

# Archer and Friends: A Computational Approach to Characterization in Television Series

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## Abstract

This study employs a comparative, computational approach to analyze the characterization of male and female characters in two popular television series, *Archer* and *Friends*. Utilizing telecinematic discourse analysis alongside advanced computational techniques including sentiment analysis, word embeddings, and Transformers-based sequence classification, this research explores how these series portray gender roles and stereotypes. Our analysis reveals that *Archer*, characterized by its satirical tone, subverts traditional gender norms more dynamically than the now-classic show *Friends*, which tends to reinforce conventional gender roles through its narrative and character interactions. Sentiment analysis indicates that *Archer* employs a more varied emotional language, reflecting complex character development, while *Friends* maintains a consistent emotional tone that aligns with its straightforward situational comedy. Additionally, embeddings-based characterization shows that *Archer* features more linguistically distinct characters than *Friends*, suggesting deeper narrative complexity. These findings highlight the influence of narrative style on audience perceptions of gender, demonstrating the usefulness of integrating computational methods with traditional media analysis to uncover nuanced representations of identity in television.

**Keywords:** Telecinematic Discourse Analysis, Characterization in Media, Gender Representation, Sentiment Analysis, Word Embeddings.

## 1. INTRODUCTION

Telecinematic discourse analysis is a multidisciplinary approach that examines the portrayal of characters in film and television, exploring themes such as gender representation, narrative structure, and power dynamics. It aims to uncover the underlying ideologies and social constructions that shape the way characters are presented on-screen. It is concerned with understanding how language, visuals, and audio elements are used to convey meaning and reinforce cultural norms within the cinematic medium (Raymond 2013). By analyzing the different discourses within language and visual elements of film and television, cinematic discourse analysis allows us to examine how power dynamics, social relations, and identity are constructed and maintained.

Within telecinematic discourse analysis, characterization, or the representation of characters, is a crucial aspect to examine. After all, Bednarek (2011: 4) points out that most handbooks on scriptwriting agree that “character is what counts in storytelling”. Characterization allows us to understand how characters are construed and portrayed, as well as the roles they play within the narrative. One key aspect of characterization is the identification of the differentiating features and traits of fictional characters and how they are built, which scriptwriters can do

either explicitly or implicitly (Culpeper 2001), in order to understand their role and impact within the narrative.

According to Culpeper and Fernandez-Quintanilla (2017), characterization lies within stylistics and narratology and can be approached from a multitude of disciplines and perspectives. This chapter explores the characterization in two popular TV series through a comparative, mixed-methods approach. I will be focusing on the portrayal of male and female characters in two radically different comedy series: the animated, adult-oriented, rather niche series *Archer* (FX Productions 2009—) and the now-classic sitcom *Friends* (Warner Bros 1994—2004). Cinematic discourse analysis offers a unique lens through which we can compare and contrast the representation of male and female characters in different television series (Gregori-Signes 2017). While both *Archer* and *Friends* are comedy series, they differ greatly in terms of their narrative style, character development, and overall tone. *Archer* is an animated adult sitcom that follows the adventures of Sterling Archer, a suave and highly skilled secret agent. He works for a spy agency called ISIS and is known for his witty one-liners, bravado, and womanizing ways. *Friends*, on the other hand, is a live-action sitcom that revolves around the lives of six friends living in New York City. Since it first aired in the 1990's, the series became extremely popular and successful, to the point that it may be said to have become a cultural phenomenon that has reached out to today's generations. It is known for its relatable characters, humorous situations, and strong emphasis on friendship and romantic relationships.

Thus, these two series provide interesting points of comparison due to their divergence in terms of genre, tone, and target audience. The analysis of characters is carried out in the present study both on an individual basis and in terms of gender, to uncover the various ways in which male and female characters are construed and gender stereotypes are approached in both series, since Both *Archer* and *Friends* present a unique opportunity to analyze the portrayal of male and female characters within their respective narratives.

Most approaches to characterization utilize a mixed-methods research approach. For example, Gregori-Signes (2017) applied Appraisal Theory (Martin and White 2005), Critical Discourse Analysis (CDA) and the methodological principles of Corpus-Assisted Discourse Studies (CADS) to carry out a contextualized analysis of words that refer to women in the TV series *Third Rock from the Sun*, confirming that the sitcom writers purposefully resort to stereotyping as a verbal strategy to create humor while conveying negative attitudes towards women. The fundamental quantitative, corpus-based tool employed was keyword analysis, employing the traditional approach used in corpus linguistics, based on comparing frequencies of words in the focus corpus against those in a reference corpus (or more than one in this case). These results, together with basic word frequency lists, are used to extract cues to identify women-related stereotypes (80 instances in total), which the author then proceeds to qualitatively classify according to the categories of Appraisal Theory, showing that most are in the “judgement” category, and therefore revealing that the TV show resorts to a variety of negative stereotypes of women to construe humor.

Similarly, Bednarek (2012) employs keyword analysis employing the same —reference-corpus— keyword extraction approach (Scott and Tribble 2006), as well as concordances to approach characterization in the show *The Big Bang Theory*. Using these relatively straightforward techniques, and even with the limited-size corpus used (season 1 of the series), the paper successfully identifies some of the most salient traits of the main characters, and provides good examples of these traits. Lexical bundles, i.e., semantically and statistically-salient sequences of words (n-grams) or lemmas have also been used to approach characterization in literary works, e.g., Fuster-Márquez (2020).

Animated series have not received as much attention as live-action series in terms of character analysis and gender representation, but there have been some relevant studies, such as the one

by Raymond (2013), who used a conversation-analytic approach to examine gender and sexuality in animated sitcoms (*Family Guy* and *American Dad*). Specifically, he aimed to explore how animated television sitcoms reproduce the ‘doing’ of gender and sexuality through the on-screen discourse and interactions. Still, the method was based on a conversation-analytic approach, basically a qualitative, discourse-based methodology. The study found that animated sitcoms make active use of viewer familiarity with interaction-based stereotypes to create comedic effects and character identities, specifically by polarizing conversational practices to make gender and sexuality salient to viewers.

