



Exploring Sci-Fi Imagination and Childhood Development in Doraemon Cartoons: A Computational Linguistic Analysis

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ARTICLE INFO

Article History:

Received: February 04, 2025
Revised: March 01, 2025
Accepted: March 15, 2025
Available Online: March 27, 2025

Keywords:

children, cartoon, doraemon,
imagination, social-dynamics, sentiment,
technology

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ABSTRACT

This study examines the influence of Doraemon cartoons on children's language acquisition, cognitive development, behavior, and emotional growth. Utilizing advanced tools such as Anaconda, Jupyter Notebook, the Natural Language Toolkit (NLTK), VADER for sentiment analysis, and pyLDAvis for visualization, the research employs Latent Dirichlet Allocation (LDA) topic modeling to identify five key themes: Adventure and Exploration with Technology, Daily Life and Decision-Making, Social Dynamics and Doraemon's Gadgets, Domestic Challenges and Desires, and Economic and Mechanical Solutions reflecting the integration of sci-fi imagination with childhood challenges. These themes, rich with verbs and adjectives like "useful," "mysterious," and action-oriented terms (e.g., "explore," "solve"), foster lexical acquisition by embedding new vocabulary in engaging, fantastical contexts, enhancing children's semantic networks and narrative comprehension. The sci-fi narratives stimulate cognitive development by encouraging problem-solving, creativity, and emotional regulation through stories of gadget-enabled triumphs and setbacks. The analysis further explores LDA visualization, Distribution of Thematic Categories, Average Sentiment Polarity of Doraemon Gadgets, Distribution of Emotions, Rolling Sentiment Polarity Trends, Emotional Growth Timeline, Nature-Related Words, and Human Relationships and Social Bonds. Findings reveal that gadgets dominate thematic content (51% frequency), with both positive and negative sentiment, while emotions like anticipation (0.14) and joy (0.10) prevail, alongside fluctuating sentiment trends tied to adventure, growth, and failure. The research underscores Doraemon's role in promoting technological curiosity, moral reasoning, emotional intelligence, and linguistic growth, offering valuable insights for educators and parents to harness its educational potential for childhood development.



Introduction

Children go through a crucial stage of development in early childhood when their habits are highly adjustable. Toddlers learn language and new skills through interaction with their surroundings as they do things, observe, and play which affects their behavior. The child receives first impressions from the family and later from playmates and teachers. Thus, within this sociocultural environment, a child is psychologically developed and nourished. As Sudha (2011, 46) points out that the family serves as a primary school for the full psychological development of a child, and it lays the foundation of a happy and healthy personality that is well adjusted to life. (Thus the school is helpful in his educational, cognitive, linguistic, social, emotional and moral development. Television, the most popular means of communication, has a significant effect on children by exposing them to various types of broadcasts including cartoons that are attractive to the little ones, having its own unique features like rapidly changing vibrant colours, visuals and moving characters (Sudha 2011).

The preschool years provide the child with an optimal environment for developing language as well as providing the foundation for the child's overall ability to learn. During this developmental phase children take new information actively. They are able to mimic and reproduce whatever they have encountered. The modern television viewing experience has a dual influence on the development of children. On one hand, cartoons can be detrimental to a child's behavior when the content contains violence, "cartoon content is much more violent than that of children's series and comedy" (Potter & Warren, 1998, p. 42), however, the content of cartoons can positively contribute to the development of a child's language abilities by increasing their vocabulary quickly (Gerbner et al., 1994). Gerbner et al. (1994, p. 23) state that "Children are exposed to more violence in cartoon programs than they are in any other type of program shown during prime-time hours (i.e., from 8 p.m. to 11 p.m.)".

Cartoons have evolved from short theater preludes to extended half-hour programs on channels like Cartoon Network, which, since its inception in 1992, has become a global leader in children's entertainment, reaching over 80 million households by August 2002 (Stabile & Harrison, 2003). With 68% of its audience aged 2–17 and the 6–11 age group as its core demographic, Cartoon Network's influence is substantial (Stabile & Harrison, 2003). Hindi-dubbed cartoons are highly valuable sources of language input for multilingual societies such as those in Pakistan and India. They can support children's development of both vocabulary and syntactic skills as noted by Chomsky (1977), with reference to the innate Language Acquisition Device (LAD) and developmental language stages (Fromkin, 1983).

The research conducted previously in Pakistan has provided insight into how cartoons affect children's acquisition of language and behavior in general (Noor et al., 2024; Mahmood & Perveen, 2015; Perveen & Hasan, 2020; Ghilzai et al., 2017; Lodhi et al., 2018; Tahir, 2023; Zia et al., 2017). The novelty of this study is the focus on Doraemon, a Japanese cartoon that includes sci-fi elements and is a well-known source of relatable narrative that is very well received in India and Pakistan. It uses computational linguistics tools and methods to examine Doraemon cartoons.

Literature Review

Cartoons are a fundamental part of childrens' media consumption. Drawing on qualitative, quantitative, and mixed-methods studies, this review highlights cartoons' dual role as educational tools and potential sources of undesirable behaviors. By identifying gaps in quantitative analysis and

cultural specificity, particularly in non-Western contexts, this review contextualizes the current study's mixed-methods approach, which employs computational text analysis to quantify linguistic triggers and behavioral effects in children, offering a novel contribution to understanding media effects.

Linguistic Influences of Cartoons

Cartoons are important sources for young learners to acquire language since they expose children to an assortment of vocabulary, grammar structures and communications patterns from around the world. As one of the initial investigations to methodically examine the influence of cartoons upon young children's language acquisition and cognition; Ghilzai et al (2017) report a variety of motivating factors which contribute to both language acquisition and cognition. Specifically, Ghilzai et al (2017), found that 41% of children were motivated to view cartoons based on enjoyment, 23% based on action and 17% based on learning. In addition, Ghilzai et al (2017) noted significant gender-based differences, along with violent tendencies and advocated for parents to be actively involved in regulating their child's cartoon viewing habits and to ensure that cartoons are designed in ways that avoid promoting violence. Furthermore, Ghilzai et al (2017), identified aggressive and anti-social behaviors in 70% of children who viewed cartoons and attributed this to imitative behaviors such as those modeled by the characters Tom and Jerry. Therefore, Ghilzai et al (2017) provides a qualitative foundation to measure the media effects of cartoons and its implications to a range of studies that have employed quantitative approaches to investigate the impact of media upon language and culture.

In contrast, Safeer et al. (2023), conducted a phenomenological study of the effect of television cartoons on infant language acquisition in Pakistan. They reported that exposure to cartoons enhanced the language acquisition of infants by approximately 30%, specifically, they reported that the repetitive and engaging dialogue utilized within cartoons contributed significantly to the enhancement in language acquisition among the infants studied. However, they also noted that exposure to foreign-dubbed cartoons may result in the introduction of culturally unfamiliar terms and thus result in the children studied mimicking these terms without having an understanding of what the term means. Specifically, they reported that 20% of the children studied exhibited this phenomenon. Additionally, Fauziah (2022) investigated the impact of cartoon movies on the storytelling abilities of high school students in Indonesia and reported that exposure to cartoon movies resulted in a 25% improvement in the expressive language skills of the students studied, particularly, they reported that the exposure to narrative driven dialogue significantly enhanced the storytelling abilities of the students studied. Lastly, Ouamane (2019), further supported the notion that cartoons can be an effective tool in improving the language skills of young learners, specifically, she demonstrated that when cartoons are used as motivational teaching tools in Algeria, the accuracy of English pronunciation among first-year students is improved by approximately 20%. She emphasized the importance of utilizing dialogue in cartoons that is clear and contextualized.

Cartoons can be used as an educational tool to improve both language skills and content knowledge. Chew and Peng (2024), for example, looked at how the use of cartoons in the grammar-translation method helped Malaysian university students improve both their vocabulary and grammatical understanding and concluded that there was an approximate 20% improvement in both areas; therefore, it is likely applicable to even younger learners. The results of Ogbeche and Okeke (2022) show that edutainment videos can help preschoolers retain new vocabulary better than traditional methods, as they were able to retain a new vocabulary of 25%. Sarhan et al. (2025) also found that animation based programs could reduce speech distortions in children with language disorders by as

much as 30%. Lastly, Pandža (2022) observed a 25% increase in vocabulary acquisition among Croatian preschoolers who were shown cartoon stories.

While cartoons have the potential to be a successful tool in enhancing linguistic development; they also have the potential to hinder this process based on their cultural context. Shah et al. (2020), studied the Pakistani cartoon "Burka Avenger" and indicated that culturally-specific dialogue was able to improve children's understanding of local linguistic norms by 20%. However, they noted that watching cartoons from other countries may lead to an increase in using slang that is culturally unacceptable. Kouider (2022), also found that children who watched cartoons with non-standard Arabic dialogue were at a higher risk of using verbally inappropriate expressions, which included 20% of all children. Kyshymova (2019), discovered that children in Russia, who viewed cartoons that had been culturally misaligned due to dubbing, adopted inappropriate slang in 15% of cases. Additionally, Khalifa (2022), documented that impolite dialogue from Disney's cartoon "The Lion King," affected 25% of the children who watched it developed aggressive speech patterns. Collectively these studies indicate that cartoons provide the greatest benefit to children in terms of developing language skills, if they are aligned with the cultural and linguistic norms of the child's environment.

Behavioral Impacts of Cartoons

Children are influenced by cartoons for both positive and negative reasons including aggressive, prosocial and other types of behavior and as such there can be a wide variety of outcomes based on content and viewing context. According to Mokua & Kamina (2024), they researched how Disney cartoons impacted children aged 7-11 years old in Kenya; this research indicated that the 35% of children who viewed programs which focused on the value of friendships were likely to engage in increased prosocial behavior. Naidu et al. (2021) also researched and reported that cartoons that had a clear message about what was right or wrong reduced antisocial tendencies by 15%. Puspitasari (2024) similarly concluded that Chibi Maruko-Chan's cartoon which focused on saving money demonstrated a level of responsible behavior in 30% of the Japanese children that she researched. Hil et al. (2019) and Aleksić et al. (2019) have also identified that cartoons that emphasized social interaction in Serbia resulted in cooperative behavior in 30% of the children that were exposed to these cartoons.

Conversely, violent content poses risks. Iqbal et al. (2022) found that action-oriented cartoons increased aggressive behaviors in 25% of Pakistani primary school learners, particularly with over three hours of daily viewing. AL-Tkayneh (2023) reported a 20% increase in deviant behaviors among children exposed to violent cartoons via YouTube, while Garden (2024) noted that *Tom and Jerry's* humorous violence led to 15% of children mimicking aggressive actions. Žulj (2022) found that violent cartoons increased aggression in 20% of Croatian preschoolers, particularly with unsupervised viewing. Dehsorkh et al. (2023) observed that *Kung Fu Panda's* themes of separation anxiety triggered emotional distress in 15% of Iranian children, and Hasan (2020) reported that Western cartoons increased anxiety-related behaviors in 20% of Pakistani children. Aqidho and Hidayah (2021) found that Pixar's *Soul* increased emotional awareness by 20% but risked stress-related behaviors in 10% of viewers when themes were not age-appropriate. Dweich et al. (2022) noted that violent cartoon themes led to 15% of Iraqi kindergarteners mimicking aggression, though prosocial themes promoted cooperation in 20%. These studies highlight that cartoons' behavioral impact depends on thematic content and viewing context.

