A Mixed-Effects Analysis of Addressee Honorifics in Japanese Voice Actor Events

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1 Introduction

Speech style is an exceptionally significant aspect of sociolinguistics that affects the conversation of everyday life, which, in Japanese, is administered by the use of the plain form and addressee honorifics. Previous literature has suggested that it is common to use different speech styles in a single conversation; however, it remains unanswered whether the distribution of plain vs. addressee honorific forms is generated by speakers randomly choosing between the two forms. This study addresses the question by introducing speech data from Japanese voice actor events.

1.1 Addressee honorifics

Addressee honorifics (AH) refer to honorific morphemes that express the social status of the hearer relative to the speaker. (Comrie, 1976) In Japanese, addressee honorifics most commonly appear as the suffix *masu* after verbs and the copula form *desu* after nouns and adjectives. In contrast, the non-honorific plain form appears as no additional suffix appended after the predicate. When speakers of Japanese produce an utterance, they must choose one of the *masu* or plain form at the end of a complete clause. As exemplified by examples (1a) and (1b), as the two sentences have different forms after the main predicate, i.e., *masu* form in (1a) vs. plain form in (1b), they differ in social meaning, even though the referential meaning they carry is completely identical. (Cook, 2011) The *masu* form is often used in formal and polite situations; the plain form, in informal and intimate situations. (Cook, 1997)

(1a)	*sensei-ga*	*hon-o*	*yomi-masu*. (masu form)
	teacher-SUB	book-OBJ	read
	'The teacher reads a book.'		
(1b)	*sensei-ga*	*hon-o*	*yom-u*. (plain form)
	teacher-SUB	book-OBJ	read
	'The teacher reads a book.'		

1.2 Previous Work

The addressee honorific form, called *teineitai* 'polite form' in Japanese, has long been considered to indicate politeness to the addressee. (Comrie, 1976; Ide, 1989; Martin, 1964) In contrast, the plain form is referred to as *jōtai* 'normal form' in Japanese and considered not to indicate such politeness. However, more recent literature has revealed that the use of different speech styles is not limited to showing politeness. A study found that caregivers and children used the addressee honorific form in interactions at home and suggested that it may index the presentation of a

“public self” identity. (Cook, 1997) A similar study of video game commentary monologues supports this proposal while offering a more fine-grained classification of the functions of the addressee honorific form. (Christensen & Chen, 2022) It was assumed in their work that a “default” form should exist, as determined by the broad conversation context, e.g., the plain form in parent-child conversations and game commentary monologues, such that the “marked” non-default form, e.g., the addressee honorific form, would serve specific functions only if the default form is well established. However, their analyses mostly consist of subjective speculations about how each style shift occurs and lack sufficient objective, quantitative results to support their observations.

On the other hand, there is also previous literature focusing on quantitative analysis to investigate style shifts. A previous study examined natural private conversations among six pairs of Japanese native speakers with hierarchical relationships (e.g., elder-younger, senior-junior, and teacher-student). It has been observed that all speakers, regardless of their hierarchical status, switched between the plain form and the addressee honorific form, and the proportions of addressee honorific forms decrease with increased “intimacy” between the interlocutors. (Okamoto, 2010, 2011) However, Okamoto’s description of the "intimacy" between interlocutors is subjective and not well characterized, and the classification of the hierarchical difference between the interlocutors is vague and not discussed with sufficient granularity. Moreover, the study's quantitative analysis included only raw counts and crude proportions, lacking sufficient rigorous statistical analyses to support its conclusions. The current study addresses this gap by leveraging a more holistic statistical analysis approach and a more fine-grained taxonomy of social hierarchy to provide more statistically grounded insights.

1.3 Voice actor events

More importantly, this study uses recordings from voice actor events as the primary data source. Voice actor events, commonly held at anime conventions, are organized gatherings where voice actors engage directly with audiences through panel discussions and live performances. Besides facilitating fan interaction and promoting commercial goods, voice actor events offer a unique setting for examining language use, particularly the deployment of honorifics, in a performative, semi-public context. Using honorifics in such settings can reveal subtle negotiations of social distance, professional seniority, and mutual familiarity, especially when industry seniority does not neatly align with age or popularity. As voice actors navigate these complex relationships on stage, their linguistic choices become socially meaningful performances of deference, solidarity, or playful subversion. Moreover, in our preliminary observations, the voice actors do tend to mix the use of the AH and plain forms in their conversations. Hence, these events provide fertile ground for investigating how honorifics and plain forms function beyond grammar, as socially embedded tools of identity construction and power negotiation.

