



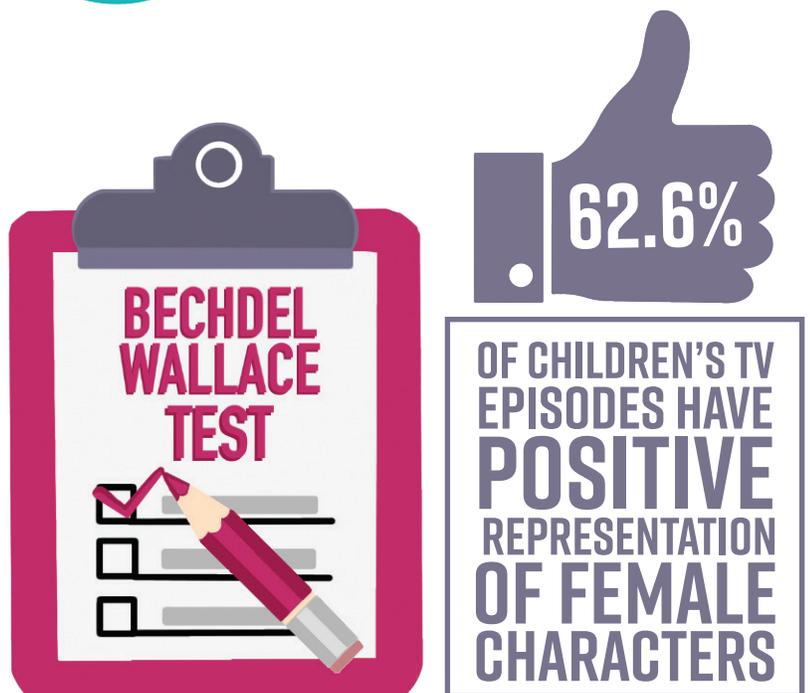
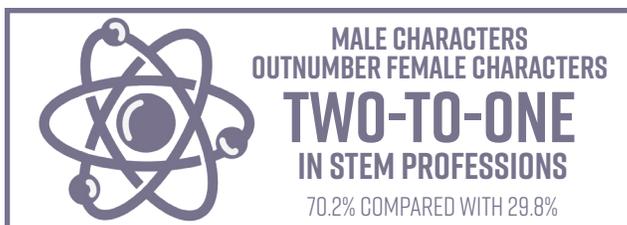
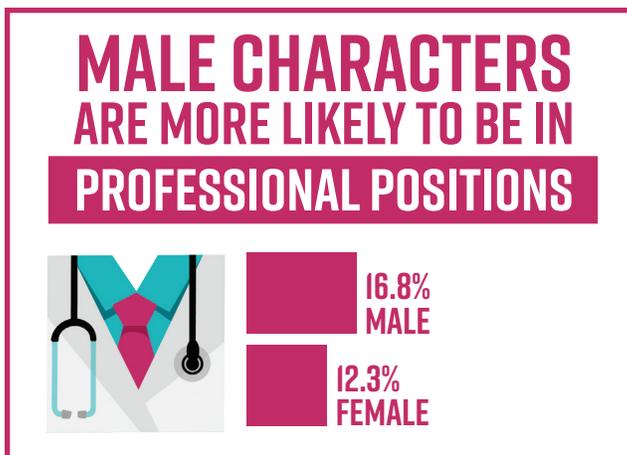
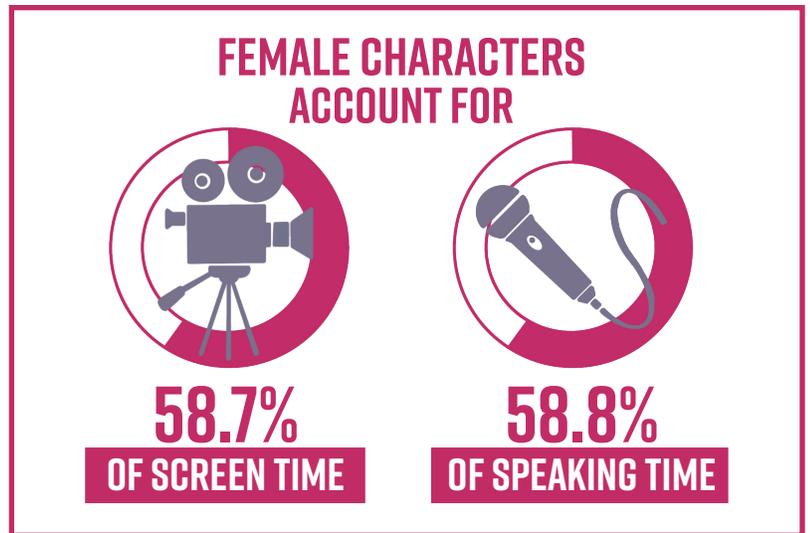
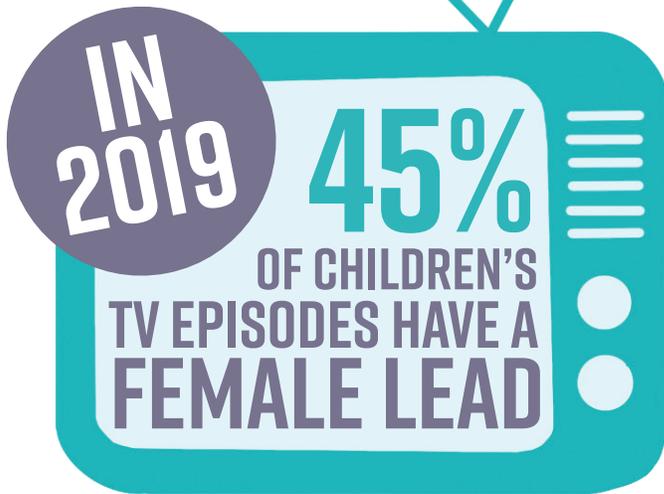
# SEE JANE 2020 TV