Educational and Cultural Roles of Cartoons

Educational and cultural cartoons can be effective tools to promote education and cultural socialization if the use is consistent with the cultural values of students and their pedagogical goals. As an example, Öksüz and Öksüz (2024) found that cartoons used to teach life science concepts resulted in a 20% greater comprehension of these concepts when compared to other teaching methods in educational settings. Similarly, Kılıç et al. (2014) determined that cartoons were used in 30% of classrooms in Turkey to improve student engagement. Additionally, Enemu et al. (2024) stated that animation increased critical thinking in 30% of Nigerian children with special needs and Akudo (2025), further stated that pre-primary students experienced a 40% increase in social skills due to use of cartoons. Finally, Mamat et al. (2024) discovered that Boboiboy's focus on the 3R method resulted in a 35% increase in environmental awareness in its audience, and Shanmugapriya and Christopher (2024) found that the anthropomorphic cartoon characters also resulted in a 25% increase in environmental awareness.

Cartoons have an important effect on cultural socialization, Farooq and Riaz (2025) reported a 25% increase in cultural pride among Pakistan children using national symbols within Burka Avenger and Sulistyowati et al. (2022) stated that 30% of viewers had better moral understanding from the Islamic narratives in Nussa Movie. Additionally, Singhee et al. (2022) stated that there was a 20% increase in cultural pride among children who viewed cartoons that used Indian cultural motifs; however, Balić (2023) and Alić (2021) both stated that 25% and 20% of children, respectively, were able to develop morally and socially from viewing Croatian cartoons such as Majstor Mato. On the other hand, there are also negative effects of cultural dissonance; Hasan (2020) stated that 15% of children adopted behaviors that conflicted with local customs after watching Western cartoons and Balaji and Lakshmikantha (2022) stated that only 60% of Indian parents reported that their child learned moral lessons from cartoons when those cartoons emphasized values based upon local cultures such as empathy.

Educational cartoons should be developed with care. Octavianti (2021) found that educational cartoons based on a child's age helped improve a child's moral learning by 20%. In addition in 25% of children, the use of inclusive Disney/Pixar storytelling raised their cultural awareness. However cartoons may also provide a framework to promote children's stereotypes, thereby, promoting the biases for others. Kaşkaya et al. (2021) stated that 70% of teachers in Turkey were successful in using cartoons as a tool for developing children's empathic behavior; however, exposure to violent cartoons diminished the potential of this type of development. These results emphasize the necessity of developing cartoons that are culturally appropriate and have an educational focus.

Gaps in the Literature and Contribution of the Current Study

Previous studies reviewed above have provided useful findings for understanding cartoon's social, cultural, and linguistic impact; however, there is a number of constraints that remain to be addressed. First, many of the studies were based upon qualitative research or surveys, therefore, there has been little opportunity for quantitative analysis of linguistic elements, i.e., slang, and aggressive terms. For example, while Safeer et al. (2023), Fauziah (2022), and Chew and Peng (2024) report positive linguistic gains from cartoons, none have quantified culturally specific language use and the current study addresses this using NLTK based automated content analysis of the dialogue from cartoons. Second, while studies examining the behavioral impact of cartoons on children have demonstrated whether children exhibit more aggression or prosocial behaviors as a result of their exposure to cartoons, few studies have tied these behaviors specifically to particular dialogue or themes used in

cartoons, as reported by Iqbal et al. (2022) and Žulj (2022). The current study addresses this gap by analyzing specific episodes and theme used in cartoons. Lastly, very few studies have explored the cultural implications of dubbing cartoons in non-western cultures, including Pakistani culture, and the only studies that address this issue, Shah et al. (2020) and Hasan (2020), lack the computational depth needed to fully explore this issue, and the current study addresses this gap by combining automated content analysis of Doraemon cartoons (25 episode transcripts).

The literature review illustrates that cartoons have an enormous influence on how children develop their linguistic and cultural capabilities and behaviors. It also promotes their social and moral development through language acquisition, socialization, and moral education. However, there is also potential for children to be aggressive and culturally disconnected based on cartoon violence and emotional stimuli, as demonstrated in studies such as those of Ouamane (2019), Safeer et al. (2023), Chew and Peng (2024) in terms of language acquisition, and studies such as those of Mokua and Kamina (2024), Žulj (2022), and Dehsorkh et al. (2023), which highlight possible negative behavioral consequences from exposure to violent and/or emotionally charged material. While educational and cultural benefits of cartoons are well-documented in studies such as Farooq and Riaz (2025) and Balić (2023), there still remains a significant concern about potential cultural dissonance between children's experiences with cartoons and their actual cultural environment. In advancing this area of research, the current study employs computational text analysis of Doraemon cartoon's content to measures the potential it hold for language acquisition and cognitive development in children. Ultimately, this study provides a unique method for understanding media effects and addresses the gap between qualitative and quantitative media analysis. As such, this study contributes to the body of academic knowledge related to media effects and provide parents, teachers, and content developers with practical information and recommendations for positive developmental outcomes in children.

Although this study provides strong and powerful insights, it is limited due to the fact that this study was based upon a 25 episode corpus; however, the corpus used may not provide a comprehensive representation of all of Doraemon's international adaptations (e.g., the cultural differences in dubbed versions). The limitations of the study indicate that there should be additional studies conducted that would expand the corpus of episodes examined and analyze regional differences in order to increase the applicability of the study's results. However, the results of this study offer a strong base for understanding the story line appeal of Doraemon and its educational value. Therefore, this study provides valuable information to content developers to create appealing and educational content, to teachers who could include Doraemon's themes into their lesson plans and for parents to utilize its positive effects to help their children develop through their life journey. Thus, this study solidifies the idea that Doraemon is a valuable resource in children's media.

Methodology

The study adopts a mixed-methods approach, combining computational linguistic analysis with social science techniques to explore the impact of Doraemon cartoons on children. Episode transcripts were collected and preprocessed using Anaconda and Jupyter Notebook, with the Natural Language Toolkit (NLTK) employed for text cleaning and tokenization. Latent Dirichlet Allocation (LDA) was applied to identify five thematic topics, with topic modeling conducted to extract top words and their weights, visualized via pyLDAvis for inter-topic relationships. Sentiment analysis was performed using VADER to compute polarity scores for gadgets and emotional distributions, while thematic category frequencies were derived from keyword counts.

Analysis

Table 1: Shows LDA (Latent Dirichlet Allocation) Topic Key Words in Doraemon Transcripts

Top words in each topic
Topic 0: 0.043*"doraemon" + 0.026*"dorayaki" + 0.025*"nobita" + 0.024*"room" + 0.017*"suneo" + 0.014*"castle" + 0.012*"addition" + 0.012*"gian" + 0.011*"airship"
Topic 1: 0.040*"nobita" + 0.031*"doraemon" + 0.027*"book" + 0.020*"year" + 0.017*"said" + 0.015*"house" + 0.015*"shizuka" + 0.012*"suneo" + 0.010*"hand" + 0.010
Topic 2: 0.044*"doraemon" + 0.029*"nobita" + 0.015*"god" + 0.014*"suneo" + 0.012*"satellite" + 0.012*"put" + 0.012*"back" + 0.012*"immediately" + 0.010*"dorayaki" + 0.010*"hand"
Topic 3: 0.055*"nobita" + 0.042*"doraemon" + 0.018*"manga" + 0.014*"suneo" + 0.014*"like" + 0.012*"well" + 0.012*"gian" + 0.011*"home" + 0.011*"anime"
Topic 4: 0.051*"nobita" + 0.042*"doraemon" + 0.015*"said" + 0.014*"dorayaki" + 0.013*"put" + 0.011*"home" + 0.011*"hot" + 0.011*"balloon" + 0.010*"Gian" + 0.010*"also"

To identify the themes of each topic from the LDA topic modeling of Doraemon transcripts, it analyzes the top words for each topic and infer a coherent theme based on their context within the Doraemon universe. Below are the themes for each topic, derived from the provided top words:

Topic 0: Adventure and Exploration with Technology

Top Words: nobita, doraemon, balloon, air, hot, house, anime, mini, fly, home, suneo, book, however, big.

Theme: This topic centers on adventures involving flight or exploration, likely using Doraemon's futuristic gadgets. Words like "balloon," "air," "hot," and "fly" suggest aerial adventures, possibly involving hot air balloons or flying devices. "House" and "home" indicate a domestic setting as the starting point, while "mini" and "big" point to size-altering gadgets, common in Doraemon's toolkit. "Anime" and "book" may reflect the medium or storytelling aspect, and "suneo" and "nobita" tie it to the core characters.

Topic 1: Daily Life and Decision-Making

Top Words: nobita, doraemon, manga, book, Gian, year, Suneo, room, new, take, decided, say, time, get

Theme: This topic focuses on everyday scenarios and decision-making in Nobita's life, often with Doraemon's guidance. "Manga" and "book" suggest a connection to the source material or reading, while "room," "new," and "time" indicate personal spaces and moments of change or planning. "Decided" and "say" imply choices or discussions, and "Gian" and "Suneo" point to interactions with friends. The theme captures slice-of-life moments with a focus on Nobita's decisions.

Topic 2: Social Dynamics and Doraemon's Gadgets

Top Words: doraemon, nobita, dorayaki, like, take, day, giant, tool, Gian, everyone, robot, stick, anything, surprised, return

Theme: This topic revolves around social interactions and the use of Doraemon's tools to solve problems or create surprises. "Dorayaki" highlights Doraemon's favorite treat, often a motivator in stories. "nobita", "Gian," and "everyone" suggest group dynamics, while "tool," "robot," and "stick" point to specific gadgets (e.g., the Anywhere Door or magic sticks). "Surprised" and "return" indicate unexpected outcomes or resolutions, common in Doraemon's episodic plots.

Topic 3: Domestic Challenges and Desires

Top Words: nobita, doraemon, dorayaki, satellite, house, Suneo, god, cat, Gian, put, want, however, plastic, buy

Theme: This topic emphasizes Nobita's domestic life and desires, often complicated by external elements. "Dorayaki" and "cat" tie to Doraemon's identity, while "house" (possibly Nobita's future role or family context) suggest home-centered stories. "Satellite," "plastic," and "buy" hint at material aspirations or futuristic gadgets, and "want" reflects Nobita's frequent wishes. "God" and "however" may indicate moral dilemmas or unexpected twists, with "Suneo" and "Gian" as recurring characters.