Other studies exist that use this basic methodology to successfully address characterization in cinematic discourse. However, newer, more sophisticated Natural Language Processing techniques have been developed in the last decade that may also be used to this end. In this paper I combine sentiment analysis with word embeddings and Transformers-based sequence classification to approach characterization. The method I describe consists in using a pretrained Transformers-based language model based on BERT (Devlin et al. 2019) and fine-tune it with the specific utterances of the characters to build a language model that attempts to capture the “essence” of the different characters; then these character models are evaluated by using them to classify actual utterances not used during the training process. For characters with a similar number of utterances, better classification results should indicate a better differentiation from other characters, as they are easier to identify by the model. This methodology does not seek to replace current methods in the analysis of characterization, but to explore what these novel tools have to offer to the development of this field, as they have been shown to be extremely effective in many areas of linguistic inquiry. Accordingly, I do not aim to either challenge or confirm current theories about gender representation in media, since the main objective is instrumental rather than theoretical.

## 2. *ARCHER AND FRIENDS*

*Archer* is an animated, adult-oriented comedy series that debuted in 2009 and has since become a niche, fan-supported show, as evidenced by the large amount of fan-generated content on websites such as Fandom,<sup>1</sup> a website that hosts fan-generated content related to various pop culture franchises, including movies, television shows, video games, and comic books. The series chronicles the life of Sterling Archer, a highly skilled spy who works for the International Secret Intelligence Service (ISIS). It follows in the footsteps of satirical spy fiction classics such as *Get Smart* (Agent 86) and the *Austin Powers* film series. Aesthetically, *Archer* successfully embodies midcentury-modern style, in an effort to mirror the golden age of James Bond novels and films, showcasing exotic settings and sophisticated people and events. The show embraces a unique blend of humor and action, providing viewers with a continuous stream of witty one-liners, pop culture references, and outrageous scenarios.

The series is well-known for its satirical approach to the spy genre, extensive use of pop culture references, and irreverent, dark humor. It has faced criticism due to its intricate and contentious handling of gender, sexuality, race, and ethnicity (Gliner 2015). From this perspective, the show consistently and deliberately creates humor through satirical discussions of politically correct matters, which often take place in unexpected settings and in stark contrast to the continuous action sequences, including car chases, gunfights, and fistfights. Humor is also constructed through the use of made-up words and nicknames that sarcastically qualify events and

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<sup>1</sup> [https://archer.fandom.com/wiki/Archer\\_Wiki](https://archer.fandom.com/wiki/Archer_Wiki)

characters, such as “Pillbo Baggins”,<sup>2</sup> (for someone who abuses prescription drugs) or “Count Snackula” (for an overweight man), as well as an extensive use of cultural references, particularly, but not exclusively, pop culture. Another recurrent mechanism to generate humor is metadiscourse, with characters often discussing their own language quirks or ongoing language-based inside jokes, and competing for the best witty comeback or appellative; for example, someone (notably Archer) will invariably call “phrasing” when a likely double-entendre expression of sexual connotations is said (there are 42 occurrences of this word in the seven seasons analyzed in this study).<sup>3</sup>

From a discourse standpoint, the language is characterized by rapid-fire dialogue in which characters frequently interject, interrupt, contradict or follow up one another’s remarks. This results in an abundance of unfinished and interrupted statements. In addition, the series typically features very fast multi-party interactions in which characters repeatedly interject to advance the main plot. The series does not typically use voice-over or other story-telling techniques besides dialogue, although occasionally a character will provide context or backstory in the form of a fast-paced rant. Thus, keeping up with *Archer*’s dialogues can at times be challenging, as, additionally, these fast-paced dialogues are usually peppered with a slew of cultural references that may require some time to process, as the —often sarcastic— link with the ongoing topic or event can involve decoding several semantic, pragmatic, and cultural layers. This is exacerbated by the frequent use of non-trivial vocabulary and made-up or modified words and expressions. Consequently, some of *Archer*’s 20-minute episodes can become an exercise in mental agility, as well as a culture test.

In contrast, the TV series *Friends* features a group of six friends (three men and three women) living in New York City, and focuses on their romantic relationships, career struggles, and everyday urban adventures. The characters in *Friends* are depicted in a more jovial, light-hearted and relatable manner compared to *Archer*. They are presented as ordinary individuals with flaws and quirks that viewers can easily identify with. Although they each have distinct personalities, they are generally portrayed as likable and relatable. In terms of gender representation, these two series approach their male and female characters in different ways. *Archer* tends to portray its male characters, particularly Sterling Archer, in a more exaggerated and satirical manner, whereas *Friends* tends to present its male characters as more ordinary and relatable.

Also in stark contrast to *Archer*, *Friends* has a very different approach to characterization and humor. In *Friends*, these are more grounded in everyday life and the interactions between a close-knit group of friends, who often engage in witty banter and playful teasing, relying on situational comedy and relatable experiences to generate humor. Thus, the humor in *Friends* is often derived from the characters’ personalities and their unique quirks, rather than relying on social topics or obscure references.

As for the portrayal of gender, *Archer* presents a stark contrast to the traditional gender dynamics seen in shows like *Friends*, as the animated series portrays its male characters as hypermasculine, displaying stereotypical traits such as physical strength, aggression, and a cavalier attitude towards women, while all female characters rarely display traditionally feminine traits.

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<sup>2</sup> This is a reference to the character Bilbo Baggins, the protagonist of J. R. R. Tolkien’s 1937 novel *The Hobbit*.

<sup>3</sup> This technique to achieve humor follows in the footsteps of the Austin Powers movies, where the double entendre is invariably highlighted by exaggerated suggestive intonation by the protagonist.

## 2.1 Characters in Archer

There are six main characters who play significant roles in *Archer*: Sterling Archer, the main protagonist and highly skilled spy; Lana Kane, an accomplished African-American field agent and Archer's on-again, off-again love interest; Malory Archer, Sterling's mother and the head of the spy agency; Cheryl Tunt, an eccentric and unpredictable secretary at the agency; Pam Poovey, the agency's human resources director, who is known for her strong personality and unconventional behavior; and Cyril Figgis, a timid and bumbling accountant-turned-field agent who often becomes the butt of jokes. Two further members of the agency are Ray Gillette, an openly gay field agent, and Dr. Krieger, the agency's eccentric scientist with an obscure, Nazi-related past.