***HISTORIC SCREEN TIME & SPEAKING TIME FOR FEMALE CHARACTERS!***

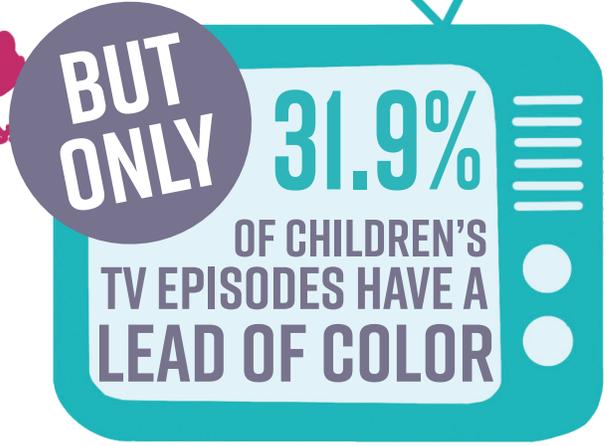
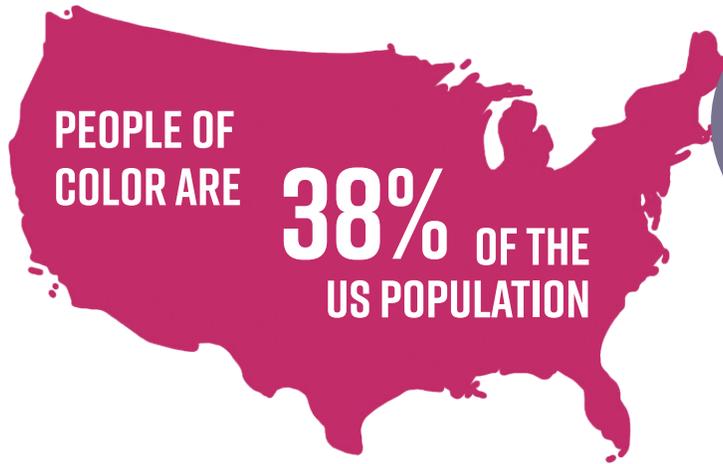
Geena Davis Institute  on Gender in Media  
*If she can see it, she can be it.™*

USC Viterbi  
School of Engineering

# GENDER



# RACE/ETHNICITY



CHARACTERS OF COLOR ARE MORE LIKELY TO BE SHOWN AS

**VIOLENT**

16.1% COMPARED WITH 13.8%

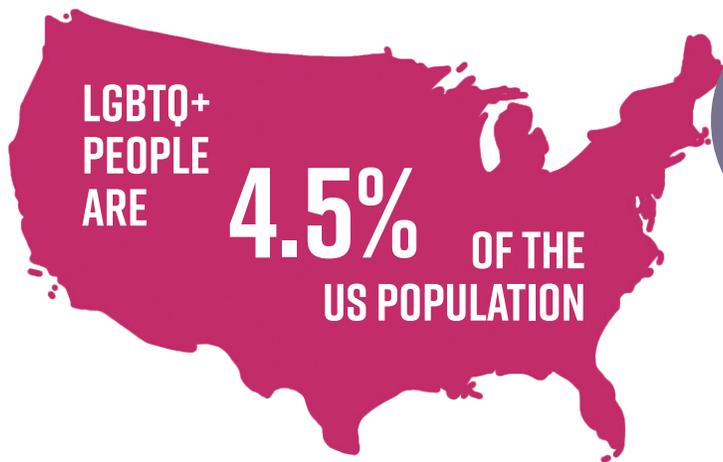


CHARACTERS OF COLOR ARE MORE LIKELY TO BE SHOWN AS

**LEADERS**

38.4% COMPARED WITH 34.7%

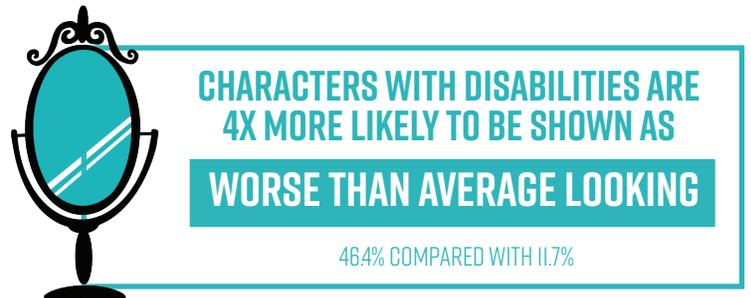
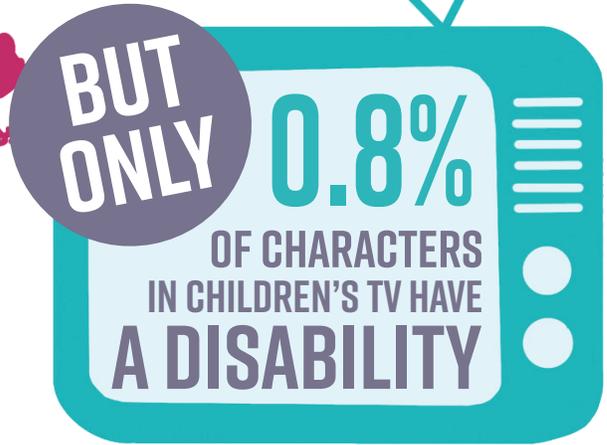
# LGBTQ+



OF CHILDREN'S TV EPISODES HAVE POSITIVE REPRESENTATION OF LGBTQ+ PEOPLE



# DISABILITY



# AGE (50+)





CHARACTERS AGES 50+ ARE  
3X MORE LIKELY TO BE SHOWN AS  
**WORSE THAN AVERAGE LOOKING**

32.6% COMPARED WITH 10.7%

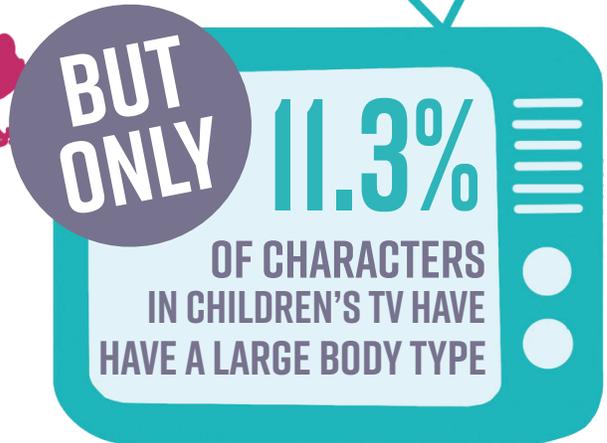


CHARACTERS AGES 50+ ARE  
MORE LIKELY TO BE SHOWN AS

**LEADERS**

48.6% COMPARED WITH 33.7%

# BODY SIZE



A SIZEABLE NUMBER OF CHARACTERS WITH  
LARGE BODY TYPES ARE PRESENTED AS

**CLUMSY (12.9%)**

**A "LOSER" (7.5%)**

**POORLY DRESSED (7.8%)**



CHARACTERS WITH LARGE BODY TYPES  
ARE 4X MORE LIKELY TO BE SHOWN AS  
**WORSE THAN AVERAGE LOOKING**

42.3% COMPARED WITH 9.9%



OF CHILDREN'S TV  
EPISODES HAVE  
**POSITIVE**  
REPRESENTATION  
OF CHARACTERS  
WITH LARGE  
BODY TYPES



CHARACTERS WITH LARGE BODY TYPES  
ARE 2X MORE LIKELY TO BE SHOWN AS

**STUPID**

12.5% COMPARED WITH 6.5%

# EXECUTIVE SUMMARY

Since 2004, the Institute has advocated for greater inclusion in family entertainment media through cutting-edge research and advocacy. The Institute is moving the needle on intersectional gender representation by working directly within the industry, with a focus on children's entertainment. This report analyzes representations of gender, race, LGBTQ+ identity, disability, age, and body size in popular children's TV shows from 2019. Here are our key findings.