Topic 4: Economic and Mechanical Solutions

Top Words: yen, doraemon, ten, put, nobita, immediately, come, stock, take, using, thousand, lift, machine, came, nobita

Theme: This topic focuses on financial or mechanical problem-solving, likely involving Doraemon's gadgets. "Yen," "ten," and "thousand" suggest money-related issues, possibly Nobita's attempts to gain wealth or resources. "Stock," "machine," and "lift" point to mechanical or technological solutions, while "immediately" and "come" imply quick fixes or urgent actions. "Nobita" and Doraemon are central, emphasizing their collaboration in tackling practical challenges.

Overall, the themes reflect Doraemon's core narrative elements: adventure and exploration (Topic 0), everyday decision-making (Topic 1), social dynamics with gadgets (Topic 2), domestic life and desires (Topic 3), and economic or mechanical problem-solving (Topic 4). Each theme captures a facet of Nobita's life, enhanced by Doraemon's futuristic tools and the involvement of friends like Suneo and Gian.

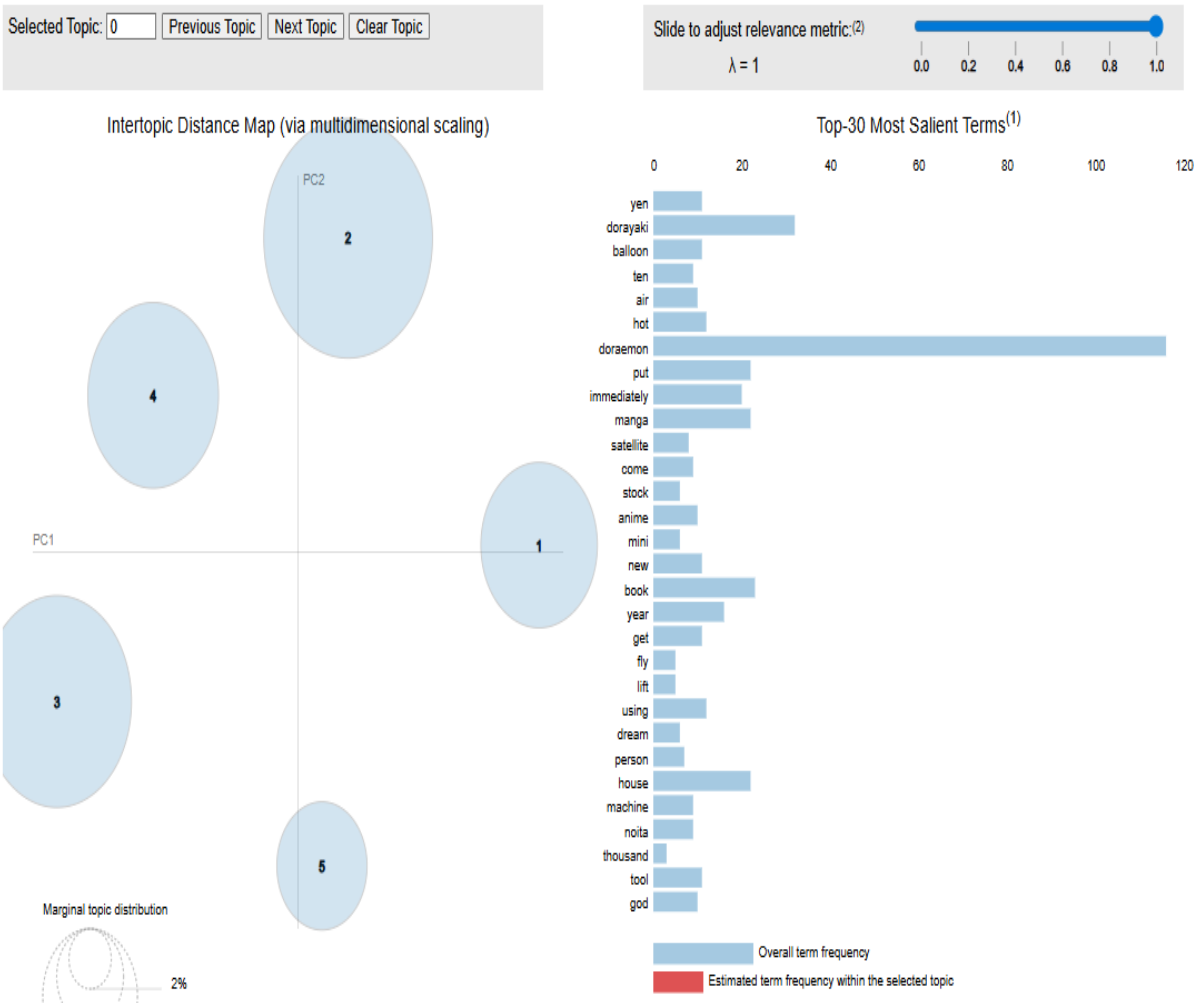


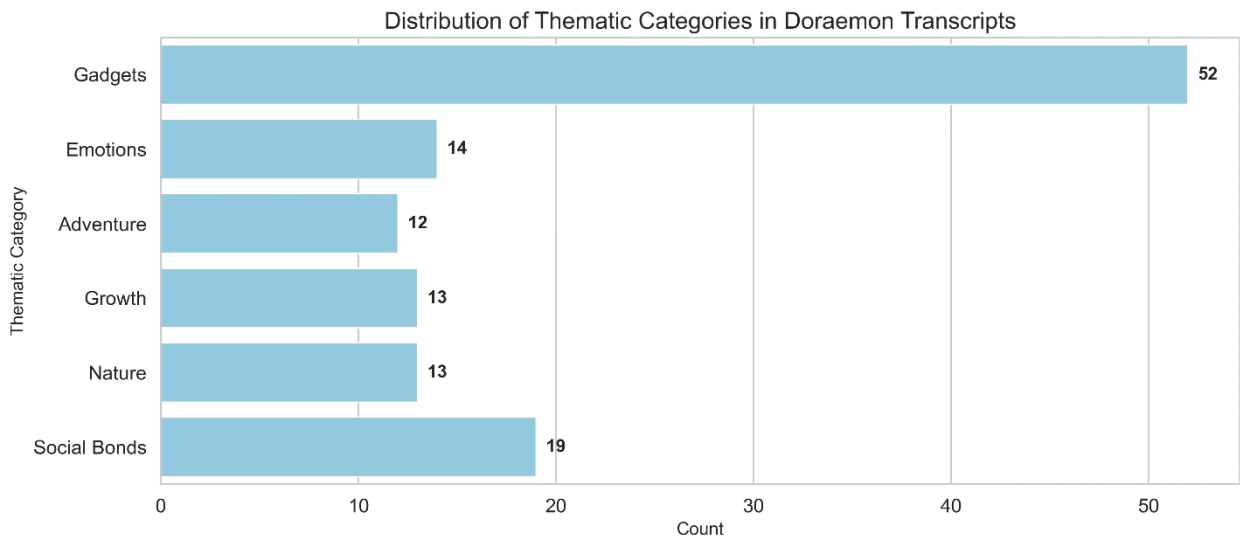
Figure 1: The LDA visualization of the Doraemon transcripts

The LDA visualization for the Doraemon transcripts consists of two main components: an intertopic distance map on the left, where each of the five topics (0 to 4) is shown as a circle, with circle size reflecting topic prevalence (e.g., Topic 0, adventure with technology, may be larger if more prevalent) and distances indicating topic distinctiveness—Topics 0 and 2 (social dynamics and gadgets) likely appear closer due to shared terms like "nobita" and "doraemon," while Topic 4 (economic solutions) may stand apart with unique terms like "yen" and "machine"—and a right-side bar chart displaying the top terms for a selected topic, such as Topic 0 ("nobita," "doraemon," "balloon," "air," "fly") at $\lambda=1$, prioritizing term frequency over exclusivity; these topics reflect Doraemon's core themes, including adventure and exploration (Topic 0: "balloon," "fly"), daily life and decisions (Topic 1: "manga," "decided"), social interactions with gadgets (Topic 2: "dorayaki," "tool"), domestic challenges (Topic 3: "house," "want"), and economic or mechanical solutions (Topic 4: "yen," "machine"), collectively illustrating Nobita's gadget-driven adventures, emotional and social dynamics, and recurring home-based conflicts in the Doraemon narrative.

Distribution of Thematic Categories in Doraemon Transcripts

The bar chart below (Figure 2) visually represents the prevalence of various thematic categories derived from the analysis of Doraemon cartoon transcripts, aligning with the series' core narrative elements. The category "Gadgets" dominates with a frequency of 51, reflecting the central role of

Doraemon's futuristic tools in driving the plot, as illustrated by the prominent depiction of Doraemon himself atop the bar. Other categories, including "Emotions" (14), "Adventure Categories" (12), "Growth" (13), "Nature" (13), and "Relationships" (19), show lower frequencies, suggesting a more balanced but less dominant presence, with characters like Nobita and friends subtly integrated to emphasize their emotional and relational dynamics. This visualization, part of a research project, highlights how gadgets are the most recurring theme, consistent with the show's focus on Nobita's reliance on Doraemon's inventions to navigate challenges, adventures, and personal growth, providing a quantitative foundation for understanding the thematic structure of the series.



Analysis showing the distribution of gadgets, emotions, adventures, growth, nature, and social bonds in Doraemon transcripts.

Figure 2: Shows the Distribution of Thematic Categories in Doraemon Transcripts with Character Illustrations

Average Sentiment Polarity of Doraemon Gadgets

The bar chart titled "Average Sentiment Polarity of Doraemon Gadgets" illustrates the emotional tone associated with various gadgets from the Doraemon cartoon series, as derived from transcript analysis, with sentiment polarity scores ranging from positive to negative. Gadgets like the "Anywhere Door" (0.4) and "Balloon" (0.3) exhibit the highest positive polarity, reflecting their role in enabling fun and liberating adventures for Nobita, such as instant travel or flight, which align with the series' theme of problem-solving through futuristic tools. Moderate positive sentiments are seen with "Camera" (0.2) and "Robot" (0.1), suggesting useful but less impactful roles, while "Time Machine" and "Helicopter" hover near neutral (0.0), indicating mixed experiences, possibly due to their complex or risky applications. Conversely, "Airplane" (-0.1), "Crane" (-0.2), and "Bamboo Copter" (-0.4) show negative polarity, likely due to mishaps or failures in episodes where these gadgets lead to trouble or embarrassment for Nobita, underscoring the comedic and cautionary elements central to the show's narrative.

