NST3901 Final Report

ISC Title: Mad at Disney? Examining how social values are portrayed by Disney movies over time

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1 Introduction

1.1 Trends in Disney movies

Disney's films have captured the imagination of its audience with timeless stories of adventure, love and bravery. However, beyond the storytelling and entertainment value of Disney movies, they also have a narrative power to influence, mirror or even subvert cultural and social viewpoints (Karmakar & Bhadra, 2023), as viewers draw connections between films and their own life experiences, and social contexts (Meinel, 2016).

Recognising the diversity of its global audience, Disney has undertaken attempts to adapt to continually changing socio-historical contexts and incorporate greater gender, racial and social inclusivity in the past two decades. Disney's president of motion-picture production Sean Bailey noted that "inclusivity is not only a priority but an imperative for [Disney]" (Ford, 2016) . This has seen the release of films like *Moana* as Disney sought to "find origins of legends all over the world", and *Inside Out*, which served as a portrayal for mental health (Desta, 2016). *Frozen*, *Zootopia* and *Mulan* are also examples of movies which propagated themes of female empowerment and gender-progressiveness, as the lead female characters displayed greater autonomy and agency in setting out on their individual adventures and overcoming obstacles along the way (Wang, 2022).

Despite these attempts, there have been criticisms regarding the accuracy and appropriateness of Disney's portrayal of themes like **feminism, racial diversity and moral values.** For example, Wang (2022) examined how contrary to its intention of displaying greater female autonomy, *Mulan* received exceptionally poor ratings among both Western and Asian viewers, and faced accusations of misrepresenting Chinese culture, perpetuating Orientalist stereotypes, and demonizing Inner Asian steppe Nomads. *Moana* was similarly criticized for its cultural homogenization and stereotypical representation of Pacific Islanders, such as inaccurately depicting "all Pacific Islanders [as] Hawaiian" (Hall, 2015).

1.2 Research Objective

Given Disney's aim of promoting greater inclusivity, we aim to answer two main research questions (RQ):

- **RQ1**: *How has Disney portrayed the values of* ***Feminism, Racial Diversity and Morality*** *in its films over time?*
- **RQ2**: *How successful were these portrayals?*

2 Literature Review

2.1 Existing Research

Value 1: Feminism

Existing research has shown that Disney has been pushing for the three central values of our paper. For instance, Schiele's paper (Schiele et al., 2020), postulates how Disney's movies actively promoted feminism by diversifying the role of women in a four-pronged approach: transcending patriarchal expectations (heroine rebels against patriarchal expectations, usually her father's wishes, and works hard to achieve her own dreams), rejecting domestication (not living the role of a domesticated woman), appropriating masculine attributes and roles (adopts traits deemed masculine by wider society) and reframing meaning of true love (makes their own romantic choices). Xu (2021) also noted that earlier films portrayed problematic messages about the female position in society, but Disney has proved itself to support the wave of feminism with movies centred around female characters with empowering characteristics.

Value 2: Racial Diversity

There are mixed criticisms of Disney's portrayal of racial diversity. Early films like *Dumbo* and *Peter Pan* are accused of outright displays of racism, portraying Native Americans and African Americans as speaking in unintelligible languages and referring to them with derogatory terms like "redskin" and "hairy apes" respectively (Lund, 2017; Andrew, 2019). This might be understandable due to historical events like the Civil Rights Revolution in the 1950s to 1960s. While Disney has acknowledged the sensitivities of its past portrayals and made an effort to incorporate and present characters of different ethnicities over the years (Disney, n.d), there remains debate on the effectiveness of these efforts. For instance, Wormer (2015) praises *The Princess and the Frog* for the portrayal of a black female character and interracial relationships, while on the other hand, *Pocahontas* was criticized for its historical inaccuracies when showcasing an oversexualised Native American character, and *Mulan* was similarly criticized for using racist and cultural slurs against Chinese culture (Calcott, 2021).

Value 3: Morality

Disney movies often impart moral-centric lessons to children as these values are considered important to be instilled in children from an early age. Studies have shown that the media, such as Disney movies, play an important role in teaching moral values, identifying bravery, honesty and empathy as essential for children's development (Ward, 1996). Empathy, for instance, allows children to connect, understand, and develop compassion towards others, while honesty enables students to build trust and integrity. Additionally, courage teaches children to defend what is right amidst difficult situations (Berkowitz & Bier, 2005; Hoffman, 2000). Painter (2013) applied the Aristotelian framework of moral agent to examine the ways Disney movies portray morality, particularly through analysing the presence of virtue, friendship, and teleology. While our paper diverges from this framework, we aim to analyse Disney movies based on their portrayal of three moral values: honesty, empathy, and courage— values that are deemed important in nurturing a child's ethical standing since young (Lapsley & Narvaez, 2006).

2.2 Research Gaps

In our preliminary literature scan, we observed two gaps in current research on Disney's portrayal of social values. Firstly, most of the critique and analysis of Disney's portrayal of characters are

static in nature, analysing a single movie or a series of movies at a point in time. There is a lack of longitudinal studies that examine how the portrayal of such values have evolved over time across multiple films, which our study aims to address.

Additionally, research on Disney's portrayal of values in films **were mostly qualitative in nature** as academics like Wang (2022), Chen et. al (2021) and Dittmer (2021) focused on a literary and close-reading analysis of Disney movies. An exception is Eisenhauer (2017)'s paper which adopted a quantitative linguistics angle to examine the portrayal of Disney female princesses, using metrics like word count distribution of speech between female and male characters.

3 Methodology

3.1 Research Framework

We aim to adopt an interdisciplinary framework (Figure 1) to study Disney's portrayal of the three values - **Feminism, Racial Diversity, and Morality** using a combination of qualitative and quantitative methods used by past research.

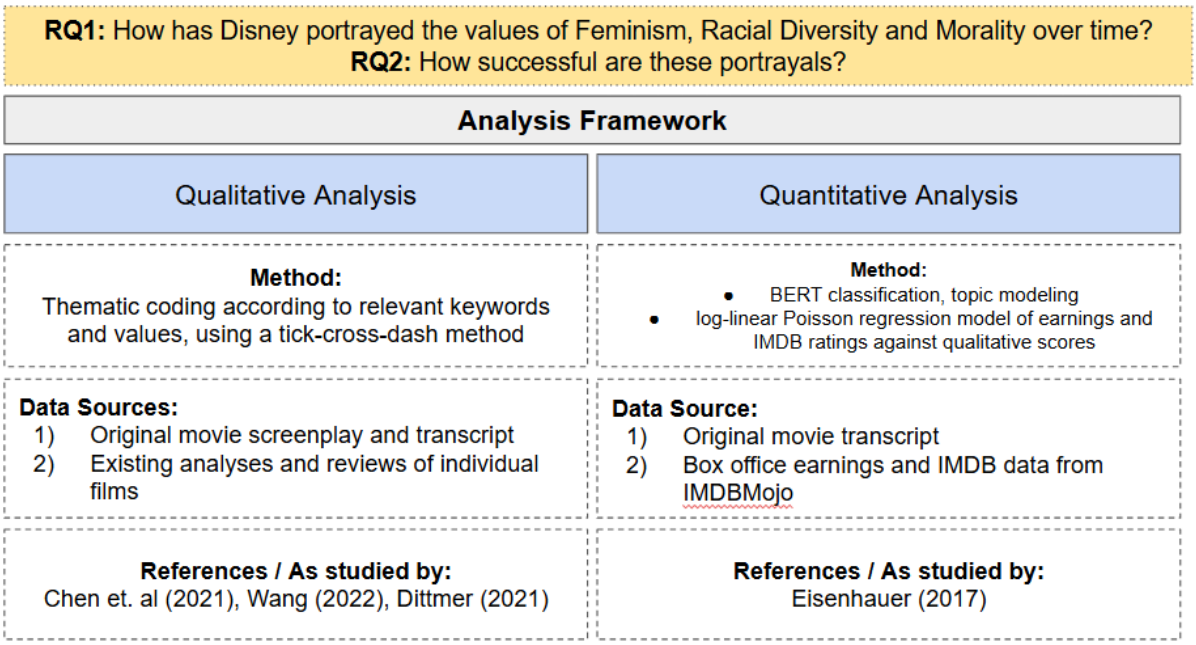

Figure 1: Research Framework

3.2 Qualitative Analysis

We take reference from existing qualitative research by Chen et. al (2021), Wang (2022) and Dittmer (2021) to obtain insights from the screenplay content and transcript of movies, as well as their existing analysis of selected individual films. Using the transcript of movies, we carried out thematic coding to group the content of films by sub-values, by adapting a matrix table used by López-Fuentes and Fernández-Fernández's (2021) research which studied the educational function of Disney films (Figure 2). Their table used a tick-and-cross method (✓✕) to indicate the presence or absence of a sub-value related to inclusivity in individual films.