## GENDER

- Forty-five percent of children's television episodes have a female lead, a decrease from 52.0% in 2018.
- Female characters account for a majority of screen time (58.7%) and speaking time (58.8%) in live-action kids' TV shows, which is higher than any previous year we have studied.
- Compared with male characters, female characters are three times more likely to be shown in revealing clothing (6.0% compared with 2.2%) or partially nude (3.3% compared with 1.0%).
- Male characters are more likely to be shown as violent (16.2% compared with 12.8%) and twice as likely to be depicted as criminal (6.0% compared with 3.2%) than female characters.
- Male characters are more likely to be shown in professional positions such as doctors and lawyers (16.8% compared with 12.3%), while female characters are more likely to be shown in service positions (25.8% compared with 21.2%).
- Among characters in STEM professions, male characters outnumber female characters two-to-one (70.2% compared with 29.8%).
- Two-thirds (62.6%) of children's TV episodes pass the Bechdel-Wallace Test.

## RACE/ETHNICITY

- People of color constitute 38% of people in the US, but 31.9% of leads in children's television— an improvement from 26.1% in 2018.
- Characters of color are more likely to be shown as violent than white characters (16.1% compared with 13.8%).
- Characters of color are more likely to be shown as leaders than white characters (38.4% compared with 34.7%).

## LGBTQ+

- Less than 1% of all characters in the top children's TV shows are LGBTQ+.
- Only 3.3% of children's TV episodes passed the Vito-Russo test, a test that measures representations of LGBTQ+ characters.<sup>1</sup>

## DISABILITY

- People with disabilities are 19% of the US population, but only 0.8% of all characters in

the top children's TV shows are depicted with a physical, communication, or cognitive disability.

- 7.1% of characters with disabilities are shown as "The Super Crip" trope.
- Characters without disabilities are more likely than characters with disabilities to be depicted as having a job (90.1% compared with 85.7%) or shown in formal management positions (3.5% compared with 0.0%).
- Characters without disabilities are over three times more likely to be shown as smart than characters with disabilities (24.0% compared with 7.1%).
- Characters with disabilities are four times more likely to be depicted as worse than average looking than characters without disabilities (46.4% compared with 11.7%).

## AGE (50+)

- People over 50 make up just under 34% of the US population, but only 9.5% of all characters and 1.0% of leading characters in children's TV shows.
- Characters ages 50+ are three times more likely to be shown as worse than average looking (32.6% compared with 10.7%) than characters under 50.
- Characters ages 50+ are more likely to be shown as leaders than characters under 50 (48.6% compared with 33.7%).

## BODY SIZE

- People with large body types make up 39.8% of the population, but only 11.3% of all characters, and 5.9% of leading characters.
- Characters with large body types are often depicted in stereotypical ways, including clumsy (12.9%), as a "loser" (7.5%), or poorly dressed (7.8%).
- 42.3% of characters with large body types are shown as "worse than average" looking or "repulsive" compared with 9.9% of characters with small/medium body types.
- Characters with large body types are nearly twice as likely to be depicted as stupid than characters with small/medium body types (12.5% compared with 6.5%).
- One-third (36.3%) of children's TV episodes passed the Cooper Test, a test designed by the Institute to measure representations of people with large body types.



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# INTRODUCTION

Since 2004, the Geena Davis Institute on Gender in Media at Mount St. Mary's has advocated for dramatic and systemic culture change when it comes to inclusion in entertainment media. The Institute employs cutting edge research, private industry consultation, public events, and educational initiatives in the industry to move the needle on intersectional gender representations. This is our annual report on the state of representation in children's television.

We focus on children's programming because young people are the highest consumers of media and the group most impacted by media content. If from the beginning, children are inundated with images and stories that place a higher value on white, male characters, we are training them to have unconscious biases. A report from Common Sense Media finds that tweens use an average of 6 hours of entertainment media per day, while teens use an average of 9 hours per day.<sup>2</sup> Young people are particularly vulnerable to these messages as they are in the process of developing their identity and learning their value in the world, so it is imperative that the content they consume be as diverse and inclusive as possible.

Beyond our focus on family content, the research of the Institute is unique in several ways. First, we employ the Geena Davis Inclusion Quotient (GD-IQ), the first automated software tool to measure screen and speaking time in media content (see Appendix A). This revolutionary tool was developed by the Institute and funded by Google.org. The GD-IQ, which incorporates machine learning technology, was designed by Dr. Shrikanth Narayanan and his team at the University of Southern California's Signal Analysis and Interpretation Laboratory (SAIL), along with Dr. Caroline Heldman, Senior Research Advisor for the Institute. Our research also stands apart in that our analysis is performed by a team of highly-trained experts, a majority of whom hold Ph.D.'s. Also, our coding process is unique in that it entails multiple coders looking at the same content and reaching agreement, which produces higher validity and reliability than typical media content analyses. Lastly, the Institute is unique in that we work directly within the industry, consulting with major studios and companies on their gender and intersectional inclusion goals.

# METHODOLOGY

We use two methodologies to produce the data in this report: automated analysis and content analysis.

## AUTOMATED ANALYSIS

For the automated analysis in this report, we used the Geena Davis Inclusion Quotient (GD-IQ), a revolutionary new automatic audio-visual tool—the first of its kind developed specifically to analyze media content—that took a team of engineers and social scientists two years to develop. Automated analysis of media content gets around some of the limitations of human coding. Beyond the significant advantage of being able to efficiently analyze more episodes in less time with minimal human labor, this tool can also calculate content detail to the millisecond with a level of accuracy not possible with human review. For this report, we measured on-screen time by partitioning the episode into shots and detecting the gender and race of the person in each shot. We then calculated total screen time by gender and race. We measured speaking time by partitioning the episode into shots and applying an automatic speech detection program that classifies speaker gender. For further information about this automated processing tool, see Appendix A.

## CONTENT ANALYSIS

We also employ content analysis, an approach that is ideal for systematically analyzing the content of communications. The unit of analysis for the automated coding tool is character gender and character race, and the unit of analysis for hand coding is character. This work is performed by expert human coders.

For this study, we examined characters in the top 25 most-watched shows of 2019 aimed at younger kids (ages 2 to 6) and the 25 most-watched shows for older kids (ages 7 to 13). The most popular programs were identified using Nielsen rankings, and include live-action and animation. We generated a statistically representative sample based on the number of episodes for each show for the season. Our dataset includes a total of 4,631 characters from the 50 most-watched children's TV shows.

Our dataset includes 621 leading/co-leading characters, 2,619 supporting characters, and 1,391 minor characters. The most prominent characters who drive the unfolding storyline were classified as leads or co-leads. Characters who are not leads but contribute to the storyline were classified as supporting characters, and characters that appear only briefly were coded as minor characters.