Sterling Archer is portrayed as a handsome, virile, secret agent who recurrently incurs in various social and moral transgressions (excessive drinking, promiscuity and whoring, hyperinflated ego, classism). As a hyper-masculine, flawed anti-hero, he embodies many negative stereotypes associated with traditional masculinity, such as womanizing, substance abuse, and disregard for others. Of his many flaws as a human being, classism is probably the most prominent, as he consistently displays a sense of entitlement and superiority over others; his relationship with Woodhouse, his loyal and devoted lifetime valet, is a good example of this, as he recurrently treats him with contempt, disrespect, superiority, and occasionally even physical aggression. However, this behavior is often portrayed in a satirical and exaggerated manner, highlighting the flaws and absurdities of Archer's character. His actions and attitudes are intentionally exaggerated for comedic effect, serving as a critique of toxic masculinity and traditional spy tropes. On the other hand, Archer is also portrayed as a sophisticated man of the world, conversant with the language and customs of many countries and cultures (a fact he is proud of and often boasts about). This is evident in his ability to seamlessly navigate various international settings and interact with people from different backgrounds. These qualities, together with his outstanding physique and action skills—a surprising result taking into account his unhealthy habits and lack of physical exercise—, make him an effective and skilled secret agent, despite his personal flaws. He is also extremely effective in action situations as a fighter, shooter, and driver, showcasing his physical prowess and quick thinking—often while keeping an exchange with other characters trying to make his point on some topic.

Lana Kane, Archer's female counterpart is construed as a strong, capable, and assertive secret agent. She is skilled in combat, possesses a sharp wit, and consistently outperforms her male colleagues, with comparable physical abilities and clearly superior intellect and judgement. She is also the mother of Archer's child, further complicating their dynamics and adding depth to her character. Lana challenges traditional gender roles by being a competent and independent woman in a typically male-dominated field. Her character is depicted as confident and self-assured, often taking over missions following Archer's blunders, and providing logical solutions to problems (in contrast to Archer's rushed, action-based solutions). Through her character, the show challenges conventional notions of gender and empowers female viewers by presenting a strong, intelligent, and capable woman who defies stereotypes of gender roles but does not shy away from using violence, thus falling within the women-who-kill type. According to Maury and Roche (2020), the media has traditionally depicted women who kill to domestic violence, where the murder is justified as self-defense, and women are construed as victims of patriarchy. However, Lana Kane falls within the modern woman-who-kill profile, of which examples abound in the film and television fiction of the last decade, with blockbuster movies such as *Wonder Woman* (2017), Quentin Tarantino's *Kill Bill* (2003) and *Death Proof* (2007), and now-classic young-adult-oriented dystopias such as *The Hunger Games* (2012-2015) and *Divergent* franchises (2014-2016). Television series have also presented their fair share of such violent heroines, with successful shows such as *Hannah* (Amazon Prime Video, 2019-2021) and *Killing Eve* (BBC America, 2018-2022).

Moreno-Ortiz, A. (2024). Archer and Friends: A Computational Approach to Characterization in Television Series. In *Language and Representation in Contemporary TV Series* (pp. 79–100). Comares.

Lana's persona adds another layer by representing race, being an African-American woman. Ray Gillette, the third key agent in the agency, brings up the topic of sexual orientation by openly identifying as a gay man. Although this is often used by his colleagues to pull jokes, his sexual orientation does not play a role in the way he is treated as a secondary field agent, as he is recognized as a skilled and effective professional.

This portrayal of diverse characters in *Archer* challenges societal norms and stereotypes, highlighting the show's progressive and inclusive approach, in contrast to the main character's toxic masculinity and traditional spy tropes. Thus, the characterization reveals a complex interplay between conventional gender roles and progressive representation. Overall, *Archer* is a complex and often controversial series that can be analyzed through a sociological lens in a number of ways. While it has been criticized for its treatment of gender, sexuality, and race, it has also been praised for its humor and its willingness to tackle difficult issues (Glinter 2015).

## 2.2 Characters in *Friends*

In contrast to the frenzied world of *Archer*, the TV series *Friends* portrays a group of six friends living in New York City. The main focus of the show is on their personal and romantic relationships rather than their professional lives or any specific skillset. The male characters are depicted as humorous, playful, and sometimes immature. The character of Joey Tribbiani, for example, is portrayed as a charming ladies' man with a knack for acting. He is often seen pursuing women and engaging in casual relationships. The two main male characters, Ross Geller and Chandler Bing, are portrayed as intelligent and successful in their respective careers (a college professor of Paleontology and a data analyst, respectively), but their storylines often revolve around their romantic relationships and personal struggles. On the other hand, the female characters are portrayed as more emotional and relationship-oriented. Their storylines often revolve around their romantic pursuits and their friendships with each other. Still, they are depicted as independent and career-focused; Rachel Green, for instance, starts off as a rich girl who leaves her fiancé at the altar to venture out on her own. In her journey, she navigates the challenges of building a career and finding love. Additionally, Monica Geller is portrayed as a perfectionist and caretaker for her group of friends, but also a hard-working woman who seeks to forward her career as a chef. Overall, however, the characterization of male and female characters in *Friends* follows more traditional gender roles (Knox and Schwind 2019).

The contrasting portrayal of male and female characters in *Archer* and *Friends* provides insightful commentary on societal norms and gender roles. While *Archer* challenges traditional masculinity and empowers its female characters, *Friends* tends to adhere to more conventional gender stereotypes. By delving into the depth of these character portrayals, we may gain a deeper understanding of how media representation can both challenge and perpetuate societal norms. This exploration serves as a thought-provoking lens through which to examine broader themes of gender dynamics and societal impact in popular culture.

## 3. CORPUS AND METHODS

In order to analyze the portrayal of male and female characters in *Archer* and *Friends*, a sizable corpus of episodes from both series was compiled. The *Archer* subcorpus comprises seasons 1 through 7, which is considered to be "Classic Archer" by fans, while the *Friends* subcorpus includes all ten seasons of the show.

Although the actual scripts were available for a few of *Archer* episodes, most had to be obtained from subtitles, which added a considerable work load in the data acquisition process, as subtitle files do not contain, for the most part, character information, and therefore this had to be added (Moreno-Ortiz, A. (2024). *Archer and Friends: A Computational Approach to Characterization in Television Series*. In *Language and Representation in Contemporary TV Series* (pp. 79–100). Comares.

manually in most cases. In contrast, all of the scripts for *Friends* were readily available for analysis, including “who said what” data, and so it was only necessary to normalize and clean some errors using regular expressions. Obtaining the corpus from two different types of sources—scripts and subtitles—does not have any implications in the final data, as scene cues, sometimes present in scripts, were removed, leaving only the dialogues themselves, thus resulting in exactly the same type of data in all cases (character-utterance pairs). Finally, both subcorpora were converted to XML format, which includes season, episode and character information.<sup>4</sup>

This setup allows to query the corpus using the character names as well as specific episodes or seasons as filters. The custom tools, developed in Python, were designed to work with this XML format, enabling easy access to the data for further investigation. Similarly, the same XML corpus was uploaded to Sketch Engine to perform various corpus linguistic analyses, such as frequency counts, collocation analysis, and concordancing, mostly used to verify and illustrate the findings in the quantitative analysis.