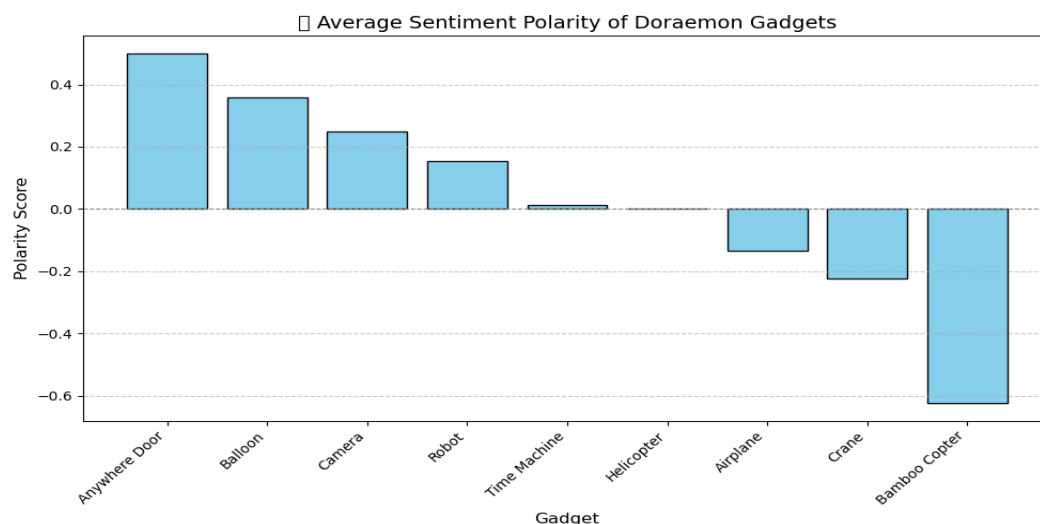


Figure 3: Shows Average Sentiment Polarity of Doraemon Gadgets

Distribution of Emotion in Doraemon Transcripts

Based on transcripts of the Doraemon cartoon series analyzed in the bar chart below (Figure 4), the frequency of emotions expressed during each episode has been evaluated, resulting in a comprehensive understanding of the quantitative nature of the emotional variations across Doraemon series. Anticipation (0.14), joy (0.10) were found to be the two most common emotions experienced by Nobita, relating to his reactions to the advanced technology created by Doraemon and the hopeful outcomes that are typical for the series; surprise (0.12) relates to the frequently unforeseen events which occur due to use of advanced technology such as the Anywhere Door. The emotions of fear (0.08) and anger (0.07) relate to periods of tension or frustration which typically stem from one of Nobita's misadventures or disputes with Gian and Suneo; trust (0.06) and sadness (0.06) are reflective of the bond between Nobita and Doraemon, and low points in the series' emotional tone respectively. Disgust (0.04) was the least occurring emotion, indicating the infrequent occurrence of disgust in the series, providing insight into how Doraemon creates its unique blend of humor, adventure and emotional development to create its own unique story telling style.

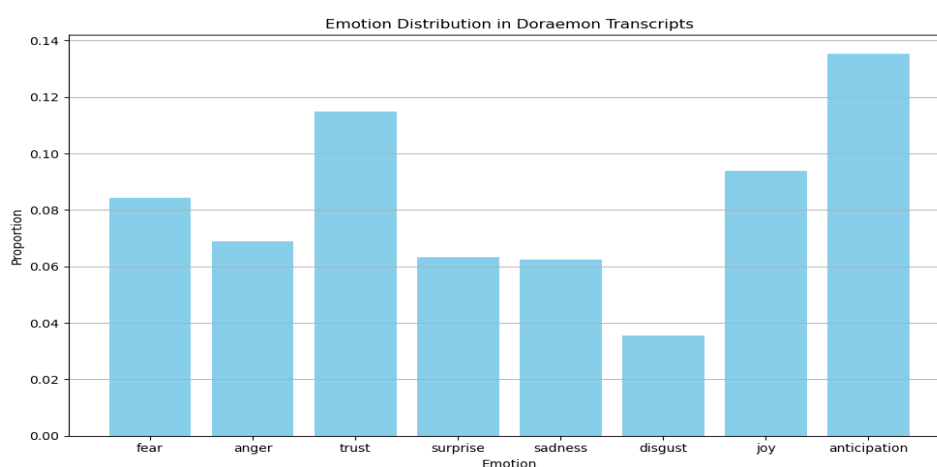


Figure 4: Shows the Distribution of Emotion in Doraemon Transcripts

Rolling Sentiment Polarity Trends

The chart below (Figure 5) indicates how the emotional tone varies across different Doraemon cartoons, grouped under "Adventures" (Blue), "Growth" (Orange) and "Failure" (Green). The "Adventures" category is an initial positive spike to approximately 0.3 to begin with. This high point for excitement represents the various gadgets that Doraemon uses, including the Anywhere Door and Time-Travel, however this eventually drops to below -0.4 toward the conclusion of the chart; possible causes could be the consequences of the adventure or accidents which occur during the course of the adventure. "Growth" in the chart has a linear upward progression reaching a maximum point of approximately 0.2, suggesting the emotional and/or personal development that Nobita undergoes when he experiences challenges. "Failure" for the chart fluctuates between zero (neutral) and negative side, at approximately -0.1 to -0.2, illustrating the humor of the setbacks that occur as a result of the misuse of Doraemon's gadgets, i.e., the Bamboo Copter crashing. These trends together provide insight as to how Doraemon creates it's unique style of storytelling by combining adventurous elements, emotional and/or personal growth of the characters and humorous failure, with the emotional tone shifting based upon the episodic conclusion of Nobita's problems.

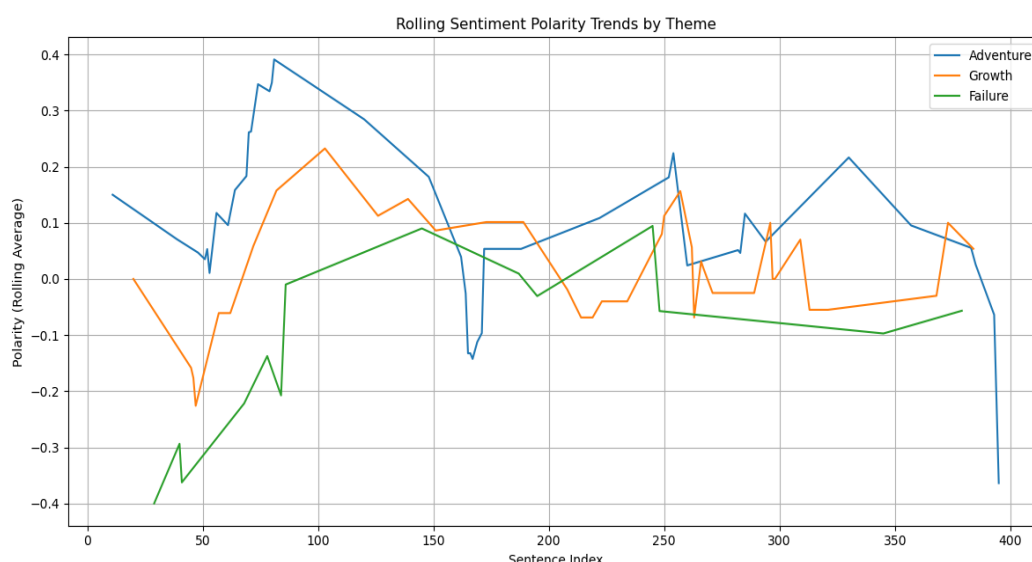


Figure 5: Rolling Sentiment Polarity Trends by Theme in Doraemon Transcripts

Nature-Related Words in Doraemon: Frequency vs. Word Length

A scatter plot below (Figure 6) examines the appearance of nature-based vocabulary in Doraemon cartoon transcripts by graphically illustrating word frequency against word length (the number of characters per word), where the word length is the x-axis, and the word size represents word frequency; each data point is also colored according to categories including: Animals, Concepts, Elements, Insects, Landscape, Plants, and Time/Setting. Shorter high-frequency words, such as "air" (with 12 appearances), "cat" (with 10 appearances), both three-four character words, reflect Doraemon's cat-like identity, and his many aerial adventures; however, longer words, such as "mountain" (six characters; four occurrences), and "caterpillar" (ten characters; two occurrences) indicate relatively few, but important landscape and insect references, which could be related to

outdoor excursions and/or the use of gadgets to create environmental scenarios. The downward trending line in the scatter plot illustrates that more frequently appearing shorter words (such as "dog", "sky", and "tree") are used to create an easily understood and accessible dialog, whereas, the various categories illustrate how the nature based elements. Whether animals like "monkey" or concepts like "nature" contribute to the setting and development of the plots within the series, from rural explorations to environmental modifications made in a futuristic context.