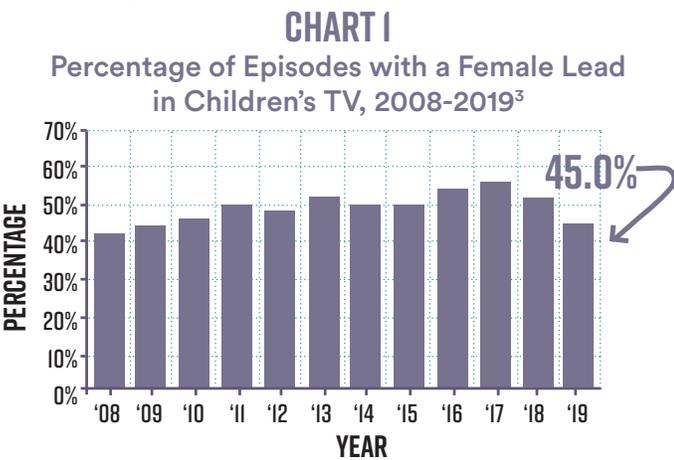
# FINDINGS

In this section, we summarize our major findings for character representation by gender, race/ethnicity, LGBTQ+, disability, age, and body size. Profile representation statistics and intersectional analyses are based on the total sample of 4,631 characters. The examination of stereotypes, work and leadership, romance and sex, and character traits is based on a subset of 3,240 leading and major characters for whom we were able to gather more in-depth information. All findings are significant at the .05 level.

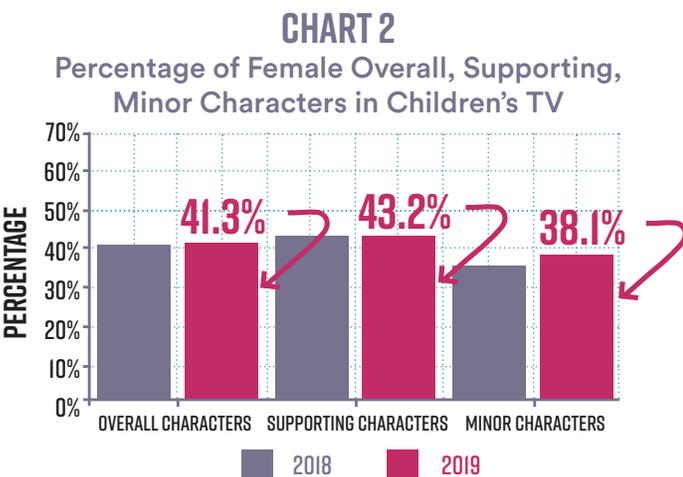
## GENDER

### Profile

Children's TV has become far more gender inclusive in the past decade. As shown in Chart 1, we found gender parity in leading roles in 2011 (50%), and the percentage of female leads peaked in 2017 (at 56%). The percentage of female leads dipped to 45% in the past year, which indicates that progress toward gender justice in media representations cannot be taken for granted.



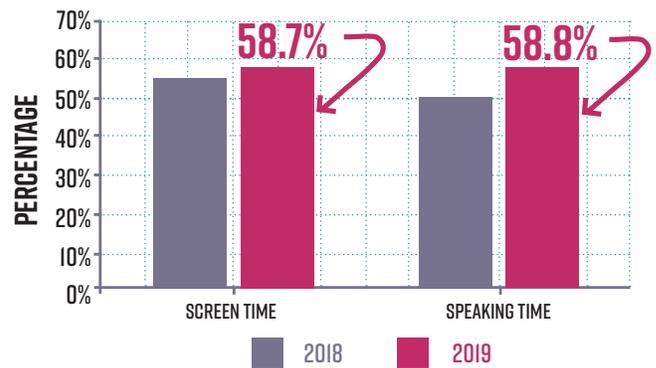
Looking beyond leading characters, gender parity has not been achieved with characters overall. As shown in Chart 2, female characters make up just over 40% of overall and supporting characters, and the gender gap is even more pronounced with minor characters.



We measured screen time and speaking time in live-action TV shows by gender using the GD-IQ.<sup>4</sup> As shown in Chart 3, female characters have a majority

of screen time (58.7%) and speaking time (58.8%) in non-animated shows, and these percentages improved over 2018.

**CHART 3**  
Percentage of Female Screen Time and Speaking Time in Children's TV

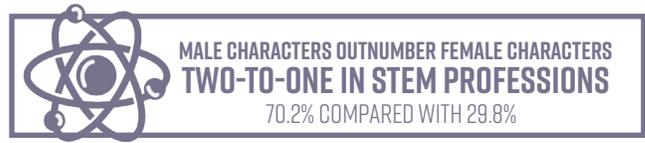


## INTERSECTIONAL PROFILE



### Gender Stereotypes

In this section, we delve into gender stereotypes for female characters, starting with sexualization. Sexualization occurs when a person's value is primarily derived from their sexual appeal, when physical beauty is equated with sexiness, when sexuality is inappropriately imposed on someone,

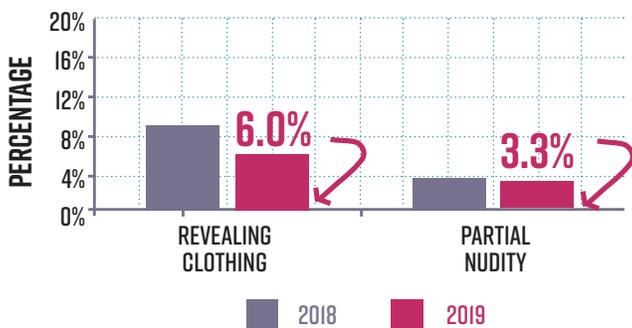


or when a person is sexually objectified.<sup>5</sup> Sexual objectification refers to the process of treating someone like a sexual object, such as by focusing in on sexualized parts of someone’s body. We measure sexualization through revealing clothing and nudity.

- Female characters are more likely to be shown in revealing clothing in children’s TV than male characters (6.0% compared with 2.2%).
- Female characters are also more likely to be shown as partially nude in children’s TV (3.3% compared with 1.0%).
- The emphasis on physical appearance for women is apparent when it comes to character attractiveness. Female characters are almost twice as likely as male characters to be better than average looking or stunning (37.9% compared with 18.9%).

**CHART 4**

Percentage of Female Characters’ Revealing Clothing & Partial Nudity in Children’s TV



We measured the Damsel in Distress trope— a woman being rescued, typically by a man— but discovered that male characters are rescued more than female characters in children’s TV (12.6% compared with 8.6%).

We also examined characteristics that are typically associated with masculinity—factors such as violence, criminality, and sexual promiscuity.<sup>6</sup>

- Male characters are more likely than female characters to be shown as violent (16.2% compared with 12.8%).
- Male characters are twice as likely as female characters to be shown as criminal (6.0% compared with 3.2%).
- We find no gender difference in depictions of sexual promiscuity between male and female characters (0.2% and 0.1%).

### Work and Leadership

We also assessed character occupational status— whether they are shown working and their work ethic.

- Among adult characters in children’s TV, female and male characters are equally likely to be shown working (80.0% compared with 78.6%).
- Male characters are more likely to be shown in professional positions such as doctors and lawyers (16.8% compared with 12.3%), while female characters are more likely to be shown in service positions (25.8% compared with 21.2%).