Inclusive values	Tinker Bell and the Secret of the Wings	Zootopia	Monsters, Inc.
Includes cultural diversity	✓	✓	
Introduces different races or ethnicities	✓	✓	❖
Includes mobility as an important issue	✓	✓	
Displays border transgression in the narrative	❖	✓	✓
Deals with difference in an open way		✓	✓
Portrays moments of openness where two cultures are reunited with each other	✓		✓
Awakens cultural and intercultural awareness	✓		
Encourages an empathic understanding of the Other and the acquisition of social skills such as tolerance		❖	✓

Figure 2: Tick-and-Cross method matrix table

We adapted this matrix table and extended it in three ways - firstly by using a dash (-) to indicate an absence of values and using the cross (✕) to instead represent instances where the sub-value is misportrayed or negatively portrayed. We also wanted to capture the magnitude of how strongly a sub-value was portrayed or misportrayed in the movies, by using multiple ticks and crosses to represent how much the sub-value was emphasized in the film. Finally, we tally up the total number of ticks and crosses to assign this as the movie's qualitative score (Figure 3).

Movie / Time Period	**Sub-value 1:** Displays border transgression in the narrative	**Sub-value 2:** Encourages empathetic understanding of the Other	**Sub-value 3:** Awakens Cultural and Intercultural awareness	**Total**
The Jungle Book (1967) / Classics	✓	-	✕✕	✓✕✕

Figure 3: Example of a movie analyzed by our adapted table

3.3 Quantitative Analysis

We aim to also extend Eisenhauer (2017)'s quantitative study of femininity in Disney princesses to other values like racial diversity and morality, by adapting similar metrics like box office earnings to study with quantitative methods.

After obtaining qualitative scores from the table explained earlier, we will use three main quantitative tools to cross-check our findings: a zero-shot classification with pre-trained Multi-Genre Natural Language Inference (MultiNLI) **Bidirectional and Autoregressive Transformers (BART) classification model**, **topic modelling**, and **log-linear Poisson regressions** of earnings and ratings on qualitative scores**.**

Firstly, to examine the extent of portrayal of values over time by Disney (**RQ1**), we will use confidence scores for each category's sub-value assigned by the **BART classification model** to observe any trend in confidence scores over time. We will then conduct further analysis on any movie outliers of this trend using **topic modelling**, aiming to investigate any significant relationships that resulted in these outliers. After we have established the trend in portrayal of

values, we then evaluate the success of this portrayal (RQ2) by conducting two **log-linear Poisson regressions** of box office earnings and IMDB scores against the aforementioned qualitative scores.

1. **[RQ1] Confidence scores using zero-shot classification with pre-trained MultiNLI BART model in Natural Language Processing**

Firstly, we utilize Natural Language Processing (NLP) with a pre-trained MultiNLI BART model to obtain a confidence score for the sub-values portrayed in selected movies' scripts.

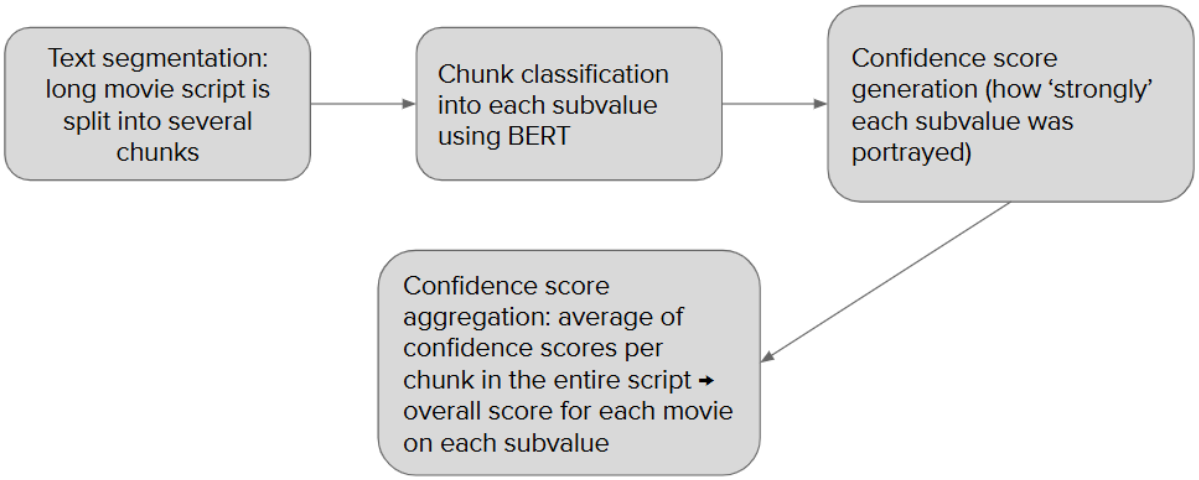

Figure 4: BART Zero-Shot Classification Workflow

MultiNLI BART Zero-Shot Classification Workflow (Figure 4)

To classify sub-values within a movie script, the process begins with text segmentation. Each lengthy movie script is first divided into smaller chunks to fit the BART model's input limit of up to 512 tokens. Each chunk is then treated as an individual input to optimize the model's efficiency (Lewis et al., 2019) in processing the script.

After segmentation, the pre-trained MultiNLI BART model processes each chunk via zero-shot classification, which is advantageous in this case as it allows the model to categorise each chunk into the appropriate subvalues without additional training and hyperparameter fine-tuning. This makes zero-shot classification more suitable for our analysis as compared to multi-class or multi-label classification. Additionally, the model, leveraging on natural language inference, uses its semantic understanding to classify each chunk under the relevant sub-values such as "Border Transgression" under Racial Diversity. Post-classification, a confidence score from 0 (lowest) to 1 (highest) is generated to reflect the model's confidence that a chunk accurately portrays a particular sub-value (Yin et al., 2019).

Subsequently, the confidence scores from all the chunks are aggregated by averaging across all chunks, producing an overall confidence score that reflects the strength of the portrayal for each sub-value within the entire movie script. This aggregation process (Yang et al., 2016) comparatively analyses the portrayal of each sub-value across all movie scripts, thus offering insights into specific trends in the portrayal of main values over time.

Rationale for choosing BART

Our decision to use zero-shot classification using a pre-trained MultiNLI BART model is because this methodology is suited to the project's goals and constraints. Given the diversity of sub-value categories and the lack of labelled training data, zero-shot classification allows the model to classify each text chunk into a new set of sub values without additional custom training (Lewis et al., 2019), making it highly efficient within our timeline. The MultiNLI BART model is capable of this as it has been pre-trained on a wide-ranging corpus of natural language inference data, enabling it to adapt to a variety of categories to ensure a more accurate interpretation of values within movie scripts (Lewis et al., 2019). The bidirectional architecture of BART enhances this capability, as it captures semantic meaning from both directions, which is an important and suitable feature for processing large and complex text datasets.

Therefore, the model's ability to efficiently analyse substantial text data is particularly beneficial, as each value analysis involves around 10 movie scripts, constituting a large volume of text. The pre-trained nature of MultiNLI BART also eliminates the need for additional training, which is ideal given the time limitations of this project. This combination of zero-shot classification with MultiNLI BART's contextual understanding allows us to efficiently process and analyse value representations in our movie scripts within our constraints (Lewis et al., 2019).

2. [RQ1] Topic modelling

Next, to examine any movie outliers from the BART classification model, we also used **Latent Dirichlet Allocation (LDA),** an algorithm used to identify hidden topics within a text dataset. It focuses on classifying the whole text into a variety of topics, and these topics into a set of representative words. With this, we can let the model automatically classify the text in our movie scripts into clusters of related topics (Figure 5).