Season	Archer	Lana	Malory	Cyril	Pam	Cheryl	Ray	Krieger	Other	TOTAL
S01	8,557	3,637	5,369	2,459	1,658	1,394	438	422	6,807	30,741
S02	13,087	3,919	5,364	2,116	1,672	1,505	1,492	854	9,443	39,452
S03	12,536	4,426	4,650	1,977	1,415	1,361	1,344	732	10,174	38,615
S04	12,076	5,360	3,980	2,027	1,935	1,683	1,215	1,071	7,920	37,267
S05	10,147	4,470	5,073	2,885	2,569	2,493	1,294	1,677	5,550	36,158
S06	11,839	5,367	1,913	2,033	2,208	1,917	1,196	1,191	9,160	36,824
S07	8,466	2,956	3,040	2,226	1,585	1,138	857	1,079	9,241	30,588
<b>TOTAL</b>	<b>76,708</b>	<b>30,135</b>	<b>29,389</b>	<b>15,723</b>	<b>13,042</b>	<b>11,491</b>	<b>7,836</b>	<b>7,026</b>	<b>58,295</b>	<b>249,645</b>

Table 1. Number of words by season and character in the “Archer” subcorpus (85 episodes)

Season	Ross	Rachel	Joey	Chandler	Monica	Phoebe	Other	TOTAL
S01	10,083	9,223	5,828	8,311	7,919	6,314	9,586	57,264
S02	8,627	7,969	7,419	8,267	7,965	8,819	10,832	59,898
S03	10,581	8,729	8,418	8,862	8,226	9,052	11,805	65,673
S04	8,370	9,122	8,164	9,106	7,291	8,193	9,787	60,033
S05	8,907	9,527	9,048	8,381	8,171	8,408	6,065	58,507
S06	10,460	11,245	10,875	10,493	8,437	8,229	8,270	68,009
S07	8,635	11,160	9,414	8,440	9,060	7,592	7,521	61,822
S08	9,415	10,940	10,914	6,213	8,810	7,626	8,751	62,669
S09	11,796	10,461	10,254	11,721	9,800	10,217	11,988	76,237
S10	8,346	7,544	6,250	6,127	6,663	7,107	8,406	50,443
<b>TOTAL</b>	<b>95,220</b>	<b>95,920</b>	<b>86,584</b>	<b>85,921</b>	<b>82,342</b>	<b>81,557</b>	<b>93,011</b>	<b>620,555</b>

Table 2. Number of words by season and character in the “Friends” subcorpus (228 episodes)

Tables 1 and 2 present a brief overview of the two subcorpora in number of words. The runtime of episodes is similar in both series (22-24 minutes), but there is a much larger number of

<sup>4</sup> The entire corpus used in this analysis, together with the training datasets for each of the characters is available in XML format at <https://osf.io/7mcny/>. Please cite as “Moreno-Ortiz, A. (2024, April 15). Archer and Friends Datasets. <https://doi.org/10.17605/OSF.IO/7MCNY>”

episodes in *Friends*. Thus, the *Archer* subcorpus consists of seven seasons, spanning a total of 85 episodes and approximately 31 hours of runtime and about 250,000 words, whereas the *Friends* subcorpus includes all 10 seasons of the show, with a total of 228 episodes, accounting for approximately 88 hours of runtime and 620,000 words.

As the data suggest, and can be clearly seen in the data visualizations of Figures 1 and 2, the weight of the different characters in both series is very different. Whereas *Friends* shows a good balance in the proportions of the characters, reflected in a very low standard deviation ( $SD = 1.01$ ), *Archer* presents a more centralized focus on its titular character, Sterling Archer, with over 31% of the total dialogue being attributed to him, which is more than double the parts of the second and third characters (Lana and Malory) combined, with the rest of the characters displaying gradually smaller participation ratios, with a high discrepancy in proportions, which is clearly reflected in a high standard deviation ( $SD = 9.40$ ).

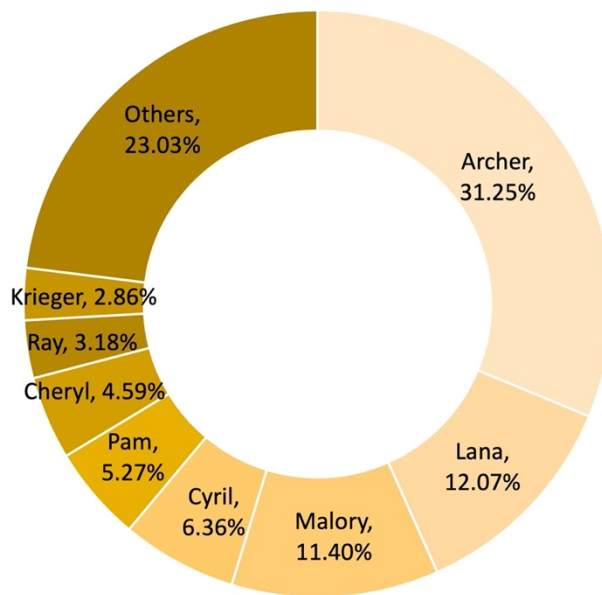


Fig. 1. Percentages of text by character in *Archer* ( $M = 14.17$ ,  $SD = 1.01$ ; excluding “Others”)

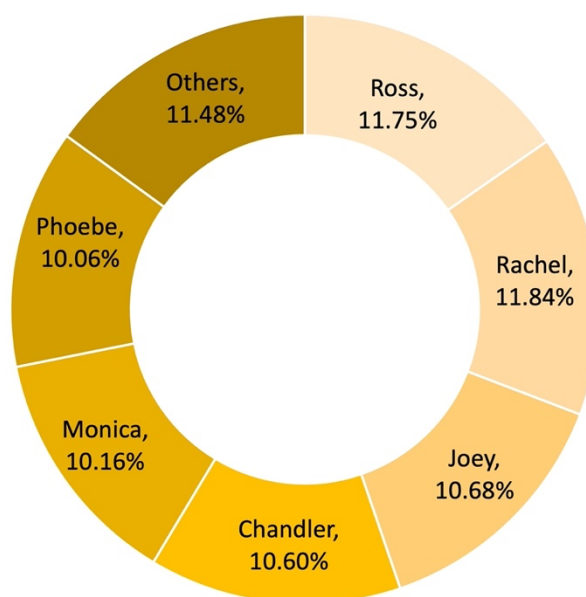


Fig. 2. Percentages of text by character in *Friends* ( $M = 9.62$ ,  $SD = 9.40$ ; excluding “Others”)

Thus, if we assume that the number of words per character is a good proxy for their relevance in the storyline, this discrepancy in dialogue distribution suggests that *Archer* is heavily centered around its main character, a fact reflected in the title of the show itself, while other characters have a smaller share of the dialogue and, therefore, relevance in the story. Conversely, in *Friends*, only Ross and Rachel display marginally higher proportions compared to the rest of the characters, indicating a more balanced distribution of dialogue. This is consistent with the overall nature of each show. *Archer*'s personality and actions drive the plot and humor, making him the central focus of the series. In contrast, *Friends* focuses on the dynamics and relationships among an ensemble of six main characters, each one having a relatively equal share of the dialogue, with the exception of Ross and Rachel, whose relationship is central to the storyline to a large extent.