For leadership, a character is considered a leader if others followed their behavior and/or directives. Leaders could occupy formal positions of power in corporations, politics, criminal organizations, or the military, or more informal positions of power, serving as leaders in social groups.

- We find no gender differences in portrayals of leadership, with 35.4% of female characters and 35.1% of male characters depicted as leaders.

### Romance & Sex

We gathered information about romantic relationships and sexual partners to assess whether these depictions reinforce or challenge stereotypes.

- Female characters are slightly more likely to be in a relationship than male characters (8.4% compared with 6.2%).
- We find no significant gender differences when it comes to sexual partners, with female and male characters equally likely to have at least one (3.6% compared with 2.4%).

### Character Traits

We also examined differences in how character traits are presented in children’s television, with a focus on intelligence and humor.

- Male characters are three times more likely to be shown as stupid than female characters (9.2% compared with 3.3%).
- Male characters are more likely to be shown as funny than female characters (64.6% compared with 57.0%).

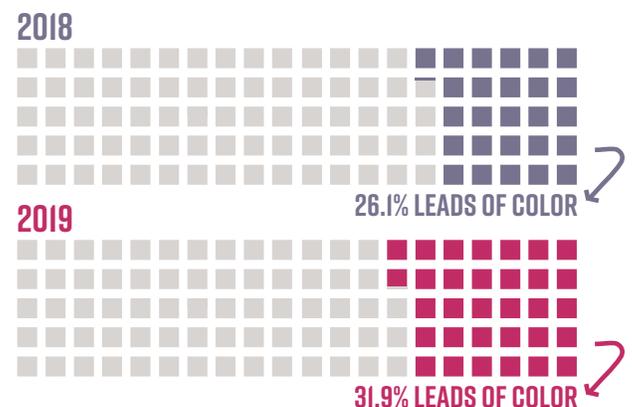
## RACE/ETHNICITY

### Profile

People of color constitute 38% of the U.S. population,<sup>7</sup> but 31.9% of leads in children’s television. As shown in Chart 5, this is an improvement from the previous year.

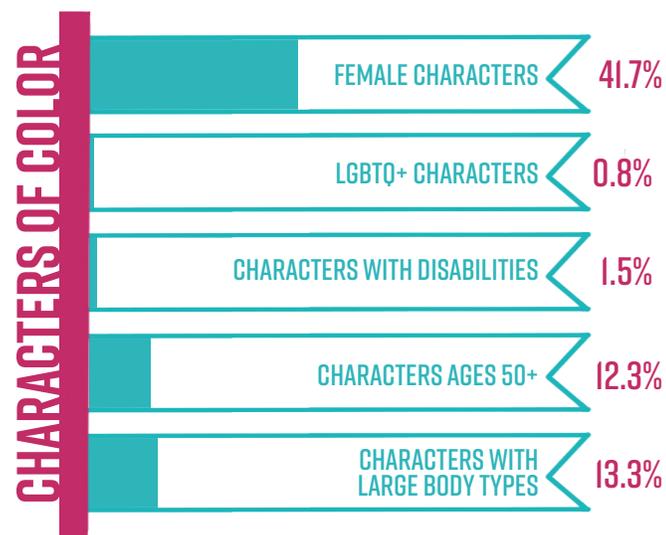
**CHART 5**

Percentage of Leads of Color in Children’s TV



People of color account for 28.5% of characters overall, 28% of supporting characters, and 27.1% of minor characters. White people are 71.5% of characters, while 15.2% are Black, 8.2% are Latinx, 3.6% are Asian, 1.2% are Southeast Asian, and less than 1% are Middle Eastern or Native American/Hawaiian/Pacific Islander.

## INTERSECTIONAL PROFILE



### Race Stereotypes

We measured several stereotypes that depict people of color in dehumanizing ways in entertainment media, including social class, work ethic, criminality, and violence. We find no significant racial differences in depictions of social class, work ethic, or criminality.

Characters of color are more likely to be shown as violent than white characters (16.1% compared with 13.8%).

### Work & Leadership

White characters and characters of color are about equally likely to be shown as having an occupation (78.0% and 80.9%).

Characters of color are more likely to be shown as leaders than white characters (38.4% compared with 34.7%).

### Romance & Sex

Roughly the same percentage of white characters and characters of color are depicted as having a romantic relationship (7.7% and 6.3%).

No significant racial difference is found with sexual partners. White characters (2.9%) and characters of color (3.1%) are equally likely to have at least one sexual partner.

## Character Traits

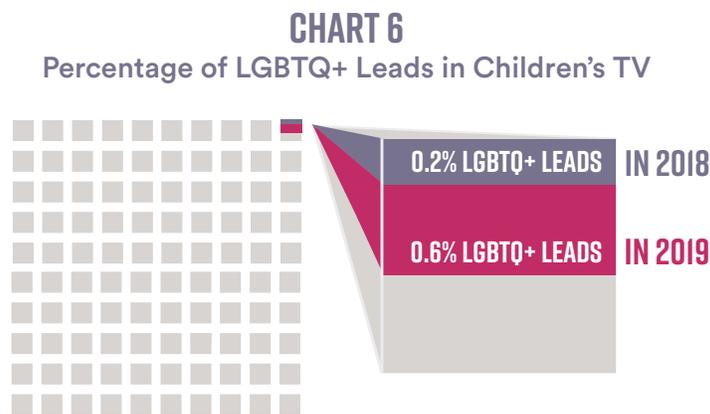
White characters are more likely than characters of color to be shown as stupid (6.8% compared with 4.7%).

We find no racial difference in depictions of humor, with 61.1% of white characters and 63.7% of characters of color depicted as funny.

## LGBTQ+

### Profile

In the U.S., 4.5% of people identify as LGBTQ+,<sup>8</sup> but less than 1% of characters in the top children's TV shows are LGBTQ+. Almost all (99.5%) of characters are depicted as heterosexual. This has not improved over the previous year when 99.8% of characters were shown as heterosexual.



LGBTQ+ characters make up only 0.6% of leading characters, 0.6% of supporting characters, and 0.2% of minor characters.

## INTERSECTIONAL PROFILE



## LGBTQ+ Stereotypes

The LGBTQ+ community has historically been overly sexualized and stereotyped as promiscuous and deviant in media.<sup>9</sup> LGBTQ+ characters are more likely than heterosexual characters to be verbally sexually objectified (6.3% compared with 0.6%). No difference emerged with regards to promiscuity, predatory behaviors, or criminal behaviors.

## Work & Leadership

No differences emerged between LGBTQ+ characters and heterosexual characters with regards to work ethic, employment status, or leadership roles.

## Romance & Sex

LGBTQ+ characters are significantly more likely than heterosexual characters to be shown in a romantic relationship (43.8% compared with 8.2%) or with a sexual partner (43.8% compared with 3.1%). This suggests that relationship cues may be a primary way in which sexual orientation is signaled on television.