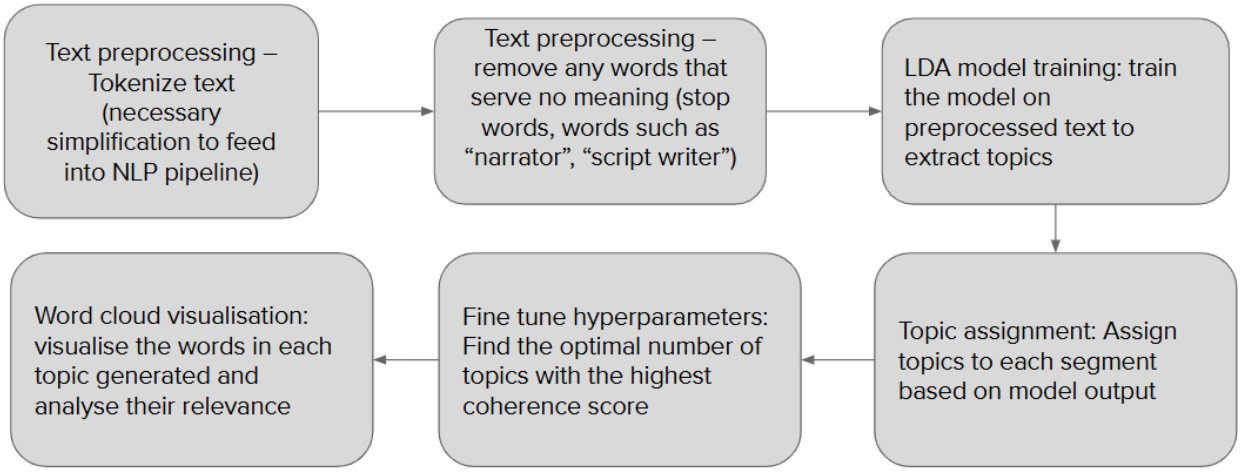

Figure 5: LDA Topic Modelling Workflow

Natural Language Processing - Topic Modelling Workflow (LDA)

In natural language processing (NLP), text processing is conducted to simplify raw text data and prepare it for text analysis. The first step is tokenisation, where sentences are segmented into individual words or “tokens”. This process transforms unstructured text data into a format suited for analysis using the Latent Dirichlet Allocation (LDA) model. Subsequently, we remove stop words from the text data—common words like "the," "is," and "in"—that offer minimal semantic value and tend to increase data noise (Bird et al., 2009). By eliminating stop words, we allow the model to extract semantic meaning from relevant words and phrases for an accurate identification of the underlying theme within the text.

After pre-processing, the tokens are analysed by the LDA during the model training phase, to identify patterns in the remaining words and extract coherent topics. LDA modelling represents each topic as a distribution of the most relevant words, and each text script as a distribution of topics, which allows for the detection of thematic structures within each script. Post-training, the model assigns a probability for each topic with respect to each script, and subsequently assigns the most relevant topics to each script based on the probability scores. This allows a script to be tagged to multiple topics and therefore, generating a nuanced representation of values within a script (Blei et al., 2003).

To improve the model's performance, hyperparameters such as the number of topics, are fine-tuned. The fine-tuning process is done by training LDA on a range of values for number of topics, and eventually choosing the optimal number of topics based on the highest coherence scores. Coherence scores measure the interpretability of a topic and how closely the identified topic aligns with human understanding. Therefore, selecting an optimal number of topics, measured through coherence, ensures the topics identified are both accurate and interpretable (Roeder et al., 2015).

Finally, we generate word cloud visualisations to complement the analysis as an accessible means of interpreting the significance of key terms within each topic. By varying word size to reflect prominence, word clouds provide a visually intuitive overview of values tagged to each script (McInnes et al., 2018).

Rationale for choosing LDA

Firstly, LDA is capable of producing highly interpretable topics, due to LDA’s capacity to assign a topic to a group of highly related words. This is valuable and highly suitable for analyses which require a high understanding of semantic meaning, such as movie script analysis. LDA thus allows us to break down each script and tag it into relevant sub-values that we are analysing.

Secondly, LDA is well-suited for handling large, sparse text data. Text data, especially movie scripts, are often large, unstructured, and sparse, due to the possibly inconsistent presence or appearance of relevant words and phrases across the document. LDA leverages its probabilistic nature to capture significant topics within the text despite the sparse distribution of words across the corpus, making it ideal for large-scale text analyses.

Thirdly, LDA classifies a single long text into multiple topics, making it suitable for movie script classification. LDA's probabilistic approach to topic modelling enables nuanced classifications, as it tags a document to belong to multiple topics with varying degrees of probability. This approach is particularly advantageous for text like movie scripts, where each segment may

constitute multiple themes. By using probabilistic assignments, LDA provides a deeper understanding of text content, capturing multiple thematic associations within the text that deterministic models might overlook.

Finally, the LDA model is widely used and reliable. As one of the most established topic modelling techniques, LDA has demonstrated reliability and robustness in analysing text data across various domains. Its widespread use in academic and industry applications lends confidence in its consistency and replicability, making it a suitable choice for analysing meaningful topic representations in textual data (Biel, 2023).

3. [RQ2] Regression of box office earnings against qualitative scores

We then constructed a log-linear Poisson regression of earnings against qualitative scores and IMDB for each movie (Figure 6).

$$\log(earnings) = \beta 0 + \beta 1\, tick + \beta 2\, cross + \beta 3\, dash + \beta 4 classics + \beta 5 renaissance + \beta 6 newage + \beta 7 imdb$$

$$\log(imdb) = \beta 0 + \beta 1\, tick + \beta 2\, cross + \beta 3\, dash + \beta 4 classics + \beta 5 renaissance + \beta 6 newage + \beta 7 earnings$$

Figure 6: Two proposed log-linear Poisson regression models

In this regression,

- *earnings*: variable denoting the US box office earnings of the movie
- *imdb:* variable denoting the IMDB rating of the movie
- *tick:* variable denoting the number of ticks per movie
- *cross:* variable denoting the number of crosses per movie
- *dash:* variable denoting the number of dashes per movie
- *classics*: binary dummy variable denoting the Classics era (0: the movie is not from the Classics era, 1: the movie is from the Classics era)
- *renaissance:* binary dummy variable denoting the Renaissance era (0: the movie is not from the Renaissance era, 1: the movie is from the Renaissance era)
- *newage:* binary dummy variable denoting the New Age era (0: the movie is not from the New Age era, 1: the movie is from the New Age era)

We chose log-linear Poisson regression because it normalizes our box office data and IMDB ratings which are right-skewed (log-linear) and is better fitted for count variables like our number of ticks, crosses and dashes (Poisson). This model can also help to see the multiplied rather than additive effect of our qualitative score on box office, which is more relevant. We chose to limit our regression to US box office earnings data, adjusted for historical inflation rate using CPI data, for a fair comparison between firms across time, since earlier films in the Classics period did not have global distribution and thus only had domestic market (US) earnings data available.

We establish that whilst *earnings* represent the amount earned from the number of people going to movies which indicates a general level of enjoyment of the movie, *imdb* is a score rating that is more closely related to the movie's perceived quality. Though the latter could be considered a

derived metric of the former, we included both as variables in each other's respective regressions to examine if there is a relationship between perceived quality of a movie and the overall level of enjoyment. For both regressions, we also added time dummies in order to examine how the era of the movie affected earnings and IMDB ratings.

3.2 Data Collection and Preparation

Qualitative Data

We selected representative films of different time periods to analyse how Disney's portrayal of our themes evolves over time. We justify these time periods of selection based on Hefner et. al (2017) and Whelan's (2012) research which categorized Disney's films into three main periods - Classics (before 1980s), Renaissance (1980 to 1998) and New Age (1998 onwards), as their research found distinct differences in the characteristics of protagonists portrayed between these periods. For example, female main characters were rigidly bound to rules of duty and subservience in the Classics period but transitioned to display more signs of autonomy in the Renaissance period, and broke free from traditional gender stereotypes in the New Age (Hefner et. al, 2017; Whelan, 2012).

Selection Criteria

For each period, we then established a more specific set of selection criteria to filter out the movies. We used the Bechdel Test for female representation (Nyh, 2015) which serves as a rule-of-thumb for identifying movies that represent our values of interest well. Namely, the movies should have at least two characters of different [racial backgrounds /gender/ moral values], these two characters interact with each other and talk about topics apart from [race/ gender/morality]. To finetune our selection, we also selected movies that display rhetorical tools (Ward, 2002) such as songs, archetypes and other communication devices so that we can analyse how these tools are used to portray specific values.

This ensures that the films chosen for analysis are not selected arbitrarily, and that there is a sufficient spread of movies representing different time periods. Using this criterion, we selected 28 films for analysis, among the total of the 121 theatrical-release animated movies produced by Disney from 1937 till 2024 (Jessey and Spalding, 2024).

Quantitative Data

Firstly, for **NLP-BART classification** and **topic modelling,** we obtained the scripts for selected films from script databases like Springfield!, The Internet Movie Script Database (IMSDb) and Scripts.com**.**

Secondly, for the log-linear **Poisson regression** dataset**,** we compiled regional box office earnings for the same selection of films analysed in our qualitative analysis from an online source, Box Office Mojo (Figure 7) and adjusted for inflation using US historical consumer price index (CPI) data.