These basic descriptive statistics provide some basic pointers regarding the relevance of the different characters, revealing a significant difference in the focus on the titular characters, as well as the overall structure of both shows.

In terms of methods, the sentiment analysis and embeddings-based characterization strategy described in the following section attempt to dive deeper into how the characters are profiled, and to measure how well they are differentiated from one another by their creators. Sentiment analysis and word embeddings, having been developed in the last decade, have rarely been used to conduct research into telecinematic discourse and characterization, but there are some notable cases. Notably, Xu et al (2019) used them to analyze and quantify the presence of gender stereotypes within narratives across a large number of movies and books. This approach allowed them to automate sentiment analysis, by constructing a vector to represent the dimension of happy versus unhappy from pre-trained word vectors sourced from Google News data. Happiness scores were then assigned to words based on their proximity to this vector. The research analyzed words surrounding specific characters in a narrative to track their happiness scores and thereby quantify the emotional dependency and the sentiment trajectory over time. The key finding of this research is that females were depicted as emotionally dependent on males for achieving happiness and fulfillment in life. This pattern was evident across a substantial portion of the cultural narratives, spanning 7,226 books, 6,087 movie synopses, and 1,109 movie scripts. The study also revealed that the narratives were adventure-oriented for male characters and romantic-relationship oriented for female characters. It also identified that movies with gender-stereotypical content tended to receive more votes and higher ratings, indicating societal endorsement of these stereotypes.

#### 4. ANALYSIS

As previously explained, the analysis of the characterization in the two television shows chosen for this research involves sentiment analysis and training specific language models on each of the characters or groups of characters (males vs. females). For sentiment analysis I will use Lingmotif (Moreno-Ortiz 2017, 2023), a lexicon-based sentiment analysis system that has been used successfully in a wide variety of research contexts and applications. This system returns both numerical and linguistic data which in this study will be used to provide cues into how the characters are portrayed. Using word embeddings as a tool to analyze characterization, on the other hand, is a novel approach to the best my knowledge, which I believe is a powerful tool that can provide insights and actual metrics to accept or reject hypotheses —e.g., that male and female characters are portrayed differently in two fiction works. The approach consists in fine-tuning a BERT base model on each character's set of utterances from the two shows, and then

building a neural network for sequence classification using a Transformers model,<sup>5</sup> which will serve us to examine whether the individual models are able to automatically differentiate between characters based on their language use, and if there are any noticeable differences in the way they are construed.

Obviously, the construction of a fictional character relies on various factors, including dialogue, behavior, mannerisms, relationships with other characters, and overall narrative structure. This is what some authors, e.g., Chierechetti (2021), have called the *ontology* of a character, that is, the complex web of characteristics and traits that define a character, including physical appearance, clothing, gestures, posture, voice pitch and prosody, interpersonal relationships, etc. In any analysis of characterization, it is impossible to detach one of the aspects that make up a character from others, as they all work together to create a cohesive and multi-dimensional portrayal. Therefore, although I focus here on the language, specifically the text (i.e., dialogue) spoken by the characters, it is important to keep in mind that this is only one piece of the larger puzzle of characterization. Within language itself, aspects such as intonation, tone, and non-verbal cues also play a significant role in shaping characters. This is particularly true of animation, where the style and delivery of dialogue by voice actors can greatly impact characterization, as do other aspects such as drawing and animation style, and obviously the physique of each of the characters, which, unlike in real life actors, can be completely controlled by the show's creators. For example, Sterling Archer displays a confident and suave demeanor, as well as an impressive physique, resulting in a strong personality, whereas Ross Geller in *Friends* often comes across as awkward and nerdy in comparison, with a tendency to stumble over his words or use more complex and academic language, while his physique is that of a regular young person in reasonably good shape.

#### 4.1 Sentiment analysis

Zhang et al. (2018) define sentiment analysis as the task whose goal is to identify “people’s opinions, sentiments, evaluations, appraisals, attitudes, and emotions towards entities such as products, services, organizations, individuals, issues, events, topics, and their attributes”. Sentiment analysis is utilized across several businesses for multiple purposes. It is used for brand monitoring and product analytics in business, as well as for tracking public opinion and social media analysis in politics. It may significantly influence customer service by helping to understand consumer comments and improve services (Cambria et al. 2017). The range of applications is as varied as the range of texts that sentiment analysis can be applied to: from movies and books reviews, e.g., Kennedy and Inkpen (2006) , Carretero & Taboada (2014) , to hotel reviews, e.g. Moreno-Ortiz et al. (2011), and political debate on social media, e.g. Wang et al., (2012). The growing impact of social media and online platforms has made sentiment analysis a valuable tool for understanding public opinion and making data-driven decisions, and it is hardly surprising that it has been extensively applied to social network analysis, especially Twitter/X.

But its applications go well beyond social networks and consumer reviews, to encompass any text where sentiment and emotions may play a significant role, as is the case of fiction, where sentiment analysis tools may reveal the emotional impact and response of readers/viewers to the narrative, as well as the attitudes and opinions expressed by characters. For example, Reagan et al. (2016) used sentiment analysis tools in a fundamentally narratological study to objectively quantify the emotional arcs of stories. The analysis of their corpus, which included

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<sup>5</sup> This technique does impose certain technical requirements. Notably, the availability of a GPU-enabled machine.

1,327 novels and narrative texts from Project Gutenberg fiction collection, led them to identify six core emotional arcs representing the basic building blocks of complex narratives; they also found that certain emotional arcs were more successful than others, as indicated by the number of downloads of stories exhibiting these arcs. More recently, Park et al. (2022) proposed a method to express novels by identifying the flow of sentiment scores between the characters by identifying those who support or antagonize the main character.