## Character Traits

No differences emerged between LGBTQ+ characters and heterosexual characters with regards to intelligence or humor.

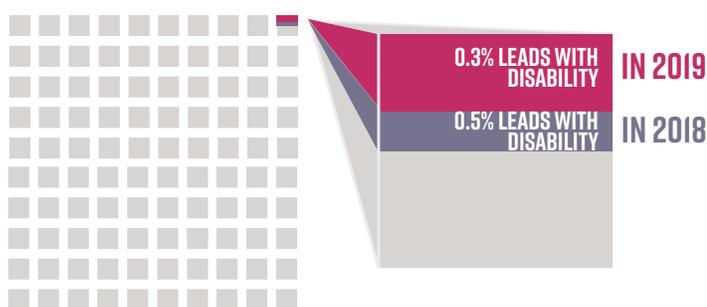
# DISABILITY

## Profile

One-in-five (19.0%) Americans have some form of cognitive or physical disability,<sup>10</sup> but fewer than 1% of characters in children’s TV shows are depicted with a physical, communication, or cognitive disability (0.8%).

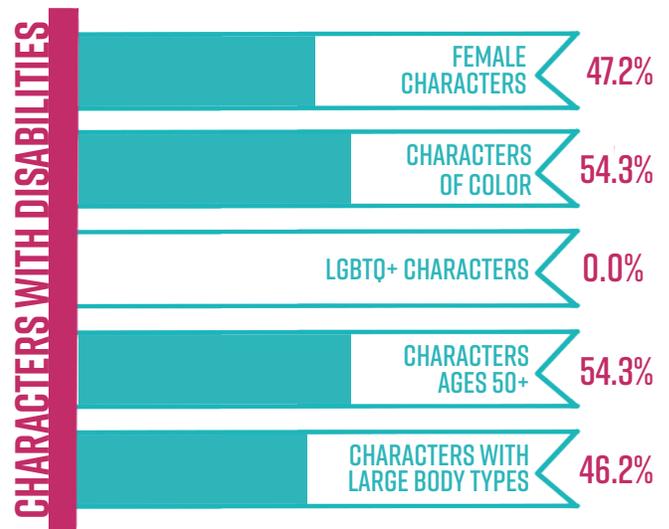
When it comes to leading characters, 99.7% are non-disabled and 0.3% are leads with disabilities. This has not improved over the last year.

**CHART 7**  
Percentage of Leads with Disabilities in Children’s TV



Of the 39 characters shown with disabilities, most (28) are depicted with a physical disability, while 8 have a cognitive disability, and 3 are characters with a communication disability.

# INTERSECTIONAL PROFILE



## Disability Stereotypes

Nearly one-in-ten (7.1%) characters with disabilities are shown as “The Super Crip” trope. “The Super Crip” is a character whose life revolves around heroically and heartwarmingly overcoming their disability, serving as a central motivator. Although this can initially seem complimentary, these storylines often reinforce the superiority of able-bodied people (and thus, the importance of “overcoming” a disability), glorify those with disabilities for being able to live a normal or successful life. Additionally, they support the notion that overcoming is a matter of personal character rather than highlighting institutional or structural barriers that can make it more difficult for those living with disability to have the same resources and opportunities.

“The Bitter Crip” trope is a character, often a villain, who is embittered by their disability. This trope is often obsessed with finding a “cure” or “fix” for their disability. None of the characters in the top-viewed children’s TV shows in our study reflected this trope.

A common stereotype found in entertainment media is that characters with disabilities have a greater likelihood of dying compared to other characters. We did not find this stereotype in popular children’s TV from 2019. None of the characters with disabilities in this study died.

## Work & Leadership

Characters without disabilities are more likely to be depicted as having a job than characters with disabilities (90.1% compared with 85.7%). Characters without disabilities are more likely to be shown in formal management positions in the workplace than characters with disabilities (3.5% compared with 0.0%).

We find no difference in portrayals of leadership more broadly when we compare characters with and without disabilities (35.7% compared with 35.2%).

## Romance & Sex

Characters without disabilities are twice as likely to be shown as having a romantic relationship than characters with disabilities (7.2% compared with 3.6%).

None of the characters with disabilities in children's TV shows have sexual partners, compared with 2.9% of characters without disabilities. We define sexual partners as people who the character kisses, fondles, makes out with, or engages in other sexual behaviors. The finding that none of the characters with disabilities has a sexual partner reinforces the inaccurate and harmful stereotype that people with disabilities are asexual or non-sexual.

## Character Traits

Characters without disabilities are over three times more likely to be shown as smart than characters with disabilities (24.0% compared with 7.1%).

Characters with disabilities are more likely to be shown as funny than characters without disabilities (75% compared with 61.2%). Characters with disabilities are far more likely to be depicted as funny in a physical way, e.g. falling, than other characters (35.7% compared with 19.2%).

Characters with disabilities are four times more likely to be depicted as "worse than average" looking or "repulsive" than characters without disabilities (46.4% compared with 11.7%). A full 7.1% of characters with disabilities are shown as ugly or repulsive compared with less than 1% of characters without disabilities. This depiction of appearance reinforces the negative stereotype that people with disabilities are physically unattractive.

## AGE

### Profile

Only 9.5% of characters in children's TV are ages 50+. For comparison, just under 34% of the US population is ages 50+.<sup>11</sup>

Only 1% of leading characters in children's TV shows are ages 50+, and no women ages 50+ are featured as leads. This means that children almost never see stories that revolve around older adults in their most popular shows.

### Age Stereotypes

Older characters are all too often depicted as ageist stereotypes and robbed of the agency that younger characters enjoy as a matter of course.<sup>12</sup>

Characters ages 50+ are three times more likely to be shown as worse than average looking (32.6% compared with 10.7%). This reinforces an ugly stereotype that older adults are less physically attractive.

## INTERSECTIONAL PROFILE



## Work & Leadership

Characters under 50 are more likely to be shown as having a job than characters 50+ (90.9% compared with 79.8%). However, a greater percentage of characters 50+ are shown in management positions (11.5% compared with 2.8%).

Characters ages 50+ are more likely to be shown as leaders in general than characters under 50 (48.6% compared with 33.7%).

## Romance & Sex

Characters ages 50+ are more likely to be shown in a romantic relationship than characters under 50 (12.8% compared with 7.2%).

Characters ages 50+ are equally likely to be shown with one or more sexual partners as characters younger than 50. This is a positive finding since it indicates that older adults are shown as sexual instead of the pernicious stereotype that they are asexual or non-sexual.

## Character Traits

Characters 50+ are as likely as characters younger than 50 to be shown as smart (23.9% compared with 23.7%).

A greater percentage of characters under 50 are depicted as funny compared with characters 50+ (61.5% compared with 58.7%).