Feminism

Movie / Time Period	Domestic (US)	Europe, Middle East and Africa	Asia Pacific	China	Latin America
Snow White (1937)/ Classics	184,925,486				34,985
Cinderella (1950)/ Classics	93,141,149	3,241,994	187		
Sleeping Beauty (1959)/ Classics	51,600,000				
Little Mermaid (1989) / Renaissance	84,355,863		80,517		
Beauty and the Beast (1991) / Renaissance	218,967,620	110,784,370	5,398,897		5,583,117
Aladdin (1992) / Renaissance	217,350,219	116,057,283	13,067,793		
Pocahontas (1995)/ Renaissance	141,579,773				
Mulan (1998) / Renaissance	120,620,254	85,045,603			
Princess and the Frog (2009)/ Renaissance	104,400,899	114,508,345	20,150,500		18,502,606
Tangled (2010)/ New Age	200,821,936	221,685,795	94,745,177		68,141,086
Brave (2012)/ New Age	66,323,594	146,287,178	64,412,503		73,939,836
Frozen (2013)/ New Age	400,953,009	291,779,928	416,462,569	48,240,000	90,442,594
Wreck it Ralph (2012)/ New Age	189,422,889	111,949,582	85,756,109		63,998,753

Racial Inclusivity

Movie / Time Period	Domestic (US)	Europe, Middle East and Africa	Asia Pacific	China	Latin America
The Jungle Book (1967) / Classics	141,843,612	4,466,472			
Peter Pan (1953) / Classics	40,759,520				
Dumbo (1941) / Classics					
Aladdin (1992) / Renaissance	217,350,219	116,057,283	13,067,793		
Pocahontas (1995) / Renaissance	141,579,773				
Mulan (1998) / Renaissance	120,620,254	85,045,603			
Moana (2016) / New Age	248,757,044	1,411,765,430	202,969,770	32,797,208	
Zootopia (2016) / New Age	192,809,872	194,195,833		236,086,416	55,776,366
Elementals (2023)/ New Age	154,426,697	133,733,124	107,666,413	15,890,442	59,693,569

Morality

Movie / Time Period	Domestic (US)	Europe, Middle East and Africa	Asia Pacific	China	Latin America
Pinocchio (1940)/ Classics	84,254,167				
Bambi (1942)/ Classics	102,247,150				
The Story of Robin Hood (1952)/ Classics					
The Lion King (1994)/ Renaissance	424,979,720	237,496,928	20,169,581		18,000,223
Pocahontas (1995)/ Renaissance					
The Hunchback of Notre Dame (1996)/ Renaissance	100,138,851				
Hercules (1997)/ Renaissance	99,112,101		12,500		
Mulan (1998)/ Renaissance	120,620,254	85,045,603			
Coco (2017)/ New Age	210,460,015	156,593,121	114,761,393	189,226,296	105,649,966
Zootopia (2016)/ New Age	192,809,872	194,195,833		236,086,416	55,776,366
Encanto (2021)/ New Age	96,093,622	76,174,325	26,672,899	12,060,643	22,546,787
Inside Out 2 (2024) / New Age	154,201,673	436,560,338	205,917,665	47,399,761	272,593,530

Figure 7: Compilation of regional box office earnings for selected films

4 Qualitative Findings & Analysis

4.1 Feminism

Movie / Time Period	Sub-value 1: Feminine gender stereotypes	Sub-value 2: Reinforcement of patriarchal ideals	Sub-value 3: Feminist attitudes and behaviour	Total	Average Ticks and Crosses
Snow White (1937)/ Classics	✖✖✖	✖✖✖	-	✖✖✖✖✖✖	18/3 ✖
Cinderella (1950)/ Classics	✖✖✖	✖✖✖	-	✖✖✖✖✖✖	
Sleeping Beauty (1959)/ Classics	✖✖✖	✖✖✖	-	✖✖✖✖✖✖	
Little Mermaid (1989) / Renaissance	-	✖✖	✓	✖✖✓	8/3 ✓ 18/3 ✖
Beauty and the Beast (1991) / Renaissance	✖	✖✖	✓	✖✖✖✓	
Aladdin (1992) / Renaissance	✖	✖✖	✓✓	✖✖✖✓✓	
Pocahontas (1995)/ Renaissance	✖	✖✖	✓✓	✖✖✖✓✓	
Mulan (1998) / Renaissance	✖✖	✖✖	✓✓	✖✖✖✖✓✓	
Princess and the Frog (2009)/ Renaissance	✖✖	✖	✓✓	✖✖✖✓✓	
Tangled (2010)/ New Age	✖	✖	✓✓✓	✖✖✓✓✓	14/3 ✓ 2/3 ✖
Brave (2012)/ New Age	-	-	✓✓✓	✓✓✓	
Frozen (2013)/ New Age	-	-	✓✓✓	✓✓✓	
Wreck it Ralph (2012)/	-	-	✓✓✓	✓✓✓	
New Age					
Total	17 ✖✖✖✖✖✖✖✖ ✖✖✖✖✖✖✖✖ ✖	21 ✖✖✖✖✖✖✖✖ ✖✖✖✖✖✖✖✖ ✖✖✖✖✖	22 ✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓		

Figure 8: Feminism qualitative findings

We identified three main trends in Disney's portrayal of female empowerment:

1) **Overall, the number of crosses drastically decreased over time, and the number of ticks increased over time.** Initially, the number of crosses were very evident - Classics movies had around 6 crosses per movie; in Renaissance, the number of crosses was fluctuating from two to four crosses; and in the New Age, there were no more crosses. Subsequently, the number of ticks increased from one to two ticks per movie in Renaissance, to three ticks per movie in New Age.
2) Additionally, sub-value 1 and sub-value 2 show the most drastic change in the number of crosses; we could attribute this to the Second Wave of Feminism in 1960s, which influenced other media styles such as the revival of the Cosmopolitan magazine or the book *The Feminine Mystique*, which was considered to be the "most popular and most highly recognized mass media object of this time" (Johnson, 2017).

3) Overall, most sub-values seem to be very straightforwardly interpreted, not leaving any room for mixed messages. Sub-value 1 and sub-value 2, for example, consist of only crosses, whilst sub-value 3 consists of only ticks.

Overall, Disney movies demonstrate a **positive change over time** by **introducing more female characters that defy patriarchal standards** and are more confident in their identities, working towards their independent talents and dreams. Movies are also pushing females towards embracing more masculine traits of themselves and being more courageous, and even their male counterparts (if present) also progressively reinforce less of patriarchal ideals onto the females. However, this also raises the question of whether these movies are instead inducing the idea that conventionally feminine characters cannot be empowered. The portrayal of females has to be very carefully nuanced to not impose a template that female characters have to fit into to be a capable female.

4.2 Racial Diversity

Movie / Time Period	**Sub-value 1:** Displays border transgression in the narrative	**Sub-value 2:** Encourages empathetic understanding of the Other	**Sub-value 3:** Awakens Cultural and Intercultural awareness	**Total**	**Average Ticks and Crosses**
The Jungle Book (1967) / Classics	✓	-	××	✓×× 1	1/3 ✓ 2 ×
Peter Pan (1953) / Classics	-	××	-	××	
Dumbo (1941) / Classics	-	-	××	××	
Aladdin (1992) / Renaissance	✓	-	××	✓××	5/3 ✓ 4/3 ×
Pocahontas (1995) / Renaissance	✓	-	×	✓×	
Mulan (1998) / Renaissance	✓	✓	✓×	✓✓✓×	
Moana (2016) / New Age	✓	-	✓×	✓✓×	2 ✓ 1/6 ×
Zootopia (2016) / New Age	✓	✓	-	✓✓	
Elementals (2023)/ New Age	✓	✓	-	✓✓	
Total	7 ✓✓✓✓✓✓✓ 3	3 ✓✓✓ 2 ××	2 ✓✓ 2 9 ×××××××××		

Figure 9: Racial Diversity qualitative findings

We identified three main trends in Disney's portrayal of Racial Diversity:

1) Firstly, the **total number of ticks recorded for the films increased** over time, from an average of less than 1 tick in the Classics to 2 ticks in the Renaissance and New Age period, indicating a general direction of greater racial diversity over time. In fact, some Classics films like *The Jungle Book* and *Dumbo* had crosses only as they portrayed negative stereotypes of Native American and Black-American communities, likely because these movies were produced against the backdrop of the Civil Rights Movement (Wainer, n.d).
2) Additionally, sub-value 3 (Cultural and intercultural awareness) was the hardest element of Racial Diversity to portray correctly, as its column had the greatest number of crosses (9 crosses) compared to the other sub-values. Being able to appropriately and accurately

represent other cultures and races could then be said to remain Disney's biggest challenge in appealing to a diverse audience.

3) Conversely, sub-value 1 (Border Transgression) is the most common element of Racial Diversity portrayed, given that most Disney characters often cross physical or emotional borders in their storyline. Notably, when we deep dived into individual movie plots, we noticed that borders have become increasingly blurred in films, as there was a transition from crossing over physical borders like a new geographical location (e.g in *The Jungle Book, Aladdin, Mulan*), to less obvious emotional borders like overcoming emotional borders to perform a job going against societal expectations or to forge friendships with members of other groups that typically do not mix (e.g *Zootopia, Elemental*).