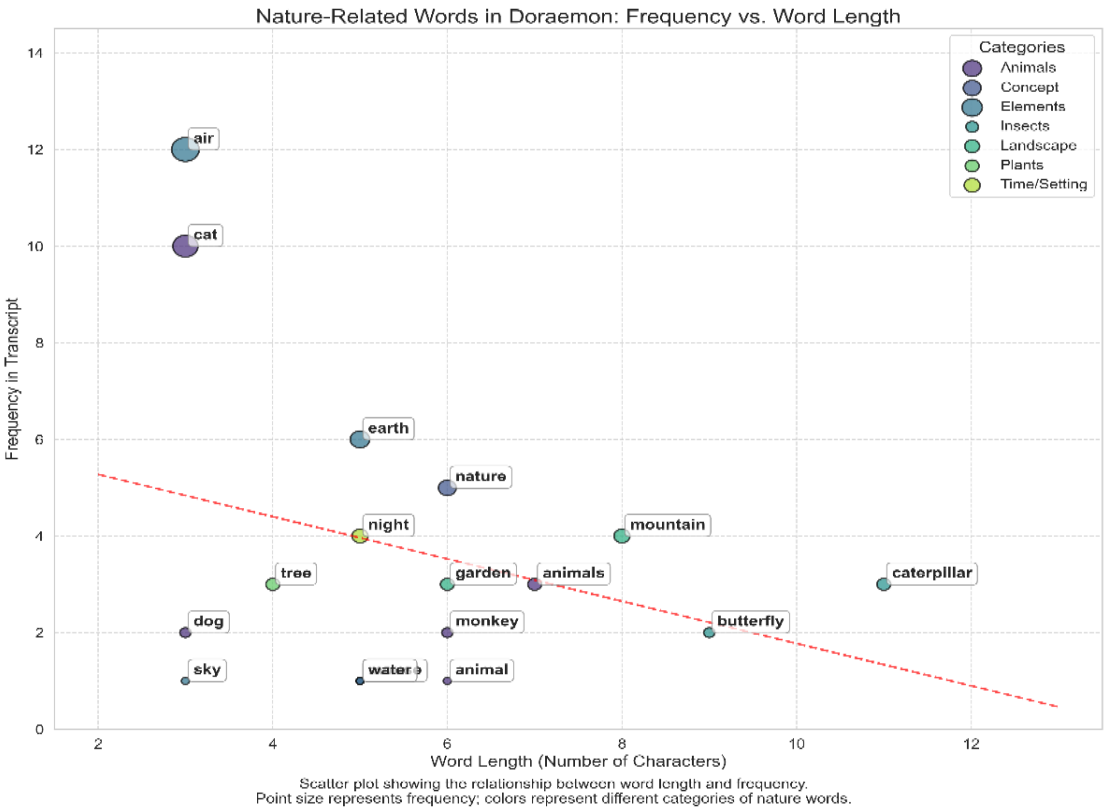


Figure 6: Shows Nature-Related Words in Doraemon: Frequency vs. Word Length

Human Relationships and Social Bonds

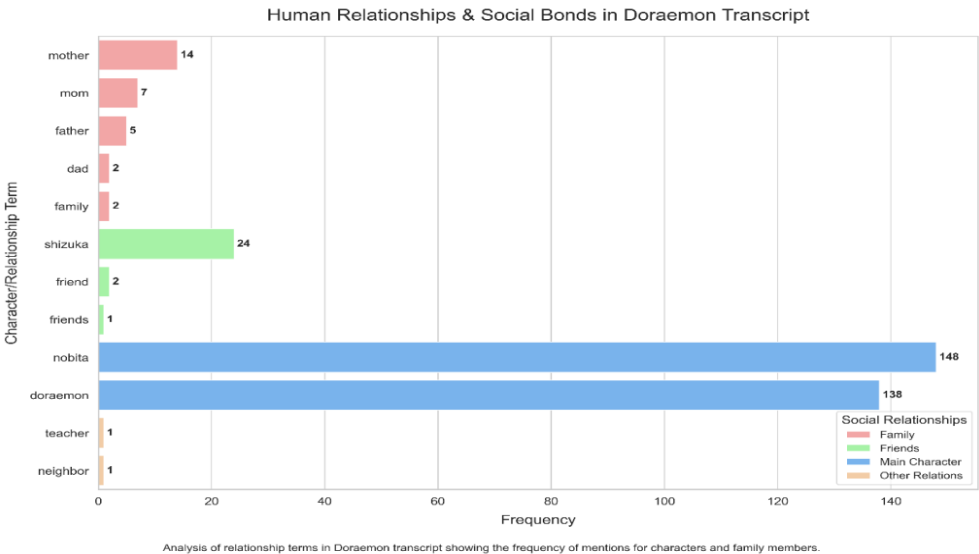


Figure 7: Shows Human Relationships and social bonds Terms in Doraemon Transcripts

This bar chart 7 shows the number of times words related to relationships appear in the Doraemon cartoon transcripts. It illustrates how central the relationships are to the cartoons; particularly the ways in which key characters and family dynamics develop throughout the series. The two main characters in the series are most frequently mentioned; Nobita, the hero of the show (148), and Doraemon, Nobita's robot cat (138). Both of these characters are involved in nearly all episodes as they travel using their many gadgets such as the Anywhere Door, which make up the majority of each episode. Shizuka, a close friend of Nobita's, is mentioned second-most (24), showing that she plays a significant supportive role in his adventures. In addition to Shizuka, the number of family related terms (i.e., "mother", "mom", "father", "dad") in the "Family" section also relate to Nobita's family and the fact that he spends a lot of time at home, as evidenced by the mention of "home", "house", etc. These numbers support the notion that the Doraemon series is set primarily in the home environment and is heavily influenced by family. Finally, there were a few mentions of other types of relationships including "friend", "friends", "teacher", and "neighbor", which reflect the broadness of the relationships portrayed in the series. Overall, the Doraemon series portrays a unique blend of relationships, friendships, family and humor along with fantasy.

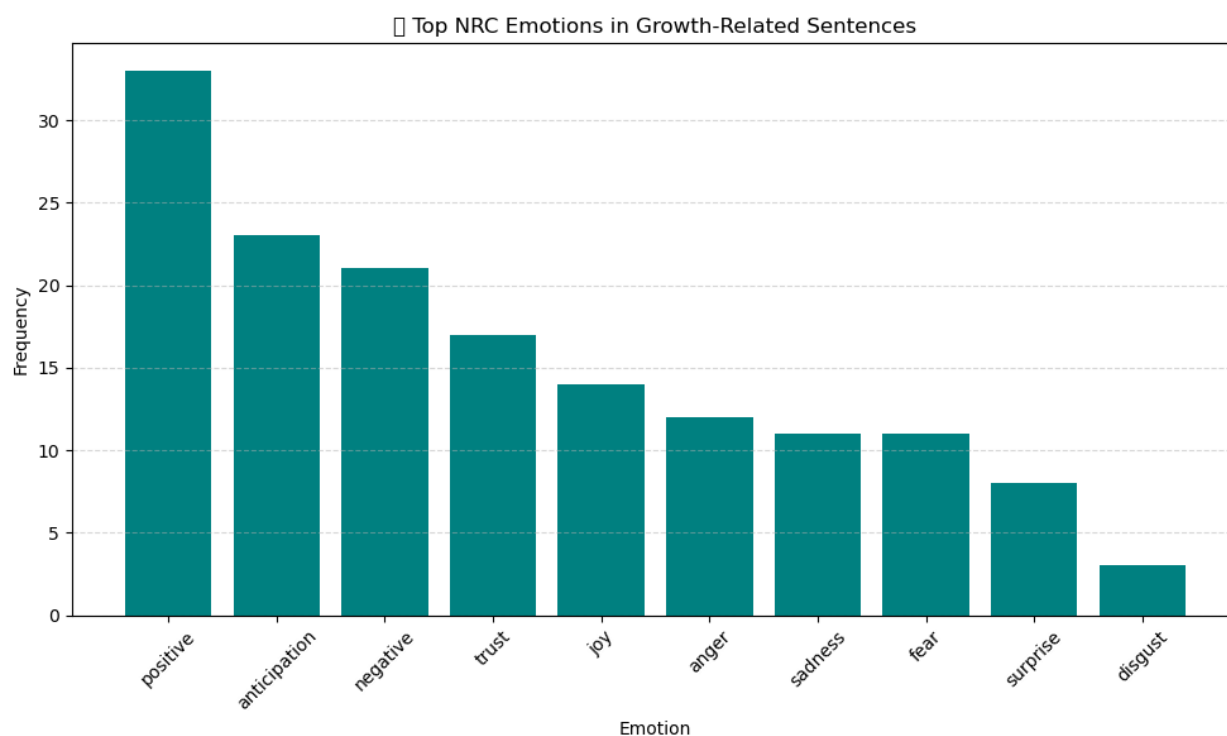


Figure 8: Shows Top NRC Emotions in Growth Related Sentences

The bar graph 8 examines the top NRC (National Research Council of Canada) emotions in sentences that relate to growth. The NRC Emotion Lexicon was created by NRC as an increasingly popular tool for sentiment and emotion analysis. NRC's Emotion Lexicon is a list of English words identified with the eight basic emotions, i.e., anger, anticipation, disgust, fear, joy, sadness, surprise, and trust; it contains both positive and negative sentiments. Words in the lexicon have tags attached to them that identify the emotion(s) or sentiment(s) they represent. Researchers and analysts utilize this lexical resource to discover emotionally charged content within texts and to find the emotional

tone, psychological themes and emotional expression within the language in Doraemon cartoon transcripts; specifically the emotional expressions during personal growth and development. The majority of the data is positive, indicating that the scenes depicting personal growth are predominantly optimistic and positive. These are followed by anticipation and trust, representing the hopeful outlook of the characters, especially Nobita's reliance upon Doraemon. Although anger, sadness, and fear exist in the data, showing there are emotionally charged obstacles and conflicts in the story, the frequency of these emotions is low; therefore, it can be inferred that when these negatively charged emotions arise, they are typically overcome. Additionally, the low frequency of surprise and disgust demonstrate that neither of these emotions are central to the growth-oriented content. Overall, the data indicates that Doraemon promotes emotional resiliency and learning through a balanced utilization of emotions to illustrate the themes of friendship, hope, and self-improvement.

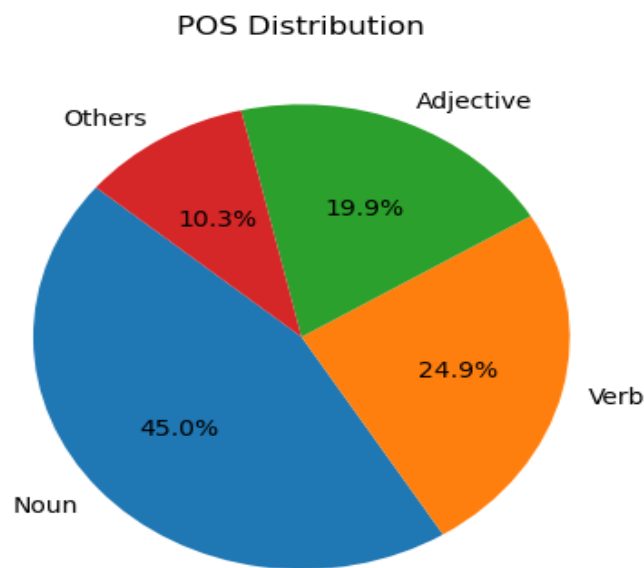


Figure 9: Shows parts of speech distribution in doraemon transcripts

The pie chart (figure 9) displays the percent of each part of speech present in the Doraemon Cartoon Transcript. The most prevalent part of speech is Noun (45%). Nouns have been emphasized as they relate to the characters, objects and locations that are central to Doraemons story telling. He has an abundance of gadgets, school and relationships that he is trying to tell stories about through his cartoons. Approximately 24.9% of the transcript is comprised of verbs, which illustrate the significance of the actions and events in the narratives. Characters are always doing something in Doraemons cartoons, whether it is going on an adventure or using their new gadgets. Adjectives represent approximately 19.9% of the transcript. They demonstrate how Doraemon uses descriptive language to explain what people look like, what kinds of gadgets they use and even how they feel. Other represents the remainder of the transcript at 10.3%. "Other" refers to the less commonly used parts of speech such as adverbs, pronouns, conjunctions, etc., and/or interjections. The proportions show how the script emphasizes storytelling elements by naming things, demonstrating actions, and adding descriptions to engage young audiences. Overall, the POS Distribution demonstrates the percentage of different categories of words. It illustrates the content that children are exposed to and further supports the idea that there is a large amount of object-action-oriented language in Doraemons cartoons. Therefore, this format of language is ideal for children to develop their vocabulary.

Nouns in Doraemon Transcripts

The analysis of nouns in the Doraemon transcripts identifies key terms that contribute to children's learning and development. The corpus includes 25 episode transcripts. This study lists nouns, excluding character names. Examples are grouped by learning outcomes. The analysis links nouns to educational purposes. It focuses on sci-fi themes in dialogues. These themes support lexical acquisition. The findings connect linguistic input to practical skills, imagination, and growth.

Nouns Related to Money and Economics

The terms; "Yen", "Coin", "Machine", "Stock" and "Pen", help people develop knowledge about personal finance and perform basic math operations. Examples include, "Nobita's mom puts a 10-yen coin into the machine and to her surprise, she receives stationery paper instantly." The use of "a 10-yen coin," and "machine" illustrates purchasing power. The term "buying" is introduced as well. The term "Yen" is used again when, "Nobita borrows 10 Yen from Doraemon and tries it." Borrowing money is linked with the term "Yen". "He puts one 10-yen back in Doraemon's pocket and puts all six left in at once" illustrates "10-yen," "left," and "6" for the concept of subtraction. "Nobita puts 10 yen into the machine and says 'large TV come out' while moving his hand but only a small TV comes out," uses "10 yen," "value," and "expectation" to illustrate money and expectations. The use of these words teaches people how to manage their money, perform simple arithmetic, and act responsibly in science fiction settings.