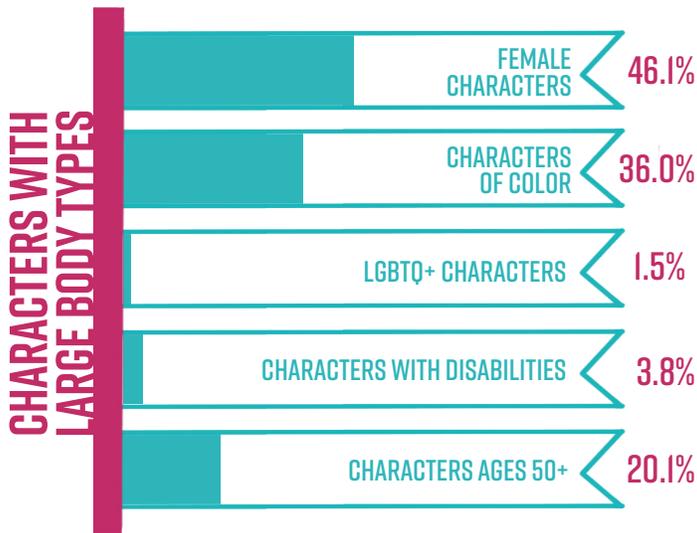
## BODY SIZE

### Profile

People with large body types make up 39.8% of the population, but only 11.3% of characters in the most

popular children’s TV shows.<sup>13</sup> Only 5.9% of leads are characters with large body types.

## INTERSECTIONAL PROFILE



### Body Size Stereotypes

Characters with large body types are often shown as damaging stereotypes:

- Over half (52.0%) are shown as funny
- One-in-five (20.1%) are included in the episode as comic relief
- 12.9% are shown as clumsy
- 7.5% are shown as a “loser”
- 7.8% are shown as poorly dressed

Two-in-five (42.3%) characters with large body types are shown as “worse than average” looking or “repulsive” compared with only one-in-ten characters with small/medium body types (9.9%). This reinforces the negative stereotype that people with large body types are not physically attractive.

### Work & Leadership

Characters with small/medium body types are more likely to be shown as having a job (90.9% compared with 81.8%).

Characters with large body types are more likely to be depicted in a management position than characters with small/medium body types (11.0% compared with 2.6%). They are also more likely to be depicted as leaders more generally (39.2% compared with 24.6%).

Characters with small/medium body types are more likely to be shown as hard-working than characters with large body types (34.4% compared with 24.1%).

### Romance & Sex

Romantic relationships do not vary by character body size, with 9.4% of characters with large body types

and 7.9% of characters with small/medium body types shown in a relationship.

The number of sexual partners does not vary by character body size. Characters with large body types and small/medium body types are equally likely to have one or more sexual partners (3.1% and 3.3%).

### Character Traits

Characters with large body types are more likely to be depicted as stupid than characters with small/medium body types (12.5% compared with 6.5%). Characters with large body types are less likely to be depicted as smart than characters with small/medium body types (19.4% compared with 23.9%).

Characters with large body types are more likely to be shown as funny than characters with small/medium body types (74.9% compared with 61.7%). Physical comedy is a more popular depiction for characters with large body types than other characters (25.1% compared with 17.7%).

## REPRESENTATION TESTS

First, we use the **Bechdel-Wallace Test** to measure representations of women. An episode passes the Bechdel-Wallace Test if it has:

- At least two female characters;
- That talk to one another;
- About something other than a man.

Two-thirds (62.6%) of children’s TV episodes passed the Bechdel-Wallace Test.

The **Vito-Russo Test** measures representations of LGBTQ+ characters. In order to pass the test, an episode must contain:

- A LGBTQ+ character;
- Who is not solely or predominantly defined by their sexual orientation or gender identity;
- And is tied into the plot in such a way that their removal would have a significant effect, meaning they are not there to simply provide colorful commentary, paint urban authenticity, or (perhaps most commonly) set up a punchline.

Only 3.3% of children’s TV episodes passed the Vito-Russo test.

The Institute created the **Cooper Test** to measure representations of people with large body types. In order to pass this test, an episode must include:

- At least one prominent character (leading, co-leading, supporting character) who has a large body type;
- Who is a serious part of the plot without their weight being the story/punchline.

One-third (36.3%) of children’s TV episodes passed the Cooper Test.

# CONCLUSION

**Gender:** The percentage of female leads in children’s TV shows slipped from 52% to 45% this past year, which indicates that progress toward gender justice in media representations cannot be taken for granted. But in live-action shows, female characters enjoy an historic 58.7% of screen time and 58.8% of speaking time. Female characters continue to be about four times as likely as male characters to be sexualized in children’s shows, and this has not improved in the past decade. Representations of male characters reinforce masculine stereotypes, with male characters more likely than female characters to be shown as violent and criminal.

**Race:** Characters of color are underrepresented in leading roles at 33.6%, but this has improved over the previous year when 26.1% of leads were characters of color. Characters of color are more likely to be shown as violent than white characters, but more likely to be shown as smart and depicted as leaders.

**LGBTQ+:** Less than 1% of characters in the top children’s TV shows are LGBTQ+, and this has not improved over the previous year. LGBTQ+ characters are more verbally objectified than other characters in children’s shows.

**Disability:** Fewer than 1% of characters in children’s TV shows are depicted with a physical, communication, or cognitive disability (0.8%), and only 0.3% of leads are characters with disabilities. These numbers have not improved over the previous year. Nearly one-in-ten (7.1%) characters with disabilities are shown as “The Super Crip” trope, and they are less likely to have an occupation, a management position, a romantic relationship, or sexual partners. Characters without disabilities are over three times more likely to be shown as smart than characters with disabilities (24.0% compared with 7.1%), and four times more likely to be depicted as worse than average looking than characters without disabilities (46.4% compared with 11.7%).

**Age (50+):** Only 9.5% of characters in children’s TV are ages 50+, and even fewer (1%) are leading characters. No women ages 50+ are featured as leads. Characters ages 50+ are three times more likely to be shown as worse than average looking than younger characters (32.6% compared with 10.7%).

**Body Size:** People with large body types are only 11.3% of characters in the most popular children’s TV shows, and only 5.9% of leads. Characters with large body types are often shown as damaging stereotypes—unattractive, comic relief, clumsy, etc. Characters with small/medium body types are more likely to be shown as having a job and being intelligent than characters with large body types.

**Representation Tests:** A majority (62.6%) of children’s TV episodes passed the Bechdel-Wallace Test, which measures representation of women. Only 3.3% of children’s TV episodes passed the Vito-Russo test that measures representations of LGBTQ+ characters. One-third (36.3%) of children’s TV episodes passed the Cooper Test, a measure of representations of people with large body types.

# INTERVENTIONS

## COMMIT TO FULL CULTURAL EQUITY

Efforts to diversity representations in entertainment media have primarily focused on increasing the number of women and people of color behind the scenes and on the screens. We call for an intersectional consideration of women, people of color, LGBTQ+ individuals, people with disabilities, older adults, and people with large body types in efforts to make content more diverse and inclusive. The more identities represented on screen in entertainment media, the wider the audience appeal.