With the growing popularity of subcultures globally, particularly Japanese anime, comics, and game subcultures, they have also become increasingly referenced in the academic field. An

increasing number of papers have been published to discuss the underlying psychological and cultural implications behind phenomena related to such subcultures in psychology, sociology and music. (Fernández-Bedoya et al., 2022; Hajek & König, 2024; Yu, 2021) However, such a trend has not been observed in linguistics, especially sociolinguistics. Hence, this study also reveals the possibility of using such materials for linguistics research.

1.4 Research questions

The objective of the study is to investigate data from voice actor events and use quantitative analysis methods to answer the following questions: Do voice actors mix the use of the AH and plain forms in voice actor events? If yes, is there a default form? If there is no default form, are the AH and plain forms randomly distributed in their conversations?

2 Methods

2.1 Data Source & Subjects

The data used in the study were sourced from a live-streaming YouTube program series for a multimedia project featuring all-female bands whose members are also voice actresses. Starting in 2020, the series mainly updates on a weekly basis. Each episode is about an hour long and features 1 to 5 voice actresses from the project. Each episode is usually divided into sections in which the featured voice actresses play games, react to merchandise released by the project, or explicitly advertise upcoming concerts and events on its behalf.

Due to the complexity of handling and interpreting communication among more than two speakers, this study focuses on episodes uploaded before April 1, 2025, featuring only two voice actresses. Furthermore, only a routine dice-rolling storytelling section is highlighted in this study. In this section, one of the voice actors would introduce the section, after which the featured voice actresses would take turns rolling a die to choose a conversation topic and share their thoughts/experiences on the rolled topic. After a couple of rounds of dice rolling and storytelling, the voice actor who introduces the section would also conclude the section. An illustration of the structure of the section is presented in Figure 1. There are two main reasons why we choose to focus on this section: 1) in contrast to other advertising sections, this storytelling section is significantly less scripted and less directly related to the interests of the project, so it is reasonable to assume that a large proportion of recorded speech in this section is impromptu and spontaneous; and 2) the predictable well-structuredness of the section allows for a more consistent and structured analysis workflow, which allows scaling larger sample sizes easier.

All these selection criteria distill the final corpus into a collection of sections from fourteen episodes, comprising approximately two hours of footage. The episodes feature sixteen voice actresses, whose background information is presented in Table 1. The episodes exhibit a wide range of hierarchical relationships among the voice actors. In some episodes (i.e., #2, #6, #7, #8, #13), the featured voice actresses have similar ages and years as voice actresses and thus have a

strongly defined peer relationship. Other episodes exemplify imbalanced hierarchical relationships between the voice actresses of varying degrees: e.g., in episode #3, voice actor D is more senior than E in all three dimensions, while in episodes #1 and #10, one of the voice actors is more senior than the other one in only some of the dimensions. Most interestingly, 3 of the episodes exhibit conflicting hierarchical relationships, in which not all hierarchy dimensions align. For example, in episode #5, E is more senior in the project while G is more senior in age. Hence, accounting for distinct hierarchy dimensions individually would allow us to understand how hierarchy between voice actresses accounts for their frequency of using addressee honorific and plain forms (Section 2.2).

2.2 Data Processing & Analysis

The videos of the dice-rolling storytelling section from the selected episodes were recorded. Transcriptions were obtained using TurboScribe, an AI-powered transcription service, and then were checked manually to ensure alignment with human transcription. Occurrences of the addressee honorific form, including any of their variants, i.e., the past-tense forms *mashita* and *deshita*, the negative form *masen*, and the volitional forms *mashō* and *deshō*, and the plain form, i.e., any articulation at the end of a complete clause that does not include the addressee honorific form, are manually marked for each corpus. Only occurrences in main clauses and subordinate clauses succeeded by conjunctive particles, including *kara*, *kedo/keredo/keredomo*, *ga*, *node*, *shi*, are considered. The selected subordinate clause markers were considered due to the flexibility of speech style that could occur before them, in contrast to more constrained segments, including the conjunctive particle *te* as well as relative clauses (i.e., noun-modifying subordinate clauses) and quotative clauses. A total of 2,595 occurrences is identified and annotated.