Overall, Disney's narrative of race has shifted to a **more inclusive one over time**, with its movies displaying characters transgressing borders into unfamiliar environments, which also encourages a more empathetic understanding of other communities. However, there is still **room for improvement** in the aspect of **awakening more cultural awareness** given that cultures are complex in nature which are challenging for a movie to capture fully in its runtime duration. Interestingly, Disney is likely trying to avoid issues of cultural misrepresentation by using alternative characters to represent different communities beyond humans, such as animals in *Zootopia* and elements in *Elemental*.

4.3 Morality

Movie / Time Period	Sub-value 1: Honesty	Sub-value 2: Sympathy vs Empathy?	Sub-value 3: Courage	Total	Average Ticks and Crosses
Pinocchio (1940)/Classics	✓	✓	✓	✓✓✓	7/3 ✓ 3 1/3 ✗
Bambi (1942)/Classics	-	✓	✓	✓✓	
The Story of Robin Hood (1952)/Classics	✗ 2	✓	✓	✓✓✗	
The Lion King (1994)/Renaissance	✓	✓	✓	✓✓✓	4 ✓ 1/6 ✗
Pocahontas (1995)/Renaissance	✗	✓✓	✓	✓✓✓✗	
The Hunchback of Notre Dame (1996)/Renaissance	✓	✓✓	✓✓	✓✓✓✓✓	
Hercules (1997)/Renaissance	✓	-	✓✓	✓✓✓	
Mulan (1998)/Renaissance	✓✓	✓✓	✓✓	✓✓✓✓✓✓	
Coco (2017)/New Age	✓✓	✓✓	✓✓	✓✓✓✓✓✓	23/4 ✓
Zootopia (2016)/New Age	✓✓	✓✓	✓✓	✓✓✓✓✓✓	
Encanto (2021)/New Age	✓✓	✓✓	✓✓	✓✓✓✓✓✓	
Inside Out 2 (2024) / New Age	✓✓	✓✓	✓	✓✓✓✓✓	
Total	14 ✓✓✓✓✓✓✓✓ ✓✓✓✓✓ 2 ✗	18 ✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓ ✓✓	18 1 ✓✓✓✓✓✓✓✓ ✓✓✓✓✓✓✓✓ ✓✓		

Figure 10: Morality qualitative findings

We identified three main trends in Disney's portrayal of Morality:

1) Firstly, the **portrayal of Morality sub-values has generally stayed consistently positive** over time with most movies consistently registering one to two ticks, likely because moral values form the core of Disney films and are relatively universal in nature (Iseminger, 2019).
2) Sub-value 1 (Honesty) is the element of Morality that has the most number of mixed interpretations, given that there are some films that present paradoxes like *Robin Hood* where stealing from the rich was considered a noble thing to do (Kline, 1993)
3) Sub-value 2 (Sympathy and Empathy) experienced an improving trend over time, where films in the Classics era portrayal was closer to Sympathy, and transitioned to incorporate empathy in broader contexts (social outcasts, cultural differences), raising relatable issues to audience (e.g Mulan's internal conflicts). In the New Age, movies highlight the importance of understanding different perspectives and backgrounds and developing tolerance.

Overall, Disney's portrayal of Morality has **generally stayed consistent and positive over time**, with the highest number of ticks per sub-value (14 to 18 ticks across 11 movies) compared to any other sub-values from racial diversity and female empowerment. We reason that this is because moral values are more universal in nature, for example, being brave is generally seen as a desirable character trait, and hence easier to portray in an acceptable manner to a global audience (Iseminger, 2019).

5 Quantitative Findings & Analysis

5.1 BART Classification Results

To cross-check against our qualitative findings, we first used a BART classification model to analyse individual movie transcripts and assign confidence scores to their portrayal of sub-values in each of our values. The model identifies relationships within the text and assigns a higher confidence score closer to 1 if there is a more prevalent portrayal of that particular sub-value, and a lower confidence score nearer to 0 if the portrayal is less consistent.

Feminism

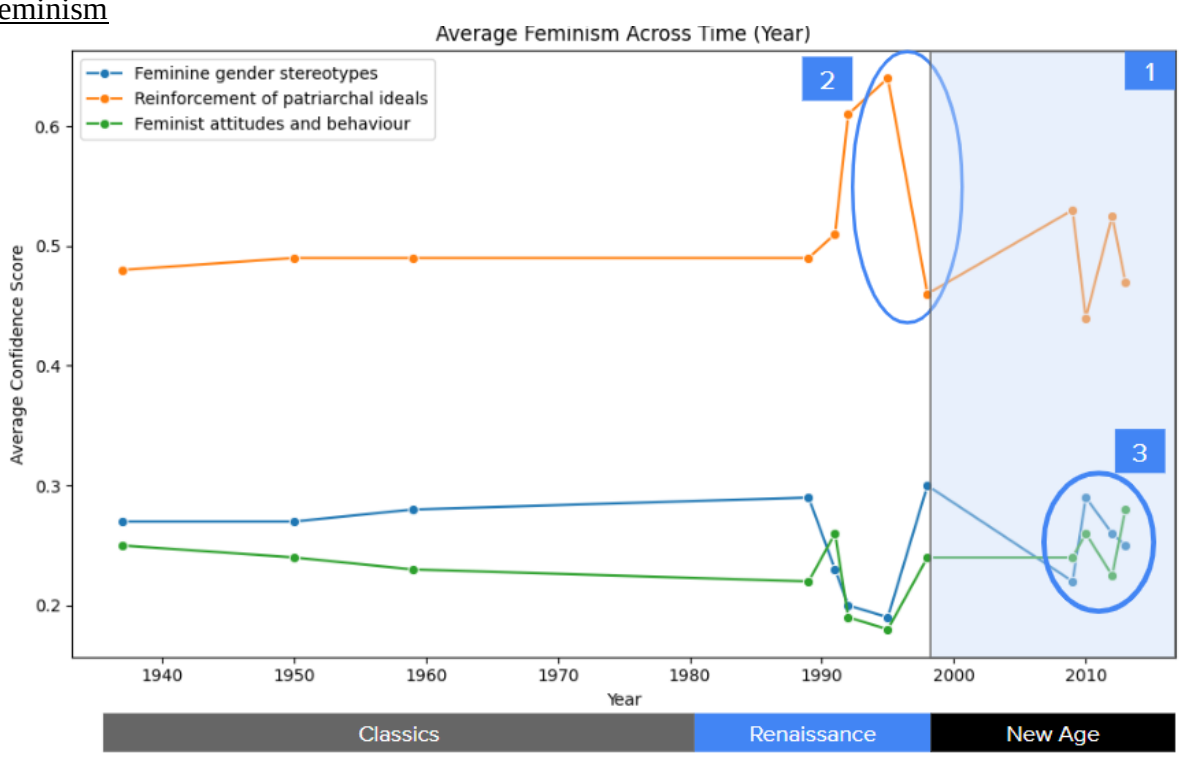

Figure 11: Confidence score trends for Feminism Sub-values

We observed these findings from the model's classification of 3 sub-values: Feminine gender stereotypes, reinforcement of patriarchal ideals, feminist attitudes and behaviour (Figure 11)

1) The portrayal of all 3 sub-values remained mostly consistent in the Classics and Renaissance era, but movies in the New Age displayed **greater variability** in all 3 sub-values.
2) The portrayal of sub-value 2 (Reinforcement of patriarchal ideals) was **most prevalent** in ***Pocahontas***, and then **declined drastically** with the production of *Mulan* afterwards. This **supports** our qualitative findings which assessed ***Mulan*** to have a more negative portrayal of patriarchal ideals with 2 crosses in total, compared to 1 cross for ***Pocahontas***.
3) Post-2010, New Age films portrayed more feminist attitudes and behaviour, but ironically also female gender stereotypes as well. This **corresponds** with our qualitative findings which showed an increasing number of ticks for sub-value 3 and dashes for sub-value 1 as opposed to crosses.