## DIVERSIFY HIRING IN WRITING AND DIRECTING

Diversity in the writing rooms and director’s chair translates into more diversity on the screen,<sup>14</sup> so the problem with representation starts with inequitable hiring practices. Studies show that very few women and people of color are in key decision-making roles, and that there has been no improvement in the last two decades.<sup>15</sup> Studios must truly commit to anti-discrimination in their hiring practices, and set hiring goals to diversify their workforce instead of continuing to pay lip service to being inclusive.

## ADVANCE STORIES THAT REFLECT THE BROADER POPULATION

Gen Z (roughly ages 6 to 21) is the most racially and ethnically diverse group in U.S. history, with nearly half (48%) being people of color.<sup>16</sup> Gen Z is also gender fluid, with 52% identifying as something other than straight or heterosexual.<sup>17</sup> Content creators must tell authentic stories that are relevant to a changing audience, particularly children and young people. It is especially important to have diversity with leading characters since plotlines and narratives revolve around their stories.

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# APPENDIX A

The GD-IQ was funded by Google.org. Incorporating Google’s machine learning technology and the University of Southern California’s audio-visual processing technologies, this tool was co-developed by the Institute and led by Dr. Shrikanth (Shri) Narayanan and his team of researchers at the University of Southern California’s Signal Analysis and Interpretation Laboratory (SAIL), along with Dr. Caroline Heldman.

To date, most research investigations of media representations have been done manually. The GD-IQ revolutionizes this approach by using automated analysis, which is not only more precise, but makes it possible for researchers to quickly analyze massive amounts of data, which allows findings to be reported in real time. Additionally, the GD-IQ allows for more accurate analysis, and because the tool is automated, comparisons across data sets and researchers are possible, as is reproducibility. Automated analysis of media content gets around the limitations of human coding. Beyond the significant advantage of being able to efficiently analyze more films in less time, the GD-IQ can also calculate content detail with a level of accuracy that eludes human coders. This is especially true for factors such as screen and speaking time, where near exact precision is possible. Algorithms are a set of rules of calculations that are used in problem-solving. For this report, we employed two automated algorithms that measure screen time by gender and race, and speaking time of characters by their gender. Here is an overview of the procedures we used for each algorithm.

## SCREEN TIME ANALYSIS

We compute the screen time of female characters by calculating the ratio of female faces to the total number of faces in the film’s visuals. The screen time is calculated using online face detection and tracking with tools provided by Google’s machine learning technology. In the interest of precision and time, we estimate screen time by computing statistics over face-tracks (boxes tracking the general outline of each face) instead of individual faces. The face-tracks returned by technology include different attributes of the face with the corresponding time of occurrence in the video. Among the attributes returned for each of the detected faces, we use two parameters—the confidence of the detected face and the system’s posterior probability for gender prediction. A threshold of 0.25 was empirically chosen for determining confident face detection.

Due to multiple characters appearing on screen simultaneously, the face-tracks can be overlapping. A gender label is then assigned to each track using the average gender posterior associated with the confident faces in the track. If the average gender posterior probability of the track is greater than 0.5, the track is classified as a “female track,” otherwise, it is a “male track.” The number of frames with confident face detections in each track is summed up across all tracks to get the total number of faces. The number of female tracks is aggregated to get the total number of faces predicted as female. Finally, the screen time is computed as the ratio between the number of female face detections to the total number of face detections across the length of the movie. Supplementary analysis shows that screen time estimated at frame-level (individual faces) instead of using face-tracks was not significantly different and was comparable. Furthermore, computing the average of gender posterior over tracks has an added benefit of “smoothing out” some of the local gender prediction errors. Face-tracking incorporates temporal contiguity information to reduce transient errors in gender prediction that may occur with analyzing individual faces independently. We performed a similar analysis for character race and screen time.

## SPEAKING TIME ANALYSIS

Using movie audio, we compute the speaking time of male and female characters to obtain an objective indicator of gender representation. The algorithm for performing this analysis involves automatic voice activity detection, audio segmentation, and gender classification.

### VOICE ACTIVITY DETECTION:

Movie audio typically contains many non-speech regions, including sound effects, background music, and silence. The first step is to eliminate non-speech regions from the audio using voice activity detection (VAD) and retain only speech segments. We used a recurrent neural network based VAD algorithm implemented in the open-source toolkit OpenSMILE to isolate speech segments.

### SEGMENTATION:

We then break speech segments into smaller sections in order to ensure each segment includes speech from only one speaker. This is performed using an algorithm based on Bayes Information Criterion (BIC), available in the KALDI toolkit. Thirteen dimensional Mel Frequency Cepstral Coefficient (MFCC) features are used for the

automatic speaker segmentation. This step essentially decomposes continuous speech segments obtained in the VAD step into smaller segments to make sure no segment contains speech from two different speakers.

### **GENDER CLASSIFICATION:**

The speech segment is then classified into two categories based on whether it was likely spoken by a male or female character. This is accomplished with acoustic feature extraction and feature normalization.

### **ACOUSTIC FEATURE EXTRACTION:**

We use thirteen dimensional MFCC features for gender classification because they can be reliably extracted from movie audio, unlike pitch or other high-level features where extraction is made unreliable by the diverse and noisy nature of movie audio.

### **FEATURE NORMALIZATION:**

Feature normalization is deemed necessary to address the issue of variability of speech across different movies and speakers, and to reduce the effect of noise present in the audio channel. Cepstral Mean Normalization (CMN) is a standard technique popular in Automatic Speech Recognition (ASR) and other speech technology applications. Using this method, the cepstral coefficients are linearly transformed to have the same segmental statistics (zero mean). Classification of the speaker as either male or female is based on gender-specific Gaussian mixture models (GMMs) of the acoustic features. These models are trained on a gender-annotated subset of general speech databases used for developing speech technologies using frame-level features for each gender. The GMM we use in this system has 100 mixture components and is optimized by tuning the parameters in a held-out evaluation set. For a new input segment whose gender label is to be predicted, the likelihoods of the segment belonging to a male or female class are computed based on this pre-trained model. The class with higher likelihood is assigned to the segment as the estimated gender prediction. The total speaking time by gender is then computed by adding together the durations for each utterance classified as Male/Female. This gives us the male and female speaking time in a movie.



# ENDNOTES

1. The Vito-Russo test is based on the percentage of episodes, while most of the analysis in the report is based on characters. Often an episode will have only one prominent LGBTQ+ character, which is why only 1% of characters in children's TV are LGBTQ+ but over 3% of episodes pass the Vito-Russo test.
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3. We analyzed the following categories: 1) Female Lead, 2) Male Lead, 3) Female-Female Co-Leads, 4) Male-Male Co-Leads, and 5) Female-Male Co-Leads. This percentage and the percentages in Chart 1 reflect the overall percentage of shows with female leads and co-leads (categories 1, 3, and 5).
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## HOW TO CITE THIS STUDY

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