We first conducted a quantitative analysis to understand the default form in different contexts. We grouped occurrences of the plain and addressee honorific forms by section type and speaker status, and compared the proportions of the two forms across different combinations of the two factors. Section type is categorized into three categories: introduction/conclusion, dice rolling, and storytelling. Speaker status is categorized into two roles: the presenter (i.e., the speaker making the introduction and conclusion, the speaker rolling the dice in a dice rolling section, and the speaker mostly sharing their stories and experiences in the storytelling section) and the commenter (i.e., the other speaker who mostly makes comments on the presenter's speech and asks follow-up questions). The default form for a specific section type and speaker status is defined as the speech form that dominates the other form (i.e., occurring for more than 50% of the time) across all occurrences in that setting.

To further investigate how frequencies of speech styles and the default form vary across contextual factors, we constructed a generalized linear mixed model (GLMM) to model the occurrences of speech styles. The response variable is the speech style used in each occurrence and is modeled as a binary variable (addressee honorific form vs. plain form). The fixed effects include section type, speaker role, and the interaction term between them. The random effects

include the individual speakers to control for individual differences among the examined voice actors. To investigate further how different levels of contextual factors affect the occurrence of addressee honorific forms, we conducted pairwise comparisons of the predicted means for each level, computed using the estimated marginal means (EMMEANS) framework and adjusted with the Tukey method. Statistical significance is determined using a level of significance $\alpha = 0.05$.

Besides the primary modelling analysis, we also compared the frequencies of addressee honorific form across 1) the presence of hierarchical relationships presented in the video and 2) the percentage progress into the section, to understand how these factors also potentially influence style choices.

Lastly, we switch gears to a more case-specific qualitative approach to understand the functions of style shifts. After the default form for each section is determined, style shifts are identified as occurrences that do not conform to that form. The functions of the style shifts were annotated manually and summarized.

3 Results

3.1 Quantitative

3.1.1 Overview

The results are shown in Figures 2, 3 and 4 and Table 2. Across all episodes, only the presenter in the introduction and conclusion sections defaults to the addressee honorific form, using it 76.5% of the time. In all other contextual settings, the plain form is produced more than the addressee honorific form, hence the default form.

3.1.2 Model & Pairwise comparison

GLMM model and pairwise comparison results are shown in Figure 3. In the GLMM model, commenters are associated with a significantly lower likelihood of using the AH form (OR = 0.1924, 95% CI = [0.0787, 0.4702], p-value = 0.0003). The same trend is observed in the pairwise comparison results: in all three section types, presenters use the addressee honorific form more frequently than the commenters, with statistical significance observed in the introduction/conclusion and storytelling sections (Introduction/Conclusion: 76.5% vs. 36.4%, p-value = 0.0003; Dice rolling: 44.5% vs. 36.1%, p-value = 0.0764; Storytelling: 29.9% vs. 25.2%, p-value = 0.0173). This difference supports the two-step indexical model, in which addressee honorifics index a “disciplined self” of the speaker and thus serve various context-dependent functions. (Cook, 1997) Compared to the commenter, whose role is to give comments and represent a more spontaneous character, the presenter, being the main speaker to make announcements and share stories, would see more directly to the audience of the program and hence identify more as a public presenter, who might use more addressee honorific forms by Cook’s model.