Racial Diversity

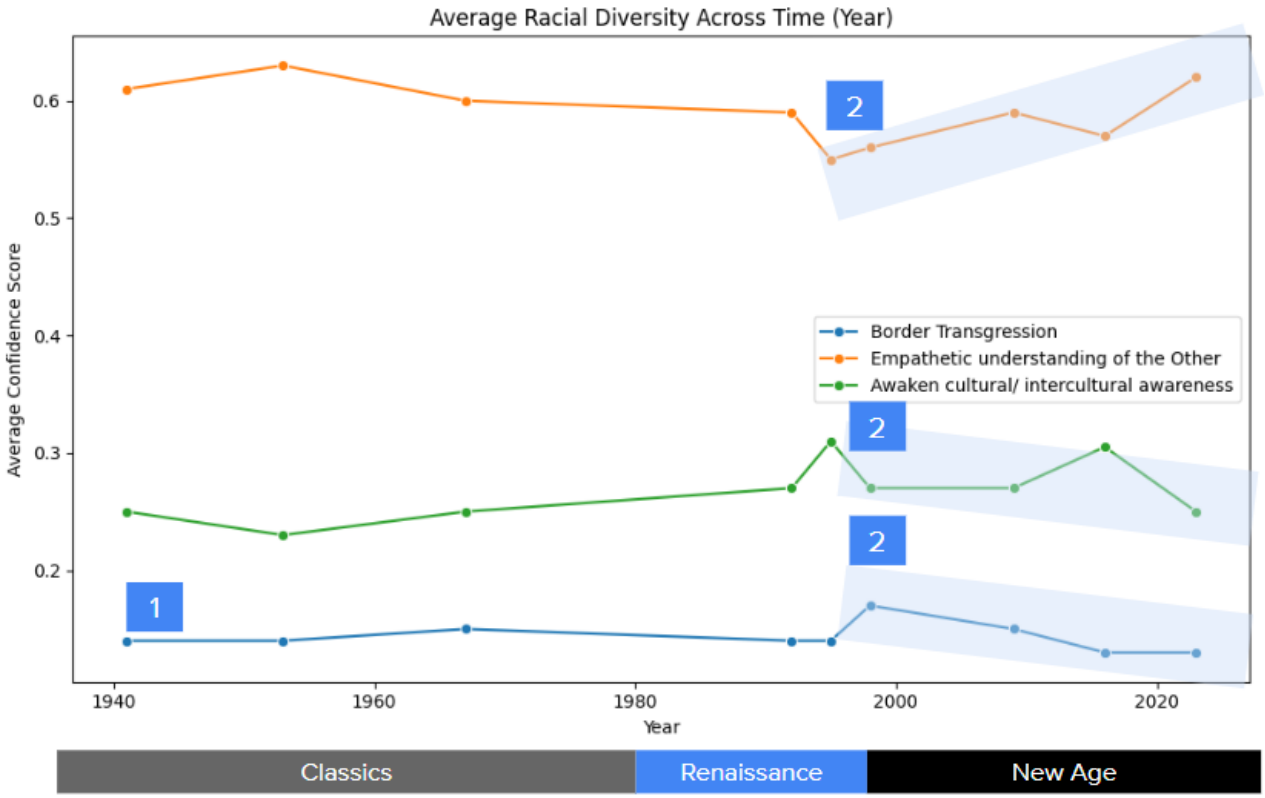

Figure 12: Confidence score trends for Racial Diversity Sub-values

We observed these findings from the model's classification of 3 sub-values: border transgressions, empathetic understanding of the Other, awakening cultural/intercultural awareness (Figure 12)

1. The portrayal of all 3 sub-values were mostly constant over time, but Sub-value 1 (Border transgression) was the least consistently portrayed sub-value with the lowest confidence score. This **contradicts** our qualitative findings, which suggested that Sub-value 1 was instead the most common element of Racial Diversity portrayed in film across time, registering a total of 7 ticks.
2. Movies in the New Age had a weakening portrayal of Sub-values 1 and 3 but displayed more sub-value 2 (Empathetic understanding of the Other). This **partially corresponds** with our qualitative findings, as there is an increasing number of ticks for sub-value 2 for movies in the New Age.

Morality

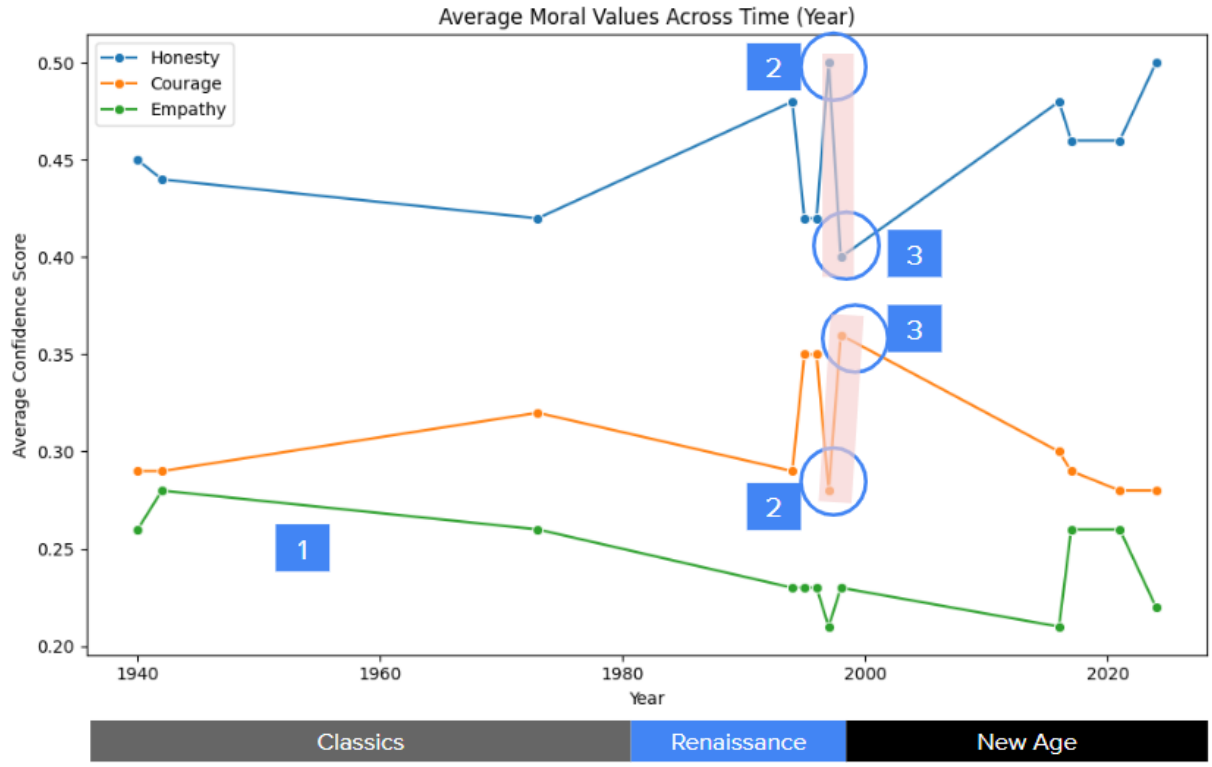

Figure 13: Confidence score trends for Morality sub-values

We observed these findings from the model's classification of 3 sub-values: Honesty, Courage, Empathy (Figure 13).

1. Portrayal of sub-value 2 (Empathy) experienced a declining trend from the Classics to Renaissance period, only improving slightly in New Age movies. This **corresponds** with our qualitative findings as the number of ticks for sub-value 2 increased across time. Movies in the Classics and Renaissance periods had an average of 1.25 ticks for sub-value 2 (10 ticks, 8 movies), which is lower than the average of 2 ticks for New Age movies (8 ticks, 4 movies).
2. ***Hercules*** was identified as an outlier in the New Age period, registering the highest confidence score for Honesty but also a large dip in its portrayal of Courage compared to adjacent movies produced around the same time. This **contradicts** our qualitative finding that its courage value is relatively higher (2 ticks).
3. ***Mulan*** was another outlier in the New Age period, displaying an opposite trend where it had one of the strongest portrayals of Courage but least of Honesty.

5.3 Topic Modelling

While some of the trends observed in the BART model's classification of sub-values aligned with our qualitative findings, there were also contradictions for these outlier movies - *Mulan*, *Pocahontas* and *Hercules*. We conducted topic modelling to group high-frequency words in these movie transcripts and generated word cloud visualizations of the top themes identified by the LDA algorithm.

Mulan

Figure 14: Topic identified in *Mulan*

Topic 1: Warfighting

A topic identified in *Mulan* references warfighting and action (Figure 14). This **further strengthens** the alignment between our previous findings for **Feminism**, where both the qualitative scoring and BART classification model suggested that the film had a less negative emphasis on patriarchal ideas. With an association with action words like "come", "run" and objects like "tent" and "cannon", *Mulan* places a notable emphasis on the female protagonist defying patriarchal ideals like the concept of warfighting being a responsibility of men (Fahiratunnisa, 2024).

Our topic modelling analysis also explains why *Mulan* was an outlier for **Morality**, in terms of having one of the highest confidence scores for Courage but the lowest scores for Honesty. *Mulan* scored the highest for Courage through the warfighting theme present in the film (Istighfarah, 2021). Additionally, we hypothesize that a different interpretation of the warfighting theme could explain the contradiction why *Mulan* had a low confidence score for Honesty in the BART analysis but scored relatively high in Honesty in our qualitative analysis earlier.