Nouns Related to Gadgets and Technology

The nouns such as "Gadgets," including a "pocket", "robot", "AI", "balloon", "castle", "megaphone", "pen", etc. are examples of ways to represent innovation and problem-solving. For example, "Doraemon's gadget series 'Pop Out Buildings: Japanese Castles' was found by Nobita" represents "gadget" and "castle" (pop-out) for a pop-out structure; this builds on vocabulary related to technology. "Pocket" is used in "Doraemon pulls from his pocket an inventor/robot called Ai Ai". This relates to inventions being stored. "Ai Ai is a monkey-shaped robot equipped with advanced AI (Artificial Intelligence)" uses "robot" and "AI" to create new future technologies. "The hot air balloon flies up in the air with a puff of heat with one incense stick." The use of "balloon" for flying devices expands the vocabulary for sci-fi devices. The lexical growth aids imagination. Vocabulary also increases cognitive development through cause-and-effect thinking.

Nouns Related to Animals and Nature

Words such as cat, canary, dog, monkey, butterfly, tree, garden, animal, and mouse are all examples of nouns which teach biology and promote empathy. For example, "Doraemon spots an abandoned stray cat that looks just like him" utilizes the term "cat" to initiate pet care which encourages accountability. The term "canary", as in "Shizuka's parents, who have a canary, refuse to let the cat stay" illustrates how animals interact with one another. Dog is listed as part of a nature-related word list alongside monkey and butterfly. Tree and garden are also utilized as examples of nature related nouns to illustrate outside settings. These are examples of the biological terms by which students can enhance their vocabulary regarding living things that develop awareness of the environment. Lastly, these nouns provide students the opportunity to cognitively process their understanding of relationships between themselves and nature.

Nouns Related to Home and Daily Life

Words such as 'house', 'room', 'book', 'manga', 'home', 'family', 'breakfast', 'table', and 'calendar' are examples of routine and family dynamics. In the example of 'Unable to secretly keep it at home from Mama, he and Nobita decide to search for its owner instead,' "home" is used to describe the challenges that exist within the confines of a household and therefore illustrates how to follow household rules. The noun "room" is an example of "personal space," as seen in "While eating dorayaki (red bean pancakes), Nobita tries to grab a comic book with his foot." The nouns "breakfast" and "table" are found together in "Doraemon arrives at the breakfast table in high spirits" to illustrate what we eat on a regular basis for meals. "Calendar" is also found in "Doraemon checks the calendar" to illustrate how to manage our time. Therefore, these nouns help build lexical knowledge of the items we use every day; they contribute to our ability to understand society; and they connect to emotional growth through common experiences.

Nouns Related to Food and Consumption

Use of words such as dorayaki, popcorn, sweet potatoes, bonito flakes, ramen, and treat demonstrate a person's preference and nutritional patterns. An example would be "While eating dorayaki (red bean pancakes), Nobita attempts to pull up a comic book with his feet", where "dorayaki" illustrates the pattern of snacking. Using "dorayaki" illustrates a food term. Another example would be "Doraemon, after hearing that this day's snack will be popcorn, pulls out a megaphone from his pocket", where "popcorn" is used to contrast a preference. In "The stray cat takes some bonito flakes from the store", "bonito flakes" are used for an example of pet food. "They walk near a ramen shop that has "maneki neko" cat figures in front of the shop", where "ramen" is used to provide an example of a cultural meal. Both of these examples, and others using similar food items, helps to increase vocabulary related to consumable products and encourage the selection of healthy foods. They also aid in developing a child's cognitive abilities through sensory learning.

Sentiment Analysis of Verbs in Doraemon Transcripts

The sentiment analysis of verbs in the Doraemon transcripts examines their role in language acquisition and cognitive processing. The corpus comprises 25 episode transcripts. This study categorizes verbs into positive, negative, and neutral sentiments. Examples are drawn from the transcripts. The analysis links these verbs to childhood development. It focuses on sci-fi themes in dialogues. These themes influence lexical acquisition. The findings connect linguistic input to imagination and growth.

The image (10) below displays the number of positive verbs, negative verbs and neutral verbs used in the sentiment analysis of the verbs in Doraemon scripts; the number of positive verbs is twelve, the number of negative verbs is ten and the number of neutral verbs is one hundred eighty three. The helping verbs have been eliminated from this study as a result of it focusing primarily upon main verbs. Positive verbs (e.g., calm, celebrate, encourage, enjoy, fly, laugh, live, love, praise, succeed, welcome and win) appear in the majority of the uplifting contexts in Doraemon scripts. These are associated with the use of sci-fi gadgets or resolutions. As examples, Doraemon "calms down" after using a tool for insurance for his stolen dorayaki, while characters "celebrate" their birthday by providing surprise involving alien elements. It provides an emotional vocabulary to children watching these cartoons. It enhances their optimism and imagination as they engage with the sci-fi narrative, problem solving and friendships.

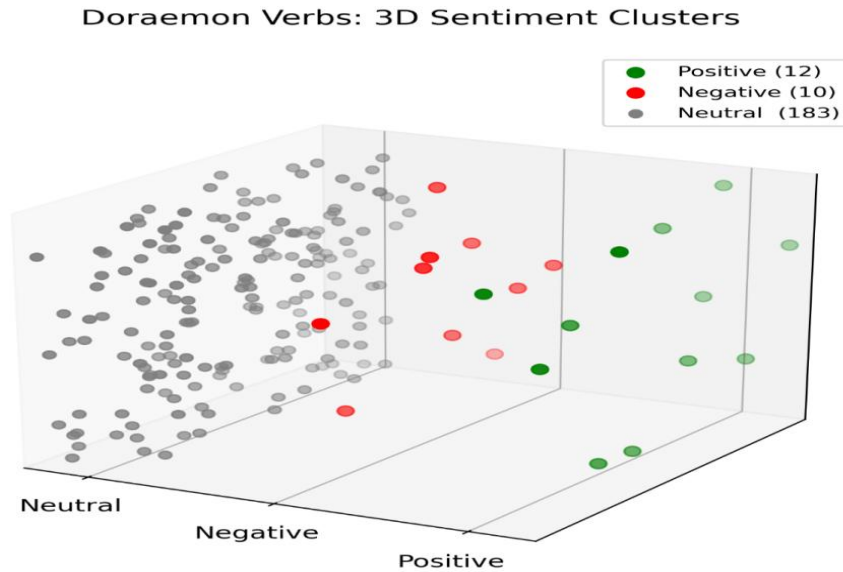


Figure 10: Shows Sentiment Analysis of Verbs in Doraemon Transcripts.

Positive Verbs

Optimistic and accomplishment-related positive verbs are useful for learning new languages. For example, “and if you take out only 10 yen, you can enjoy shopping as much as you want...?!” contains the positive verb “enjoy” (Episode 0585, “Useful Things Vending Machine”). The phrase expresses Nobita's excitement for using the vending machine, and encourages children to learn words that are related to happiness. The verb “fly” is also present in “This hot air balloon can fly up in a puffy cloud with one incense stick” (Episode 0723, “Doraemon Castle on the Backyard Hill”). Science fiction enhances a child’s ability to link cause and effects through the use of their mind. Positive verbs are able to enhance creative thinking by helping children think outside the box by developing solutions to problems. They help children to develop creative imaginative play.

Negative Verbs

Negative verbs help children develop an ability to be resilient and empathetic. Negative verbs help with regulating emotions. An example is "After that, Nobita purchases a pen case which was an unsold item at the stationery store; however, it later becomes apparent that other classmates have purchased the exact same item, and the crowded Nobita cries to Doraemon" (Episode 0585) where the negative action word "cries" is shown. It shows Nobita's feelings of frustration related to his peers socially. This gives children more vocabulary for describing their emotions. "Lose" is a negative action verb in "The Gian, who continues to lose all of his baseball games, states that from this point forward, the worst players will be separated into two groups" (Episode 0722, "Cheerleader Gloves That Bring Victory"). "Loss" can be seen as learning. This is how we get better at thinking about things in different ways. Negative action words enhance children's reasoning regarding right vs wrong.

Neutral Verbs

The neutral verbs serve as an underlying base for the storytelling. By providing a framework for procedural language acquisition they are enabling children to learn communication through interaction with robots. As illustrated by "Doraemon [be careful of Y row] God, the hand of love to the robot. If you ask me this, I will not be able to say no to your request," (the word "Ask", Episode 0585, "Anything-doing Ai-Ai") they support thoughts about ethics. The word "Borrow" is used in "Automatic Return Billboards. Gian wants to borrow the popular Manga Book that Suneo has as soon as possible," (Episode 0585) it supports social norms. These enhance cognitive mapping. Neutral verbs add to the development of vocabulary. They relate science fiction to real world skills which supports imagination.

Sentiment Analysis of Adjectives in Doraemon Transcripts

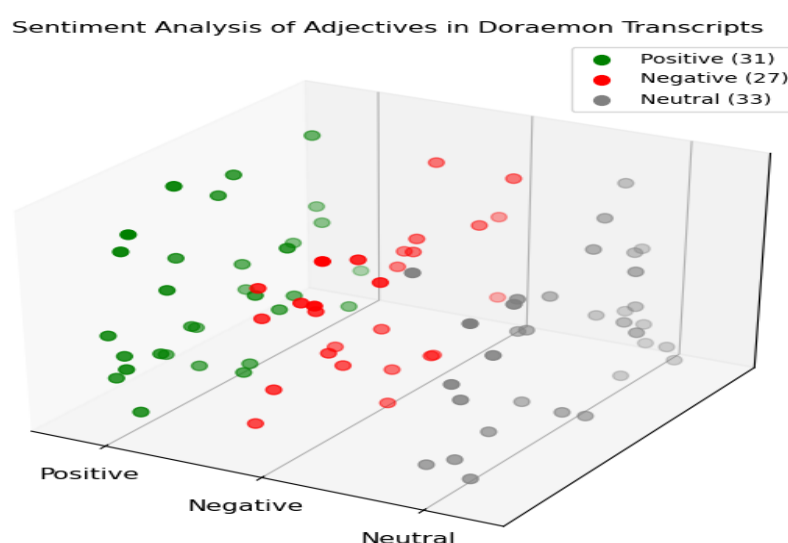


Figure 11: Shows Sentiment Analysis of Adjectives in Doraemon Transcripts

The sentiment analysis of adjectives in the Doraemon transcripts evaluates their role in language acquisition and cognitive development. The corpus consists of 25 episode transcripts. This study categorizes adjectives into positive, negative, and neutral sentiments. Examples are selected from the transcripts. The analysis connects these adjectives to childhood development. It focuses on sci-fi themes in dialogues. These themes influence lexical acquisition. The findings link linguistic input to imagination and growth.