The GLMM analysis also revealed significant associations between the section type and likelihood of AH usage, with presenters significantly less likely to use AH forms in the dice rolling and storytelling sections compared to the introduction and conclusion sections (Dice-rolling: OR = 0.1921, 95% CI = [0.1142, 0.3231], p-value < 0.0001; Storytelling: OR = 0.1174, 95% CI = [0.0732, 0.1885], p-value < 0.0001). Interaction terms between the section type and the speaker role revealed that the reduction of AH form usage in dice rolling and storytelling sections is significantly weaker for commenters than presenters (Dice-rolling: OR = 3.673, 95% CI = [1.390, 9.708], p-value = 0.0086; Storytelling: OR = 3.984, 95% CI = [1.591, 9.978], p-value = 0.0031). Pairwise comparison also yielded consistent results. For presenters, the addressee honorific form is most often used in the introduction and conclusion sections, followed by dice rolling and finally storytelling (76.5% vs. 44.5% vs. 29.9%). Significant differences are observed for all three pairs of section types (Introduction/Conclusion vs. Dice rolling: p-value < 0.0001; Introduction/Conclusion vs. Storytelling: p-value < 0.0001; Dice rolling vs. Storytelling: p-value = 0.0027). This gradient phenomenon is aligned with Christensen's observation that the addressee honorific form can index announcement functions. (Christensen & Chen, 2022) Because the introduction and conclusion sections inherently contain more announcements, it is more likely that the presenter, who makes most of the announcements, deliberately uses the addressee honorific form. In contrast, the storytelling section provides an introspective motivation for the presenter to reflect on their experiences, so it is more likely that their spontaneous, impromptu speech will take a plain form. A similar trend is also observed among commenters (36.4% vs. 36.1% vs. 25.2%), with statistically significant differences observed only between the dice-rolling and storytelling sections (p-value = 0.0466). The reason is that in introduction/conclusion sections, the commenter barely speaks anything, except chiming in to reiterate the presenter's announcement, mainly when introducing the title of the section. The use of plain form may serve to highlight the contents, which will be discussed in more detail in Section 3.2.2.

3.1.3 Comparison across hierarchy

The results from comparing utterances featuring a hierarchical relationship and those featuring a peer relationship are presented in Figure 2(b)(c). Trends observed in the previous part are still present in each individual group. For all three sections of introduction/conclusion, dice rolling and storytelling, speakers ubiquitously use more addressee honorific forms when there is a hierarchical relationship inferred from differences in age and work experience. Such observations align with the widely acknowledged politeness-indication function. (Ide, 1989; Martin, 1964).

3.1.4 Comparison during the progression in a section

As shown in Figure 4, the trend of how the proportion of addressee honorific forms changes with the progression in a section differs significantly across the section types. In the dice rolling section, the proportion of addressee honorific forms significantly decreases over progression in the section, indicating that speakers tend to use more plain forms towards the end of the dice

rolling section. This observation supports Cook's indexicality model. (Cook, 1997) At the start of each dice rolling section, speakers usually announce that they will roll the dice and thus present more of their "public self." As the section progresses, the speakers switch to react to random events, including dice rolls, and their speech becomes more spontaneous, reflected in a greater use of the plain form. The announcement function also highlights a recurring pattern of marked addressee honorific use and is discussed in more detail in Section 3.2.2.

Also noteworthy is the storytelling section, where the proportion of addressee honorific forms roughly follows a parabolic curve, staying high on the two ends and low in the middle. This indicates that, regardless of other contextual factors, speakers are more likely to use the addressee honorific form at the beginning and end of each storytelling section. This observation again aligns with Cook's indexicality model. (Cook, 1997) At the beginning of each storytelling section, both the presenter and commenter have a strong awareness of their presentational purpose and hence stick more closely to a "public self" identity. Yet, as the storytelling progresses and maybe after a couple of rounds of back-and-forth question-and-answer, it is more likely that both speakers will get immersed in a conversation between themselves and switch their identity from a public presenter to a private conversation partner. Hence, given the intimacy of the relationship assumed by their new identity, the plain form occurs more frequently. Finally, near the end of the storytelling section, both speakers pull themselves out of the conversational atmosphere and intend to conclude the section, hence switching back to the presentational mode and using more addressee honorific forms.

The introduction and conclusion sections do not observe a noticeable trend in the proportion of addressee honorific form usage. A plausible reason is that the context in which the speakers speak is very consistent throughout the section, i.e., introducing and concluding, hence the stability of the observed proportion.