Mulan's decision to disguise herself as a man to fulfil her family's duty of fighting the war can be interpreted by the BART model as deceptive and thus register a low score of Honesty. However, we interpreted these actions in our qualitative scoring as being honest with oneself, since Mulan herself was less interested in traditionally "female" activities like getting married and was empowered to defy traditional gender stereotypes. Istighfarah (2021) reconciles these interpretations by proposing a difference between integrity and honesty - the former tells the truth to oneself and was captured by our qualitative analysis, while the latter tells the truth to others and was captured by the BART classification model.

Pocahontas

Figure 15: Topic identified in *Pocahontas*

Topic 1: Colonial Power and Superiority

The word cloud generated for Pocahontas focuses on words such as “right”, “savage”, and “man,” which may indicate portrayals of colonial power and superiority (Figure 15). This theme aligns with the history of the European colonial expansion, where indigenous people were often stereotyped as “savage” or inferior (Anthropology Review, 2024). We may link the term “right” to the authoritative claim of European colonisers over indigenous lands and resources, highlighting their entitlement.

This theme aligns with the BART model’s findings of *Pocahontas* exhibiting high confidence score for the reinforcement of patriarchal ideals, especially in how male colonial figures often view themselves as “civilizing” forces. This is highlighted in the presence of words like “man” and “savage”, which emphasises the colonial worldview that deems indigenous people as uncivilized and therefore, in need of control under the guise of ‘guidance’. This portrayal perpetuates stereotypes of indigenous communities as wild or unruly, which further reinforces harmful patriarchal ideals in the context of colonisation.

Hercules

Figure 16: Topics identified in *Hercules*

Topic 1: Dream and Masculine Aspirations

The first word cloud in *Hercules* centres on words such as "hero," "boy," "want," and "great," which may indicate his desire to pursue greatness, a depiction of masculine aspirations. The movie focuses on Hercules’ journey to fulfil his destiny as a hero, which aligns with societal expectations of masculinity that emphasises the “heroic” qualities of strength and courage (Loar, 2025). “Hero” and “boy” are evidently prominent words, suggesting Hercules’ immense desire to be recognised and glorified as a hero, thus reflecting masculine portrayals of success.

This theme suggests that Hercules’s aspirations are grounded in a desire for external validation as he strives to attain the status of a hero in the eyes of others. The word “want” highlights his need for others’ approval, aligning with traditional narratives of male heroism, where the protagonist must overcome obstacles to fulfil his destiny and be acknowledged as a prominent hero. This heroism could be seen as a shallow portrayal of courage as it focuses on surface-level masculine aspirations of “greatness” that meets societal expectations, but nothing else beyond that, therefore aligning with BART’s finding of *Hercules* scoring the lowest in Courage.

Topic 2: Pain, Failure, and Revelation

The second word cloud focuses on “pain”, “know”, “look”, and “baby” which may collectively represent the themes of struggle, self-discovery, and failure. Pain and failure manifest through Hercules’ journey in which he learns valuable lessons through navigating his plight in fulfilling his heroic destiny. Thus, pain here is associated with the emotional turmoil he may have experienced throughout his journey. The juxtaposition of “pain” and “know” suggests that Hercules may have developed self-awareness and emotional resilience after facing hardships. Thus, this theme centres around the process of enduring and learning from failure. This may have explained why *Hercules* registered the lowest confidence score for Courage in the BART model, as it detected the portrayal of pain and fear associated with his journey in navigating his hardships.

Overall, both the BART classification model and topic modelling show us that there is no decreasing or increasing trend for Feminism and Racial Diversity, though we see some decreasing trend for Morality.

5.3 Log-Linear Regression Results

Having answered **RQ1**, we now seek to answer **RQ2** through our two log-linear Poisson regressions on box office earnings and IMDB scores (Figure 17).

	(1) Feminism lg(earnings)	(1) Feminism lg(imdb)	(2) Race lg(earnings)	(2) Race lg(imdb)	(3) Morality lg(earnings)	(3) Morality lg(imdb)
Positive Portrayal (Tick)	0.104	0.003	-0.008	0.012	-0.108*	-0.023
	(0.06)	(0.02)	(0.07)	(0.01)	(0.05)	(0.01)
No Portrayal (Dash)	0.018	-0.001	-0.016	0.002	-0.371*	-0.110**
	(0.06)	(0.01)	(0.07)	(0.01)	(0.21)	(0.04)
Negative Portrayal (Cross)	-0.003	0.008	-0.037	0.021**	-0.280*	-0.035
	(0.12)	(0.01)	(0.06)	(0.01)	(0.13)	(0.03)
Time period: Classics	0.867**	-0.002	0.905**	-0.067**	0.694**	-0.082**
	(0.16)	(0.05)	(0.14)	(0.03)	(0.18)	(0.04)
Time period: Renaissance	0.061	0.012	0.191	-0.009	0.158	-0.022
	(0.15)	(0.04)	(0.13)	(0.03)	(0.11)	(0.03)
Time period: New Age	omitted	omitted	omitted	omitted	omitted	omitted
IMDB Score	0.144		0.326**		0.185	
	(0.11)		-0.11		-0.11	
Earnings		6.52×10^{-12}		2.24×10^{-11}		9.15×10^{-12}
		8.65×10^{-12}		1.49×10^{-11}		8.29×10^{-12}
Observations	27	27	27	27	27	27

**p < 0.10, significant at 90% level*

*** p < 0.05, significant at 95% level*

Figure 17: Log-linear Poisson regression results

Box Office Earnings

Our regression of *earnings* against different variables show that overall, tick-cross-dash coefficients of all values are statistically insignificant, meaning there is no relationship between the positive, negative or neutral portrayal of values and box office earnings. This signifies an overall indifference towards the portrayal of values by Disney.

However, we realized that for time period dummies, Classics was the only time period that had a positive and consistently statistically significant effect across all three values. We also found that *imdb* has a statistically significant coefficient only for Racial Diversity, implying that for films with racial themes, there was a relationship between the audience's perceived quality of the movie and the receptiveness of the movie in the box office. On the other hand, for films that portrayed other values like Feminism and Morality, the IMDB rating of the film did not display much association with its eventual box office earnings.

IMDB Ratings

Our regression of IMDB score against different variables shows that overall, while most coefficients are statistically insignificant, only *cross* in Morality and *dash* in Racial Diversity have statistically significant coefficients. Therefore, these are the only portrayals of values that could influence the audience's perceived quality of the movie.

We also realized that for time period dummies, *classics* is statistically significant for Morality and Racial Diversity. Furthermore, we do not see any statistically significant coefficients for *earnings*, meaning that even though IMDB score may influence box office for certain values, box office does not influence IMDB score for any value.

Overall, we are unable to determine whether portrayal of values are successful, since we mostly do not see a statistically significant relationship between the portrayal of values and the success metrics used.

Regression Analysis

Before we analyze how there is an overall indifference towards the portrayal of values in Disney movies, it may be useful to examine the consumer profiles of Disney movies. We split all our consumers into two groups: parents who take their children to Disney movies (CG1), where we assume that children do not have any awareness of the main values and no autonomy to choose the movies; and young adults who watch Disney movies for their own utility (CG2). The purpose of doing this is to study why CG1 and CG2 may be indifferent towards most of the portrayal of values in Disney movies, even though our initial literature review suggests otherwise.

Effect of tick-cross-dash on earnings and IMDB rating

Firstly, to rationalize the statistically insignificant effect of tick-cross-dash on earnings and IMDB rating, we realize that perhaps the portrayal of values does not have as much of an effect on children as we think. This is supported by Hayes (2008), who conducted an empirical study to show that media exposure does not affect body image in young children, though literature claimed that Disney princesses' body proportions may impose unhealthy expectations on viewers; Coyne et al

(2021) also showed that dressing up with Disney does not have an effect on children's prosocial behaviour in terms of toy sharing, as we would have expected if Disney movies can impart moral lessons to children. Given this, we can see that if CG1 is aware of this, they may not necessarily bring their children to see a Disney movie to teach the three main values to their children; hence, we can see that there is no relationship between the portrayal of values and earnings. We hypothesized if CG1 brought their children to see movies because of the vibrant animations, but after conducting regressions with an additional variable for *budget* which subsumes this factor, we found that it is not relevant due to the statistically insignificant coefficients (Appendix A). We also found that CG2 may not necessarily watch Disney movies for the portrayal of values as well; rather, these adults are more likely to buy tickets to see Disney for childhood nostalgia, as they may have grown up watching Disney (Simmons, 2024). Overall, we see that the statistically insignificant coefficients of tick-cross-dash reflect that people's reasons for going to a cinema to watch Disney are not for the portrayal of values.