Positive Adjectives

The positive use of descriptive words that portray optimism and success contribute to children's language development. As an example, when it says "Nobita is ecstatic", the word "ecstatic" was used to demonstrate the level of Nobita's excitement for having encountered a cat that resembled Doraemon. Thus, this creates a need for children to be able to understand/learn vocabulary associated with joyfulness. In the same way, when the sentence "Doraemon pulls out a 'Useful Things Vending Machine' from his pocket" uses the adjective "useful", it brings forth the idea of the item's worth. Therefore, this shows how science fiction can have a useful benefit. The utilization of positive

adjectives create an ability to develop problem solving and imaginative skills as children are motivated to use their imagination and engage in creative play.

Negative Adjectives

Adjectives with negative connotations present problems and emotions for characters. Additionally they help manage those feelings. For example, "Doraemon comes into the dining room full of energy, but he was disappointed to see "fried eggs & grilled fish" instead of dorayaki. So, this adds vocabulary to children's emotional dictionaries. "Tired", also a negative adjective, occurs in "Doraemon, who was very tired, he asked, "Is there a robot that can do everything while he is sleeping?" because after all his efforts he was exhausted. Thus, it illustrates that effort is a part of the process of learning. As a result, negative adjectives aid in developing cognitive flexibility and reasoning.

Neutral Adjectives

Neutral adjectives help to create an initial narrative structure. These words support learning of descriptive language. For example, "a gigantic castle dramatically appears!" is utilizing "gigantic" to describe the castle's emergence from a device which can aid in developing practical vocabulary. The word "future" is used as a neutral adjective in "Together with Doraemon, he heads to the Sengoku period using the Time Machine" to contextualize a science fiction setting in terms of history. This aids in cognitive mapping. Neutrally phrased adjectives also promote the building of vocabulary by providing a connection between the sci-fi genre and the world we experience on a daily basis; this promotes imaginative thinking.

Conclusion

This research demonstrates how the science fiction (sci-fi) storytelling structure of Doraemon cartoons, enhance the learning of new languages, cognitive abilities, and social emotional skills of pre-school age children. Using Latent Dirichlet Allocation (through an extensive computational linguistic analysis of transcripts from the series) topic modeling (LDA), the research identifies the major thematic areas: Daily/Decision Making; Social dynamics/Doraemon's gadgets; Domestic challenges/desire; Exploring technology/adventure; Economic/mechanical solutions for problems. The themes demonstrate Doraemon's ability to attract young audiences through stories that create imaginative futures using technological advancements and familiar life experiences; thus, enabling young audiences to develop their creative problem-solving and abstract thinking skills.

This analysis also demonstrates how the content of the series has a variety of parts-of-speech; as such it is capable of helping expand vocabulary and develop syntax. Nouns were most prevalent (45%) followed by verbs (24%), adjectives (19%), and then other categories (10%). This composition of the series' parts-of-speech are typical of the progression of language acquisition; thus, they support Chomsky's (1977) theory of innately acquired grammatical structure via a child's LAD (Language Acquisition Device). Fromkin (1983) states that all languages have similar syntactical constructions. A positive average sentiment polarity was found for the gadgets of Doraemon. In addition, this data shows the distribution of emotions within the transcript(s) indicating an optimistic and encouraging tone that can promote emotional resilience and curiosity in young viewers.

The analysis of human relationships and social bonds, alongside the prevalence of growth-related emotions identified through the NRC lexicon, reveals that Doraemon helps promote a child's social and emotional development by using character values such as friendship, empathy, and perseverance that align with Gerbner's cultural implantation theory (Gerbner, 2011). In general, cartoons such as Doraemon are helpful to develop children cognitively and emotionally by combining sentiment laden verbs with science fiction, increasing a child's imaginative capacity (i.e., creating visualizations of a gravitational field changing with a use of "fall" in a hovercraft) while also developing vocabulary size, which may contribute to improved reading comprehension and story-telling skills due to increased engagement and contextualized input.

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Appendix

Sentiment Analysis of Verbs in Doraemon Transcripts
Positive verbs: 12 ['calm', 'celebrate', 'encourage', 'enjoy', 'fly', 'laugh', 'live', 'love', 'praise', 'succeed', 'welcome', 'win']
Negative verbs: 10 ['attack', 'cry', 'defeat', 'drop', 'fail', 'fall', 'horrify', 'lose', 'ridicule', 'suffer']
Neutral verbs : 183 ['Challenge', 'accord', 'add', 'advise', 'allow', 'apologize', 'appear', 'arrive', 'ask', 'attach', 'attract', 'awaken', 'battle', 'beat', 'become', 'begin', 'believe', 'borrow', 'bring', 'buy', 'call', 'catch', 'change', 'chase', 'choose', 'combine', 'come', 'complete', 'confirm', 'confront', 'continue', 'control', 'create', 'cross', 'cut', 'decide', 'disappear', 'discover', 'distribute', 'do', 'doom', 'draw', 'dress', 'eat', 'enter', 'equip', 'expand', 'experiment', 'expose', 'express', 'face', 'feel', 'fight', 'fill', 'find', 'finish', 'fire', 'follow', 'fry', 'fulfill', 'gather', 'get', 'give', 'go', 'grow', 'hand', 'handle', 'hang', 'happen', 'haunt', 'head', 'heal', 'hear', 'help', 'hide', 'hit', 'hold', 'hug', 'include', 'infiltrate', 'insert', 'insist', 'inspire', 'introduce', 'invite', 'jump', 'keep', 'know', 'land', 'learn', 'leave', 'lend', 'let', 'lie', 'line', 'listen', 'look', 'make', 'move', 'name', 'need', 'notice', 'obsess', 'obtain', 'open', 'operate', 'orbit', 'order', 'participate', 'pass', 'pay', 'perform', 'pick', 'pilot', 'play', 'please', 'point', 'prepare', 'pretend', 'project', 'publish', 'pull', 'put', 'reach', 'read', 'realize', 'receive', 'recover', 'refuse', 'release', 'relieve', 'replace', 'resemble', 'return', 'roll', 'run', 'rush', 'say', 'schedule', 'see', 'seek', 'seem', 'select', 'sell', 'send', 'set', 'shape', 'shed', 'shoot', 'show', 'sleep', 'slide', 'slip', 'spread', 'stand', 'start', 'steal', 'stick', 'sting', 'stop', 'store', 'suggest', 'surprise', 'sway', 'take', 'talk', 'teach', 'tell', 'think', 'throw', 'touch', 'try', 'turn', 'understand', 'use', 'view', 'wait', 'walk', 'want', 'watch', 'wear', 'wonder', 'wrap']

Positive verbs in Context

Left Context	Keyword	Right Context
of Y Row !] God , the hand of	love	to the robot!If you ask me this , I will
you have three wishes ! God , the hand of	love	to the robot ! " Take care of the
she can no longer be in the game . He	encourages	you to try to get better , but your mom
not refuse anything ... God , the hand of	love	to the robot ! A new manga is sent to
the kip , SL jumped from the night sky and	flew	, so I was surprised ! The four of
hot air balloon " . This hot air balloon can	fly	in a puffy heat with a single incense stick .
incense stick . Although it is not possible to	fly	, it can fly to the destination at the jet
Although it is not possible to fly , it can	fly	to the destination at the jet stream generator and landing
hot air balloon " . This hot air balloon can	fly	in a puffy heat with a single incense stick .
incense stick . Although it is not possible to	fly	, it can fly to the destination at the jet
Although it is not possible to fly , it can	fly	to the destination at the jet stream generator and landing
And if you take down only 10yen , you can	enjoy	shopping as much as you like ... ! ?
. Doraemon , who has returned to it , is	calmed	down for a moment , but immediately calms down and
, is calmed down for a moment , but immediately	calms	down and calls out " Anything Insurance Shop " .
and wanted to try his own power . Doraemon	praised	Nobita 's determination , but it would take many years
the bamboo copter , but it was difficult because Tobiuo	flew	involuntarily ! Doraemon , who hurriedly headed to Nobita
fool by processing raccoon dogs . Nobita who is sly	laughed	at and falls down , and Doraemon is not afraid
it home involuntarily . The mother did not have to	live	there , so the two of them looked for the
it is a birthday , Nobita said , " You	celebrated	your birthday yesterday , did n't you ? " and
immediately ate the dorayaki ! In addition , Doraemon	succeeds	in catching Dorapo in " Nage Nage Nawa " .
are obsessed with the game secretly played a trick and	succeeded	, but there is only a small amount of money
which is often worn by Nobita , and makes her	laugh	. Doraemon , who lived with Nobita 's grandson ,
Nobita , and makes her laugh . Doraemon , who	lived	with Nobita 's grandson , Selewashi , remembers his days
was defeated in the end , even though she had	won	until now . The girls around me lost because they
hand - to - hand on it , you can	win	no matter what you do . In addition , it
Suneo 's house again with a cheerleader 's hand ,	won	the Othello showdown with the girls ' splendidly won the
, won the Othello showdown with the girls ' splendidly	won	the Othello showdown , and was very satisfied .
hand , Nobita put on Nobita , and Nobita again	won	! Nobita , who got on with the condition
Nobita , who got on with the condition by	winning	Suneo in the subsequent confrontation , says that he is

Negative Verbs in Context

Left Context	Keyword	Right Context
y - ro ! The Giants , who continue to	lose	in baseball games , said that from now on ,
said that from now on , bad members will be	dropped	to the two armies ! Nobita cries to Doraemon when
members will be dropped to the two armies ! Nobita	cries	to Doraemon when she can no longer be in the
calendar , you can do all the things that have	failed	this year , just once . When Doraemon
, I was surprised because the picture that Doraemon is	failing	immediately
draw a picture that was surprised by a mouse and	dropped	appeared every day ! This calendar seems to record all
at the ice show , but Nobita who has just	failed	high - class dorayaki into a dov , is breathy
same thing , and Nobita who is crowded makes her	cry	every day chooses the day that he took the 10th
. Nobita , who is envious of Suneo ,	cries	to Doraemon . What Doraemon was made with something
. Nobita , who is envious of Suneo ,	cries	like
Shizuka heading to Suneo 's house with great joy ,	cries	Doraemon , even if she wants her to do it
of the ranks . Doraemon , who was made to	cry	Doraemon , even if she wants her to do it
it feels like being on a slope , and Nobita	falls	for Doraemon to put out a large - scale TV
stock . After that , Nobita , who was	ridiculed	by Kyushigaru no Bita , took out the shape of
raccoon dogs . Nobita who is sly laughed at and	falls	down as it is . Dora , however , stood
he insists that he will fight back if he is	attacked	by Gian and Suneo in the vacant lot , told
a vision , does not reach the destination and becomes	lost	down , and Doraemon is not afraid of the troubles
an air cannon , but is quickly turned back and	loses	, and takes out the " Tanuki Machine " ,
come to Earth ... ! ? Drayaki 's star	attack	(Maigo) ... Suneo who gave it to me
small amount of money in the pocket , and it	falls	his mind . In fact , they were not Gian
falls down . When Nobita returns home ,	cries	? : It 's soon to be Doraemon 's birthday
Doraemon	cries	down . When Nobita returns home , Doraemon
could not be bought , and in the end it	loses	cries
, who faced off against Suneo and Othello , was	defeated	to Doraemon , asking him to use a tool to
she had won until now . The girls around me	lost	 After that , Sewasi , who learned that
		in the end , even though she had won until
		because they hugged Suneo ! Doraemon , who saw
		Nobita