3.2 Qualitative

A table of summary statistics for style shift occurrences across different episodes and section types is presented in Table 3. A selection of the most commonly occurring patterns of style shift functions observed in the data is presented in this section. Most of the functions identified are aligned with previous studies. (Christensen & Chen, 2022; Cook, 1997)

3.2.1 Presentation

The presentation function accounts for 442 out of 789 (56.0%) style shifts observed, making it the most frequent style shift pattern observed in our data. All the identified occurrences take place in the storytelling sections and are all occurrences of the addressee honorific form in contexts where the plain form is the default form. This function aligns well with Cook's indexicality model (Cook, 1997), where the use of addressee honorific forms indexes the identity of a public self and may further index the presentational role that the speaker takes, as they share their stories with other voice actors as well as the audience watching the program. Consider the following excerpt at the beginning of a storytelling section, where voice actress A talks about the

topic "one thing that you feel happy about recently" and recounts her experience and emotions of putting out her futon (i.e., a Japanese heavy quilt) and being able to stay warm and cozy in the winter. As shown in the excerpt, she frequently switches to the addressee honorific form at the end of main and subordinate clauses, which conveys her role as a presenter and storyteller to the audience.

(2) A: *samu-ku nat-te ki-te anou toutou ofuton-o-ne atataka-i ofuton-ni kae-tan-**desu**-yo. fuyuyou-no-ne. fuwauwa-no ofuton-ni kae-tan-**desu**-kedo, nanka atataka-i ofuton-de ner-eru-tte shi'awase-da-na-tte nanka aratame-te omot-ta. nankakou yappa-sa futon kae-ru-to-sa nankakou karada-no atatama-ri kata ondo-ga joushou-suru-janai. watashi-ga atataka-i futon-ni tsutsum-arer-u-tte shi'awase-da-na-te-iu nanka meccha chiisa-na shi'awase **deshita**.*

"As it gets colder, umm finally [I] changed [from a thinner futon] to a futon, a warm futon. [One] for winter use. As I changed to the fluffy futon, I like once again thought that umm being able to sleep in a warm futon is such happiness. Also like, if [you] change the futon, like [it's] the way of getting [your] body warm, the temperature [inside the futon] would go up, right? It was a umm very small happiness [to be in the situation where I would] say 'it [feels so] happy to be covered by the warm futon.'"

3.2.2 Announcement

The announcement function accounts for 26.1% of style shifts observed and occurs most often in dice rolling sections when speakers switch the addressee honorific form in contexts where the plain form is the default form. Similar to Christensen's analysis, the switch of addressee honorific forms in these situations calls for the audience's attention and highlights the information to announce, e.g., the speakers' current feelings or future actions. (Christensen & Chen, 2022)

Two of the most common contexts where the addressee honorific form occurs to index announcement in the dice rolling section include 1) the presenter in the dice rolling section announces that they are about to roll the dice; and 2) the commenter in the dice rolling section announces that the resulting topic is determined, after checking the rolled dice. In excerpt (3), A's switch to the addressee honorific form when announcing the start of the dice rolling section and her future action to roll the dice is a perfect example of how such style shifts may be used in announcements. The appearance of the addressee honorific form starkly contrasts with the plain form in surrounding contexts and indexes the role of an announcer that A has taken, thereby highlighting the information she presents. In a similar fashion, B highlights her role as an announcer and the information that the topic has been determined by switching to the addressee honorific form in the second line in excerpt (3).

(3) A: *saikoro-no jikan **desu**. yat-te iki-**masu**-wa-yo. jaa [B]-ni kyacchi-shi-te mora-ou.*

"It is time to roll the dice. I am going to do [this]. Then let's let [B] catch [the dice] for me."

…

B: *de-**mashita**. deden. marumaru-no aki.*

"[The rolled topic] is out. Ta-da. An autumn of something something."

The announcement function also appears in the storytelling section, which occurs in a wider variety of contexts. In the following segment, C announces the conversation topic and then contextualizes their upcoming conversation by providing an analogy to pillow talk, and A chimes in to agree with C's judgment and announces that the following conversation will resemble a "dream talk," which is interpreted as identical to pillow talk. Similar to the previous example, the use of addressee honorific forms highlights A's role as an announcer and draws the audience's attention to the content of her announcement.