However, we realized that for IMDB rating, the *cross* in Morality is statistically significant. This could make sense as Disney's lower age bracket includes toddlers (Start.io, 2022), implying that the content is still carefully curated despite the lack of effect as any misportrayal of moral values may still be frowned upon due to the sensitivity and controversy (possibly a more relevant evaluation point for CG1). This will be reflected in the consumers' rating of the movies. As *dash* being statistically insignificant in Racial Diversity implies that people rank movies that do not push for any racial values higher, it is rather difficult to rationalize this, and we attribute this to a result of our regression's limitations.

Effect of era dummies on earnings and IMDB ratings

For both earnings and IMDB ratings, most *classics* coefficients are statistically significant. This implies that people relied heavily on the Classics movies for entertainment; contextualizing this finding to the era, we find that this could be because Disney movies provide an avenue of escapism for them away from stressful events like World War II and The Great Depression (Texas Digital Library, n.d). *Snow White and the Seven Dwarfs (1937)* also indicated a technological breakthrough in the Classics time period due to the introduction of the multiplane camera which managed to capture depth-in animation for the first time (Little, 2024).

Effect of earnings on IMDB ratings and vice versa

We also found that IMDB has a statistically significant relationship on earnings for Racial Diversity. This means that the quality of the movie directly translates to the people going to watch the movie, signifying that whilst there is an overall indifference, people may still be slightly more sensitive to how racial diversity is portrayed in Disney movies.

6 Discussion

6.1 Summary of findings

		Value 1: Feminism	Value 2: Racial Diversity	Value 3: Moral Values
RQ1: How values are portrayed over time	Tick-Cross-Dash Scoring (Qualitative)	Overall positive and improving over time (more ticks, less crosses)	Overall positive and improving over time (more ticks, less crosses)	Strong positive portrayal, consistent over time
	BERT Classification Model, Topic Modelling (Quantitative)	Mostly consistent over time, some outliers (Mulan, Pocahontas) Greater variability in portrayal of patriarchal ideals, gender stereotypes and feminist attitudes in New Age	Mostly consistent over time Weakening portrayal of cultural awareness and border transgression subvalues	Mostly consistent over time, some outliers (Mulan, Hercules) Weakening portrayal of Empathy from Classics to Renaissance, but improved in New Age
RQ2: How successful was Disney's portrayal of values	Earnings Regression	Classics is statistically significant Individual values' tick/cross/dashes are statistically insignificant		
	IMDB Regression	-	Dash, Classics are statistically significant	Cross, Classics are statistically significant

For RQ1, our qualitative analysis found that Disney movies initially portrayed feminist and racial diversity sub-values **less positively in earlier time periods, but experienced improvement over time,** especially in New Age films. This trend is partially supported by our BART classification model, which showed greater variability in feminist portrayals but limited change in racial diversity portrayals, despite some weakening in the sub-values of border transgression and cultural awareness. We attribute this contradiction to model limitations, as these sub-values are complex ideas that might exceed the model's current semantic capabilities. Morality, however, registered consistently positive portrayals across Disney movies in our qualitative analysis, and this trend was similarly reflected in the BART model's findings. Across these three values, the BART model also highlighted *Mulan, Pocahontas* and *Hercules* as outliers in having above-average portrayals of selected sub-values. This is explained by topic modelling which identified themes like warfighting, colonial power, and failure in these movies.

For RQ2, our regression results suggest that box office earnings **are not affected by the portrayal of the three values**, given the statistically insignificant coefficients of the tick, cross and dash qualitative scores. However, IMDB ratings might be **more sensitive to portrayals of Racial Diversity and Morality.**

6.2 Limitations and future areas of study

The analysis and classification of movie scripts using the BART classification model, topic modelling, and regression techniques faced several limitations that future research could potentially address. First, both the BART and topic modelling (LDA) analyses could not be further trained or fine-tuned due to the lack of a labelled movie scripts dataset, limiting the specificity of the insights. Fine-tuning these models on a dataset specifically labelled for all 9 sub-values within movie scripts could yield more accurate and nuanced interpretations.

In the regression analysis, potential omitted variable bias and incorrect functional form specifications may have impacted the results, as key variables influencing film success—such as marketing budgets or cultural trends—were not accounted for. Additionally, as IMDB was founded in 1990, its reviews for movies produced before 1990 reflect the views of modern users, which might differ from their actual cinema audience in the past. This makes the IMDB rating a less reliable indicator of consumer perception of the movies. Future studies could address these limitations by exploring alternative success metrics such as awards won by the movie, and incorporating additional control variables like number of regions distributed to create a more robust analysis framework.

7 Conclusion

In conclusion, we use a mixture of qualitative and quantitative methods to explore how Disney movies have portrayed our project's three central values of Feminism, Racial Diversity and Morality across time. We conclude that Disney has **generally maintained a positive and improving portrayal** of all three values across time.

Interestingly, we also found that consumers are **generally indifferent to the portrayal of these values**. We attribute this to the parents' awareness of Disney's movies not having as much effect on children as widely perceived, and the adult watchers seeking for the nostalgic aspect of childhood movies. These findings could be significant for Disney and similar companies producing media close to childhood experiencing a decline in the box office (Nance, 2024), to implement strategies to stay relevant and continue to attract audiences to the cinema.

Word count: 7504

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Appendix A: Results of additional regression on budget

This appendix aims to show that all coefficients of budget *variable, which subsumes animation technology, are statistically insignificant at 95% level.*

```
. reg logearnings tick cross dash classics renaissance newage imdb budget, robust
note: classics omitted because of collinearity.

Linear regression                               Number of obs     =         27
                                                F(6, 19)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.7244
                                                Root MSE          =     .25792

------------------------------------------------------------------------------
             |               Robust
 logearnings |  Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        tick |   .1310307   .0629159     2.08   0.051    -.0006537    .2627151
       cross |   .0208138   .0482155     0.43   0.671    -.0801023    .1217299
        dash |   .0085277   .0968535     0.09   0.931     -.194189    .2112444
     classics |          0  (omitted)
 renaissance |  -.5793857    .185383    -3.13   0.006    -.9673967   -.1913747
     newage |  -.4889861   .2121139    -2.31   0.033    -.9329457   -.0450265
        imdb |   .1880416   .1011265     1.86   0.079    -.0236185    .3997017
      budget |  -2.60e-09   1.22e-09    -2.14   0.046    -5.15e-09   -5.69e-11
       _cons |   7.703979    .832221     9.26   0.000     5.962121    9.445838
------------------------------------------------------------------------------

. reg logearnings tick cross dash classics renaissance newage imdb budget, robust
note: newage omitted because of collinearity.

Linear regression                               Number of obs     =         27
                                                F(6, 19)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.7370
                                                Root MSE          =     .25194

------------------------------------------------------------------------------
             |               Robust
 logearnings |  Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        tick |   .0053507   .0697518     0.08   0.940    -.1406416     .151343
       cross |  -.0239805   .0743034    -0.32   0.750    -.1794993    .1315382
        dash |  -.0281443   .0596944    -0.47   0.643     -.153086    .0967974
     classics |   .7640502   .2231154     3.42   0.003     .2970642    1.231036
 renaissance |   .1213671   .1436048     0.85   0.409    -.1792012    .4219353
     newage |          0  (omitted)
        imdb |   .3018529   .1085493     2.78   0.012     .0746567    .5290491
      budget |  -7.89e-10   1.11e-09    -0.71   0.486    -3.11e-09    1.53e-09
       _cons |   6.222021   .9172411     6.78   0.000     4.302213    8.141828
------------------------------------------------------------------------------
```

```
. reg logearnings tick cross dash classics renaissance newage imdb budget, robust
note: newage omitted because of collinearity.

Linear regression                               Number of obs     =         27
                                                F(6, 19)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.7798
                                                Root MSE          =     .23055

------------------------------------------------------------------------------
             |               Robust
 logearnings |  Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        tick |  -.1012482   .0526293    -1.92   0.069    -.2114025    .0089061
       cross |  -.3576205    .207023    -1.73   0.100    -.7909246    .0756835
        dash |  -.2775482   .1312437    -2.11   0.048    -.5522444    -.002852
     classics |   .5825415   .2643644     2.20   0.040     .0292205    1.135862
 renaissance |   .0955565   .1391666     0.69   0.501    -.1957225    .3868354
     newage |          0  (omitted)
       imdb |    .175983   .1142349     1.54   0.140    -.0631134    .4150795
     budget |  -6.94e-10   1.13e-09    -0.61   0.547    -3.06e-09    1.67e-09
      _cons |    7.71975   1.193259     6.47   0.000      5.22223    10.21727
------------------------------------------------------------------------------
```

Appendix B: Github repository hosting all our quantitative method datasets and codes

Link: https://github.com/jeswid/disney-values-analysis

Appendix C:

Acknowledgement of the use of ChatGPT to edit, proof-read, and help in the task of cutting down words to ensure better language coherence.