In the context of analyzing the portrayal of male and female characters in television series, sentiment analysis can provide valuable insights into the overall sentiment and attitudes expressed by the characters and how they may contribute to the depiction of gender roles. In the analysis presented here a simple approach was taken, where each character text was taken and analyzed separately using sentiment Lingmotif 2.1 (Moreno-Ortiz 2024). Lingmotif goes beyond simple classification of positive or negative sentiment and provides a more nuanced analysis, as it returns a number of metrics and word lists that collectively offer a comprehensive understanding of the sentiment and emotions conveyed in the text. Tables 3 and 4 summarize the quantitative results of each character in each of the two shows, together with the most frequent positive and negative words and phrases.

Character	TSS	TSI	Top 20 Positive	Top 20 Negative
Archer	35	86	good, help, thanks, thank you, best, pretty, love, be right, happy, great, awesome, all right, woo, be okay, relax, not worry, be fine, save life, nice, never mind	shut up, shit, idiot, kill, goddamn, stupid, dick, murder, what the hell, whoa, duh, fault, hate, hell, die, dead, bad, hurt, asshole, racist
Lana	32	83	good, thanks, help, thank you, honey, love, happy, all right, be great, pretty, bonus, great, be fine, never mind, trust, best, be right, not worry, protect, figure out	shut up, shit, idiot, stupid, kill, what the hell, ugh, dick, asshole, die, goddamn, hell, problem, whoa, wrong, murder, frickin, dead, terrorist, dumbass
Malory	37	100	dear, good, all right, thank you, help, love, happy, be right, thanks, be fine, wonderful, funny, trust, perfect, sexy, excellent, secure, bonus, lovely, win	shut up, idiot, hell, kill, what the hell, wrong, dead, lose, whore, fault, ridiculous, god knows, worst, stupid, die, problem, hate, zip it, awful, worry
Cyril	32	76	thanks, help, thank you, good, be right, pretty, safe, best, perfect, all right, love, win, rescue, be fine, froth, safety, sweet, take care of, forgive	shut up, kill, die, idiot, whoa, wrong, heck, fault, dead, stupid, bad, hell, dick, what the hell, crash, bully, problem, victim, hate, oh no
Pam	34	86	good, yay, help, best, good news, sexy, like, trust, happy, amazing, fresh, all right, pretty, sweet, be okay, correct, awesome, yum, holy, thanks a lot, rescue	shit, shut up, goddamn, fricking, stupid, kill, dead, frickin, dicknuts, crap, bitch, dick, lickbag, pussy, racist, hate, problem, wrong, die, shitty
Cheryl	26	83	love, woo, help, thank you, good, like, free, best, take care of, be right, trust, safe, awesome, elegant, happy, be fine, sensual, thank for, relax, pretty	stupid, duh, shut up, ugh, gross, goddamn, shit, dead, kidnap, danger, idiot, kill, die, whore, hate, lame, shock, murder, hell, wrong
Ray	31	86	honey, good, help, pretty, thank you, love, nice, great, affirmative, thanks, be okay, thank for, attract, dope, be great, pretty good, safe, best, happy, sweet jesus	goddamn, shut up, shit, kill, idiot, asshole, stupid, hell, broken, fault, racist, insane, wrong, paralyze, dead, die, jealous, fat, murder, never liked

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Krieger	38	76	good, love, help, solution, cool, not worry, triumph, favor, cool jets, balance, like, thank you, you are welcome, happy, ease, improve, easy, perfect, be right, best	goddamn, clone, nerve gas, shut up, whoa, hell, lose, hate, shit, maniac, die, murder, insane, jerk, risk, problem, nausea, waste, wrong, idiot
Average	33.12	84.5		
Male AVG	34	81		
Female AVG	32.25	88		

Table 3. Sentiment analysis of Archer

These results suggest that the characters in Archer are well differentiated from one another. All of them obtain low scores in TSS (Text Sentiment Score), as they all use strong language and, in general, are quite adept at swearing, but also we should not forget that the basic plot of the series is about the spying business, and therefore the main subject matter has violence and aggression at the core, so the generalized low scores are hardly surprising. Cheryl, who is given to long rants about random and outlandish topics —usually product of her wild imagination— gets the lowest sentiment score, whereas Krieger, the agency’s scientist, gets the highest, as he generally has a problem-solving attitude, works alone, and rarely engages in conflicts with his colleagues. The fact that Archer has the second highest sentiment score is probably due to the fact that he is extremely arrogant and given to self-aggrandization —according to himself he has “an awesome ego”, regularly calls himself “the world’s greatest secret agent”, and constantly rants about how amazing he is in terms of looks, elegance, and sophistication.

In terms of TSI (sentiment intensity), all characters exhibit very high levels, but, again, Malory, consistently worried about the agency’s financial situation and critical of the behavior and underperformance of her employees, rarely speaks neutrally. Krieger and Cyril, on the other end, display the lowest intensity scores, as both tend to speak as professionals and problem solvers, Cyril being the agency’s accountant. Unlike Krieger, Cyril has to deal with Archer’s slurs, pranks and general abuse, as well as with constant anxiety and self-doubt, especially regarding relationships. Despite this, he often serves as the voice of reason in the group (without much success), which also explain his lower intensity.

The sentiment words that each of the characters more frequently use are also telling of their personalities. The expression “shut up” is present in all of them because they tend to interrupt others constantly to make their point, and all main character do display strong personalities. However, the lists of words also reflect personal idiosyncrasies. For example, Pam has a very creative way of using curse words, thereby the “dicknuts”, and “lickbag” appellatives; others include “shitsnacks”, “nutsack”, “crapjacks”, “shitbag”, “chickenshit”, “skinny-bitch-ectomy”, and name-twisters such as “Otto von Jizmarck”, “Kenny Crybaby” or “Glenda Gotrocks”. Other character-specific words include “honey”, who is only used by Lana (a typical word of black women) and Ray (a gay man). Malory also has a distinct tone that reflects distinction (she usually refers to herself as a “lady”) and uses words such as “lovely” and “awful”, refraining from using foul language for the most part. Similarly, Ray does not tend to use swearwords or profanity, as he makes every effort to remain professional (probably as a defense mechanism to avoid being picked on).

Finally, these results also show significant gender differences. While the difference in sentiment orientation is rather minor, the female characters do seem to have a significantly higher intensity scores, which aligns with their strong personalities. The language they use is surely as strong and “colorful” as that of their male counterparts, much more in the case of Pam, whose language compensates for the milder tone of sophisticated Malory.