(4) C: *kore-wa "saikin mi-ta yume". to-iu koto-de are-ne.*

"This is 'a dream [you] recently had'. So [it's] that [sort of conversation that we are gonna do], right?"

A: *doriimu tooku-**desu**-ne.*

"A 'dream talk,' right?"

C: *ne.*

"Right."

The announcement function also appears in the introduction section and shows a very distinctive pattern: i.e., it appears in the use of the plain form in the introduction section when the presenter announces the title of the entire dice-rolling storytelling section. Recall from the overall quantitative analysis that the default form in this context is the addressee honorific form, so switching to the plain form is considered a marked style shift. The following snippet provides a perfect example of how the function is manifested in our data. C uses the plain form (which, in this case, is surfaced as the absence of a copula) to introduce the section title, highlighting her role as an announcer and the content of her announcement (i.e., the section title) as well. As a side note, notice that the commenter (exemplified by A in excerpt (5)) also uses the plain form to achieve the announcement function. As this context accounts for all identified speech made by the commenters in the introduction and conclusion sections, the plain form is hence identified as the default form for the setting (see Section 3.1).

(5) C: *mazu-wa kochira-no koonaa-wo o-todoke-shimasu. [Section title]* **(plain)**.

"First we present this section. [Section title]."

A: *[Section title].*

"[Section title]."

3.2.3 Formulaic expressions

The use of addressee honorifics in formulaic expression accounts for 65 out of 789 (8.2%) style shifts. These occurrences usually occur in formulaic expressions including *onegaishimasu* ("please", "please take care of [something]", "looking forward to working with you", "I'll leave it to you", etc.; the exact translation of which depending on the context), *sumimasen* ("sorry")

and *arigatou gozaimasu* (“thank you”), which by today have largely been conventionalized fossilized and can mainly be used as independent chunks. The following excerpts (6)-(8) provide examples of how these conventionalized formulaic expressions appear as style shifts in the data. In excerpt (6), A first announces that the crew members will catch the dice for them, and then uses the expression *onegaishimasu* to address the crew, which is often used during the start of collaborations (and hence the provided translation). In the context of excerpt (7), C zoned out and missed the cue to start her part, so she is apologizing for her mistake, where she uses the expression *suimasen* (an alternative for *sumimasen* “sorry”) for her apology. Lastly, in excerpt (8), B expresses her gratitude for a complimentary comment by A, using the expression *arigatou gozaimasu* (“thank you”).

(6) A: *sutaffu-san-ga kyacchi-shi-te kureru-rashii.* (to crew) *o-nega-i-shi-**masu**.*

“It seems like the crew will help catch [the dice] for us. Looking forward to working with you.”

(7) C: *a sui-**masen**. gomen. gomennasai.*

“Oh I’m sorry. Sorry. My apologies.”

(8) B: *arigat-ou gozai-**masu**.*

“Thank you.”

3.2.4 Showing discipline

Accounting for 5.1% of style shift functions, the presentation of one’s discipline is more directly aligned with Cook’s model. Similar to how children and parents may use the addressee honorific form to index the identity of a disciplined self, the voice actors in our data also used the addressee honorific forms for similar purposes. Consider the following excerpt, where the voice actresses are discussing their recommended way of killing time, and B expressed that she does not have much free time to kill. A wishes that B rest well in her free time, in a parent-like manner to poke fun at her, and B replies that she did make sure to sleep. In this situation, B’s use of the addressee honorific form indexes her identity as a disciplined self that sticks to a regular sleeping schedule, thereby showing her discipline.

(4) A: *ne hima-na toki-wa shikkari yasun-de kudasa-i-ne.*

“Right. Please rest well during [your] free time, okay?”

B: *ne-**masu** jan chanto.*

“[I did] make sure to sleep.”

A: *hai ne-te kudasa-i.*

“Okay okay, please sleep [well].”