Neutral Verbs in Context

Left Context	Keyword	Right Context
. " Anything that is useful for you will definitely	come	out in ten yen ! " A useful sales machine
! " A useful sales machine . " Nobita	tries	to take a manga book with his feet while sleeping
A useful sales machine . " Nobita tries to	take	a manga book with his feet while sleeping . Doraemon
tries to take a manga book with his feet while	sleeping	. Doraemon , who is tired , said , "
feet while sleeping . Doraemon , who is tired ,	said	, " Is there a robot that can do anything
, said , " Is there a robot that can	do	anything just by sleeping ? " I 'll tell you
Is there a robot that can do anything just by	sleeping	? " I 'll tell you ... When Doraemon hears
can do anything just by sleeping ? " I 'll	tell	you ... When Doraemon hears this , he takes out
sleeping ? " I 'll tell you ... When Doraemon	hears	this , he takes out the monkey - shaped care
'll tell you ... When Doraemon hears this , he	takes	out the monkey - shaped care robot " All "
Doraemon hears this , he takes out the monkey -	shaped	care robot " All " . The All is
care robot " All " . The All is	equipped	with high - performance AI , but it is necessary
high - performance AI , but it is necessary to	teach	it from scratch . Nobita is lazy a lot ,
scratch . Nobita is lazy a lot , so he	begins	to teach diligently ... ? [Useful selling machine]
Nobita is lazy a lot , so he begins to	teach	diligently ... ? [Useful selling machine] Nobita and
Useful selling machine] Nobita and Doraemon , who have	turned	all the stools that their moms were trying to use
who have turned all the stools that their moms were	trying	to use into paper airplanes . Doraemon takes out a
turned all the stools that their moms were trying to	use	into paper airplanes . Doraemon takes out a " useful
moms were trying to use into paper airplanes . Doraemon	takes	out a " useful selling machine " from his pocket
useful selling machine " from his pocket . As Doraemon	said	, when my mom put a 10yen ball in the
his pocket . As Doraemon said , when my mom	put	a 10yen ball in the vending machine , the toilet
a 10yen ball in the vending machine , the toilet	came	out , so I was surprised ! If you
out , so I was surprised ! If you	put	ten yen in this vending machine , something useful for
this vending machine , something useful for that person	come	out at that time . Nobita also borrows ten yen
will	borrows	ten yen to Doraemon ... ? 2 . Doraemon
person will come out at that time . Nobita also	becomes	a potato] A megaphone that changes anything you like
Doraemon ... ? 2 . Doraemon [And everyone	changes	anything you like causes a terrible uproar ... ? And
[And everyone becomes a potato] A megaphone that	becomes	a potato " Nendo robot that looks just like himself
you like causes a terrible uproar ... ? And everyone	looks	just like himself goes on a rampage ! ? Nendoroids
? And everyone becomes a potato " Nendo robot that	goes	on a rampage ! ? Nendoroids . " When
a potato " Nendo robot that looks just like himself		

Sentiment Analysis of Adjectives in Doraemon Transcripts
Positive Adjectives: 31 ['able', 'cheap', 'cheerful', 'confident', 'cool', 'full', 'good', 'grateful', 'happy', 'high', 'hot', 'important', 'kind', 'large', 'light', 'many', 'more', 'much', 'nice', 'opposed', 'original', 'popular', 'possible', 'real', 'reasonable', 'rich', 'surprised', 'unable', 'useful', 'welcome', 'wet']
Negative Adjectives: 27 ['afraid', 'angry', 'bad', 'blind', 'careful', 'cold', 'curious', 'dark', 'difficult', 'free', 'hard', 'japanese', 'late', 'likely', 'little', 'new', 'other', 'poor', 'sick', 'small', 'sorry', 'tired', 'tough', 'usual', 'vague', 'well', 'wrong']
Neutral Adjectives: 33 ['all', 'asleep', 'athletic', 'automatic', 'back', 'big', 'cosmic', 'different', 'digital', 'dimensional', 'due', 'easy', 'empty', 'future', 'galactic', 'horizontal', 'human', 'like', 'low', 'medieval', 'mini', 'natural', 'necessary', 'private', 'quiet', 'same', 'second', 'serial', 'single', 'strange', 'stuck', 'subsequent', 'uninhabited']

Positive Adjectives in Context

Left Context	Keyword	Right Context
re="doraemon_transcript.txt"> 1. " Anything that is	useful	for you will definitely come out in ten yen! "
you will definitely come out in ten yen! " A	useful	sales machine." Nobita tries to take a manga book w
lazy a lot, so he begins to teach diligently ...?	[Useful	selling machine] Nobita and Doraemon, who have tu
ig to use into paper airplanes. Doraemon takes out a	"useful	selling machine" from his pocket. As Doraemon said,
the vending machine, the toilet came out, so I was	surprised!	If you put ten yen in this vending machine, somethir
you put ten yen in this vending machine, something	useful	for that person will come out at that time. Nobita
said, "Dorayaki rather than popcorn." Then, a ring of	light	was released from the megaphone, and the popcorn
on the megaphone, and the popcorn wrapped in the	light	changed to dorayaki, so I was surprised! This is a
wrapped in the light changed to dorayaki, so I was	surprised!	This is a secret tool called "Koleyoli Megaphone", and
the robot!!If you ask me this, I will not be	able	to refuse any request. Pay attention to using too mu
able to refuse any request. Pay attention to using too	much!"	"Beware of the ylow!" When you help God, you have
try to get better, but your mom says, 'Studying is	more	important!' And the tools will be taken away. Doraen
to get better, but your mom says, 'Studying is more	important!'	And the tools will be taken away. Doraemon, who fel
out the "God Robot". God does not seem to be	able	to see God, but it is to test the human
that you will fulfill three wishes. You just can't be	kind	to know that it is God. Nobita immediately puts the
ailway Night" "Failure this year": Knowing that a new	popular	game will be released on New Year's Day, Nobita nec
oraemon immediately put the calendar button, I was	surprised	because the picture that Doraemon is failing appear
ar. Doraemon, who chose to draw a picture that was	surprised	by a mouse and dropped high-class dorayaki into a c
hears this, he takes the kip to Doraemon with a	nice	shout, and he tells Suneo that they are going to
jumped from the night sky and flew, so I was	surprised!	The four of them immediately board the Milky Way R
istmas with a potter's wheel" "Kamitobu Domi!?! Mini	hot	air balloons." "Happy Christmas with a potter's whee
er's wheel" "Kamitobu Domi!?! Mini hot air balloons."	"Happy	Christmas with a potter's wheel": Suneo is preparing
be prepared in the midst of Okozuki, but Suneo is	good	at it if you can buy three more if you
Suneo is good at it if you can buy three	more	if you are your own Okozukai. After that, Nobita buys
the shape of things as you like, no matter what	kind	of material you like. When Nobita hears this, she thr
o using the Jizagirokuro ...!?! "Kami-to-bu-dami!?! Mini	hot	air balloons." A miniature airship came in from the tr
y Doraemon came from the future with a cute "mini	hot	air balloon". This hot air balloon can fly in a
the future with a cute "mini hot air balloon". This	hot	air balloon can fly in a puffy heat with a
heat with a single incense stick. Although it is not	possible	to fly, it can fly to the destination at the
with a monitor, so Nobita of Daijoko. Using a mini	hot	air balloon, I decided to send out a hot air

Neutral Adjectives in Context

Left Context	Keyword	Right Context
he All is equipped with high-performance AI, but it is	necessary	to teach it from scratch. Nobita is lazy a lot,
ing machine] Nobita and Doraemon, who have turned	all	the stools that their moms were trying to use into
s a potato] A megaphone that changes anything you	like	causes a terrible uproar ...? And everyone becomes
yone becomes a potato" Nendo robot that looks just	like	himself goes on a rampage!? Nendoroids." When Do
I that the snack was popcorn, he took out something	like	a megaphone from his pocket and suddenly said, "D
use this megaphone, you can replace anything you	like.	[Nendoroid] Nobita finds a Nazo object resembling D
en the object tried to eat Dorayaki, Doraemon came	back!	When Doraemon takes away the dorayaki, he takes
aemon takes away the dorayaki, he takes something	like	hair from the head of the object and returns it
doroid, and when you attach your own hair, it moves	like	that person. 3. Doraemon [Be careful of Y Row!] God
able to see God, but it is to test the	human	heart, and if you help this without knowing it with
road and looks at the situation .. 4. It's a	big	shambles! Doraemon one hour special! ! " This year'
price of New Year's gifts with her mom in the	big	year, but there are no New Year's gifts next year!
said, disappointed... At that time, Doraemon came	back	with a big chat when he was selected for the
pointed... At that time, Doraemon came back with a	big	chat when he was selected for the "Year-end Rework
the year at the end of the year of the	future	department store. With this calendar, you can do all
re department store. With this calendar, you can do	all	the things that have failed this year, just once. When
appeared every day! This calendar seems to record	all	the failures of the year this year. Doraemon, who ch
dov, is breathy when you eat high-class dorayaki at	all.	Nobita also decided to start over the mistakes that n
this year's failure together. Gian is the relay of the	athletic	meet, Shizuka is a piano recital, and Suneo wants to
ride the Milky Way Railway from Mt. Ura in the	back	of the school. That night, Nobita sneakily slipped out
sneakily slipped out of the house and headed for the	back	mountain, and Shizuka, Gian and Suneo, the three r
I the Milky Way Railway and embark on a mysterious	galactic	trip, but after a while, they realize that there is
/ Christmas with a potter's wheel" "Kamitobu Domi!?	Mini	hot air balloons." "Happy Christmas with a potter's w
tter's wheel": Suneo is preparing a teddy bear with a	serial	number for the Christmas party to exchange gifts. It
ut it turns out that other classmates also bought the	same	thing, and Nobita who is crowded makes her cry to
raemon. What Doraemon was made with something	like	a potter's wheel became a mess. Doraemon is said t
'Jizairo" that can change the shape of things as you	like,	no matter what kind of material you like. When Nobi
as you like, no matter what kind of material you	like.	When Nobita hears this, she thinks about making a c
the world using the Jzai Rokuro, but it is not	easy	to use it well, and she rolls around. After that,
she rolls around. After that, saw that the mother was	stuck	in the glass and decided to change the shape of