Character	TSS	TSI	Top Positive	Top Negative
Ross	63	76	ok, good, all right, love, thank you, thanks, great, be fine, be great, kiss, help, be right, happy, nice, funny, alright, like, cool, be okay, amazing	whoa, wrong, stupid, hate, hurt, lose, oh no, hell, bad, die, fault, problem, broke, be crazy, no-no, dead, not understand, broken, mad, what the hell
Rachel	64	76	all right, ok, love, thank you, honey, good, great, like, help, kiss, be great, be right, be okay, thanks, nice, cute, funny, be fine, win, best	oh no, stupid, hate, wrong, lose, ugh, die, be crazy, bad, horrible, broke, freak out, hurt, problem, bitch, fault, hell, worry, whoa, yell at,
Monica	61	80	all right, love, good, ok, thank you, be great, honey, great, nice, best, be right, sweetie, help, thanks, like, win, be okay, be fine, cute, kiss	hate, wrong, stupid, lose, problem, oh no, bad, kill, be crazy, cry, fake, fat, terrible, broke, suck, sick, hurt, shut up, die, whoa
Chandler	60	86	all right, good, love, ok, be great, great, thanks, be right, funny, thank you, nice, happy, best, be okay, kiss, like, help, honey, beautiful, win	wrong, kill, hate, oh no, stupid, bad, problem, die, broke, lose, horrible, be crazy, do not like, worry, whoa, fat, no-no, worse, hurt, crap
Joey	62	76	all right, good, thanks, ok, love, great, like, be great, help, kiss, cool, alright, thank you, best, be right, nice, be okay, happy, be fine, not worry	wrong, whoa, bad, problem, stupid, kill, what the hell, lose, quack, die, broke, no-no, hate, suck, worry, oh no, be crazy, mad, hurt, dead
Phoebe	60	86	ok, all right, good, love, thank you, thanks, happy, be great, help, like, great, nice, kiss, best, yay, alright, be right, be fine, be okay, be fun	oh no, wrong, kill, smelly, hate, die, lose, problem, bad, be crazy, suck, broke, stupid, do not like, dead, no-no, sad, fault, terrible, fat
Average	61.67	80		
Male AVG	61.67	79.33		
Female AVG	61.67	80.67		

Table 4. Sentiment analysis of Friends

The data from Friends, on the other hand, paint a very different picture. All characters display essentially the same scores in terms of sentiment, which is positive in all cases. The only difference worth mentioning is in intensity, with Chandler and Phoebe displaying significantly higher scores than the rest, which in fact is in line with their “intense” personalities. There are also no significant differences in the type of positive or negative language they use, profanity being non-existent, as is to be expected in a light-hearted, mainstream situational comedy show. It is interesting that there is no difference in the gender comparison, both groups obtaining exactly the same sentiment scores and practically the same level of intensity.

## 4.2 Embeddings-based characterization

Word embeddings are a class of techniques in Natural Language Processing where individual words are represented as real-valued vectors in a predefined vector space, also called a “semantic space” in the context of language models, as the entire mathematical construct acts as a representation of the semantics of the words encoded in it as vectors. Each word is mapped to one vector, and the vector values are learned in a way that captures semantic and syntactic information about the words. Essentially, words that are used in similar contexts will have similar representations in this vector space. Therefore, the semantics of words are learnt

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automatically from their location in naturally-occurring contexts using unsupervised learning algorithms. Word embeddings have been used with enormous success in all areas of NLP, such as text classification, sentiment analysis, and machine translation, and are at the core of the current slew of Large Language Models (LLM's), such as GPT.

The embeddings-based analysis I present here is aimed at discovering the linguistic patterns and characteristics of each character's dialogue in the two shows on an individual basis (character by character), but male vs. female roles will also be compared, as this will reveal interesting patterns in the treatment of gender. The method consists in using a pretrained Transformers-based language model based on BERT (Devlin et al. 2019) and fine-tune it with the specific utterances of the characters to build a language model that attempts to capture their "essence" as expressed in their language; then these character models are used to classify actual utterances not used during the training process. For characters with a similar number of utterances, better classification results should indicate a better differentiation from others, as they are easier to identify by the model.

The following procedure was implemented in order to generate and test the language models specific to each of the characters and groups (male and female):

1. First, the dialogue transcripts of each episode from both Archer and Friends were collected and normalized and texts were converted to XML as previously mentioned, including character mark-up.
2. Preprocessing: all texts were tokenized and lemmatized using the Transformers HuggingFace library. Stop words were removed. All text was converted to lower case (since the "uncased" base model is used).
3. For each character in the two shows, their full set of utterances was extracted and each dataset was split into a training set and a test set. Given the limited size of the corpus, the proportions were set to 80% for training and 20% for testing.
4. One language model was created for each character and gender-based group, taking as a pretrained model Hugging Face's BERT-based "distilbert-base-uncased". To fine-tune the language models, the training set for each character was used. All finetuned models were saved. These models take an utterance as input and a class ("Character X" / "Not Character X") as output.
5. Each character model was evaluated for performance as a classification task against a selection of similar characters, as it would be pointless to explore all of the possible pair combination, and against the rest (e.g., "Archer - Not Archer"). The Hugging Face's Transformers library was used to implement the classification task (sequence classification).

It is important to understand that all text sequences were included both in the training and testing stages, this includes very short utterances that are impossible for any model (or human) to correctly assign to any given character. Thus, in the evaluation metrics, it was decided to use the weighted average rather than the macro average, as there was a strong imbalance in the performance of all characters vs the rest, which results in lower precision and recall scores that do not reflected the relatively high accuracy obtained.

The classification performance of each character's model was assessed using the test set, and the usual evaluation metrics —accuracy, precision, recall, F1 score— were calculated. The results of the classification task using the character models generated for each character in both series are summarized in Table 3 and Table 4, respectively.

