chat logs from movie fans

Question 3

What accuracy did the authors report for predicting speaker gender based solely on the dialogue lines of characters?

A) ~50%

C) ~72%

B) ~60%

D) ~90%

Question 4

Which pairing speaks the most in film?

A) Male-Female

B) Male-Male

C) Female-Female

D) All pairings speak equally

Questions?

Fin.