Character	Precision	Recall	F1 Score	Accuracy	Support	Supp. Splits
Archer	0.625	0.627	0.626	0.627	2710	1196, 1514
Lana	0.778	0.796	0.786	0.796	2710	448, 2262

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<b>Malory</b>	0.826	0.844	0.831	0.844	2710	441, 2269
<b>Cyril</b>	0.851	0.881	0.864	0.881	2710	244, 2466
<b>Pam</b>	0.889	0.911	0.898	0.911	2710	204, 2506
<b>Cheryl</b>	0.908	0.928	0.599	0.928	2710	177, 2533
<b>Male-Female</b>	0.594	0.594	0.594	0.594	4145	2068, 2077

Table 5. Character recognition metrics in Archer (Weighted AVG. Training set: 10,840)

Several significant and rather unexpected findings can be identified in these results. First, Archer, who has by far the largest amount of text (and therefore provides more chances for the probabilistic model to identify him), is the least recognizable character, with a relatively low accuracy of 0.627. This finding suggests that despite Archer’s significant amount of dialogue, his character is not easily distinguishable based on language patterns alone. Similarly, Lana, the second most important character, both in the overall storyline and in terms of dialogue share, is recognized versus the rest with a 0.796 accuracy. In contrast, Pam and Cheryl, who are secondary characters in Archer, are highly recognizable with accuracies of 0.911 and 0.928 respectively. This is an intriguing finding as it suggests that the language patterns used by secondary characters are more distinct and recognizable compared to the main characters. However, these two secondary characters do have a very particular style and are also extremely outlandish in their speech and behavior, which could contribute to their high recognition accuracy. Malory, who also displays a high accuracy, does clearly have a very particular style of speaking, being portrayed as an older, distinguished, highly sophisticated lady with a long past in the secret agent world.

Another outstanding result is that male and female characters display little differentiation in terms of language patterns. This result challenges the common assumption that male and female characters in television shows have distinct linguistic patterns. In fact, all of the women in *Archer* have very strong personalities and therefore use similar language patterns as the male characters. Lana, for example, is portrayed as a strong and independent woman who uses assertive and confident language, similar to the male characters in the show; she is said to have scarily big, strong hands, and is an extremely accomplished fighter and shooter. Similarly, Pam is depicted as a bold, confident, and outspoken character who engages in reckless behavior — including street fights, at which she excels— and regularly uses vulgar language, again blurring the lines between male and female characters.

<b>Character</b>	<b>Precision</b>	<b>Recall</b>	<b>F1-Score</b>	<b>Accuracy</b>	<b>Support</b>	<b>Supp. Splits</b>
<b>Ross</b>	0.791	0.817	0.798	0.817	10205	1825, 8380
<b>Rachel</b>	0.793	0.815	0.801	0.815	10205	1779, 8426
<b>Monica</b>	0.788	0.811	0.797	0.811	10205	1703, 8502
<b>Chandler</b>	0.784	0.807	0.793	0.807	10205	1727, 8478
<b>Joey</b>	0.808	0.824	0.814	0.824	10205	1629, 8576
<b>Phoebe</b>	0.811	0.835	0.820	0.835	10205	1542, 8663
<b>Male-Female</b>	0.647	0.647	0.647	0.647	10205	5024, 5181

Table 6. Character recognition metrics in Archer (Weighted AVG. Training set: 23,811)

The results for *Friends* is rather different. First of all, there are no significant differences among characters, as they all are recognized with very similar degrees of accuracy. Also, in general, the characters in *Friends* are less recognizable (median = 0.816) than they are in *Archer* (median = 0.863). This indicates that the characterization in *Archer* is more distinct and memorable for viewers compared to *Friends*. In terms of male-vs-female characterization, there are also important differences, as the accuracy is significantly higher in *Friends* (0.647) than it is in *Archer* (0.594). These findings suggest that the portrayal of male and female characters in *Archer* is

more fluid and less reliant on traditional gender stereotypes compared to *Friends*. Thus, the quantitative analysis using word embeddings and character recognition metrics reveals interesting findings about the portrayal of male and female characters in *Archer* compared to *Friends*.

## 5. CONCLUSIONS

This study has employed a combination of computational methods to explore the characterization of male and female characters in the television series *Archer* and *Friends* through the integration of sentiment analysis and advanced computational techniques such as word embeddings and Transformers-based sequence classification. In doing so, it has attempted to open new avenues of research into the way characters are construed in telecinematic discourse, and therefore needs to be understood as a first approximation to applying these methods to the study of characterization, as, even though a number of insightful results have been obtained, it barely scratches the surface of the possibilities it offers.

The metrics returned by the double analysis demonstrate that *Archer*, with its satirical tone and exaggerated character traits, engages in a more dynamic and critical exploration of gender roles than *Friends*. The characters in *Archer* often subvert traditional expectations through their actions and language, suggesting a deliberate critique of gender stereotypes and societal norms. For instance, female characters in *Archer* exhibit traits traditionally associated with masculinity, which is indicative of a progressive blurring of gender boundaries. This is contrasted with *Friends*, where character dynamics, although affectionate and supportive, generally reinforce traditional gender roles without significant critique or subversion.

Sentiment analysis results reveal that both shows employ a range of emotional expressions that contribute to the depth of character development but do so in markedly different ways. *Archer*'s characters, for example, use more intense and varied emotional language, reflecting the complex narrative style of the show. In contrast, *Friends* maintains a more consistent emotional tone, aligning with its more straightforward narrative approach.

The use of embeddings-based characterization highlighted that the individual linguistic profiles of characters in *Archer* are more distinctly defined than those in *Friends*. This suggests that the former provides a richer linguistic tapestry through which the nuances of character and identity can be explored, while the latter relies more on situational comedy and common dialogue to relay character traits, making its characters less linguistically distinct.

This comparative analysis underscores the potential of combining traditional and computational methods in media studies to uncover deeper insights into how gender is constructed and represented in popular culture.

It is also important to recognize the limitations of the methods followed in this study. First of all, although lexicon-based sentiment analysis has proven to be useful, a deeper dive into the characters' emotions would no doubt result in a finer analysis and offer more valuable insights into characterization mechanisms; therefore, emotion recognition is surely a productive path to be explored in the future. As for the embeddings-based analysis, we have used simple sequence classification, but modern large language models could be used to automatically obtain finer-grained character profiles and traits. On the other hand, the focus of the present study has been the application of these novel instruments to characterization, but no claim is made that this complex, multi-faceted endeavor can successfully be addressed by means of these strategies. These computational methods are fundamentally quantitative, and therefore not very well suited to account for the finer detail and subtleties of human communication, such as the expression of irony or sarcasm, often encoded in non-verbal cues that were unavailable in the corpus employed in this study. Thus, this study also lacks the deeper insights that multi-modal

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analysis offers, which would no doubt provide a more comprehensive and polyhedral perspective.

By acknowledging both the strengths and limitations of our methods, this study paves the way for future research that employs novel techniques to obtain measurable evidence that complement traditional corpus-based techniques and qualitative approaches. Furthermore, it would be worth exploring the possibilities that the methods used in this study have to be applied to other discourse analysis areas, such as political discourse, where the idiolect, tone, and linguistic particularities of leaders, as well as the press, play a crucial role.

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