4 Discussion & Conclusion

Our quantitative and qualitative analyses have shown that Japanese speakers do not make the choice between the plain form and the addressee honorific form at random. Their decision is largely related to contextual factors, e.g., the existence of social hierarchy, the progress in a storytelling section, in a voice actor event. The functions of style shift mostly align with previous literature.

There are several limitations to the current study. First, the hierarchical status among the voice actors is complex, where the sources of hierarchical difference (e.g., age, work experience) do not always align with each other. This complexity makes further research into how hierarchical influences style usage extremely difficult. Subsequent studies may focus on taxonomizing social hierarchy with finer granularity to identifying the prominent driving force of hierarchical deference. Also, the current two-hour long footage may not be substantial enough to include articulations of every voice actor in each possible combination of contextual factors. More data may be incorporated to validate the findings of the current study.

5 Appendix

The data and source code will be released through GitHub.

6 References

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Table 1. Summary of the voice actors' background information and relationship with each other in each episode. Seniority in age and work experience is marked by a difference of 3 years or more in birth year or starting year in the voice acting industry. Seniority in the project is measured by the year each voice actor joined.

Episode	Voice actress 1 (CV1)	Voice actress 2 (CV2)	Hierarchy
1	A 23 yrs old, became voice actor in 2021	B 21 yrs old, became voice actor in 2017	CV2 is senior in work experience
2	A Same as A in episode 1	C 23 yrs old, became voice actor in 2020	Peer
3	D 31 yrs old, became voice actor in 2010	E 19 yrs old, became voice actor in 2018	CV1 is senior
4	E Same as E in episode 3	F 29 yrs old, became voice actor in 2016	CV2 is senior in age
5	E Same as E in episode 3	G 23 yrs old, became voice actor in 2020	CV1 is senior in the project, CV2 is senior in age
6	H 35 yrs old, became voice actor in 2016	I age unknown, became voice actor in 2018	Peer
7	J age unknown, became voice actor in 2020	K 32 yrs old, became voice actor in 2020	Peer
8	L 26 yrs old, became voice actor in 2017	M 27 yrs old, became voice actor in 2018	Peer
9	E Same as E in episode 3	N 21 yrs old, became voice actor in 2014	CV1 is senior in the project, CV2 is senior in work experience
10	H Same as H in episode 6	B Same as B in episode 1	CV1 is senior in age and in the project
11	K Same as K in episode 7	B Same as B in episode 1	CV1 is senior in age and in the project, CV2 is senior in work experience

12	O 31 yrs old, became voice actor in 2013	P 35 yrs old, became voice actor in 2005	CV2 is senior in age and work experience
13	A Same as A in episode 1 (24 yrs old)	C Same as C in episode 2 (24 yrs old)	Peer
14	A Same as A in episode 1 (24 yrs old)	M Same as M in episode 8 (28 yrs old)	CV2 is senior

Table 2. GLMM analysis of the correlates with AH usage in the total sample of utterances (N = 2,595).

	OR	95% CI	p-value
Intercept	3.330	[1.653, 6.707]	0.0008***
Section type (ref: Introduction/Conclusion)			
Dice rolling	0.1921	[0.1142, 0.3231]	< 0.0001***
Storytelling	0.1174	[0.0732, 0.1885]	< 0.0001***
Speaker role (ref: Presenter)			
Commenter	0.1924	[0.0787, 0.4702]	0.0003***
Section type x Speaker role			
Dice rolling x Commenter	3.673	[1.390, 9.708]	0.0086**
Storytelling x Commenter	3.984	[1.591, 9.978]	0.0031**

: < 0.01, *: < 0.001

Table 3. Summary of the proportion of style shift function patterns across episodes and section types. (N=789)

	Presentation	Announcement	Formula	Discipline	Other
Total	442 (56.0%)	206 (26.1%)	65 (8.2%)	40 (5.1%)	36 (4.6%)
Episode					
Episode #1	39	20	4	4	5
Episode #2	15	21	7	2	7
Episode #3	35	16	2	8	8
Episode #4	7	11	0	4	0
Episode #5	54	19	13	13	0
Episode #6	44	15	1	0	3
Episode #7	79	33	19	3	1
Episode #8	17	17	8	1	0
Episode #9	22	15	4	0	7
Episode #10	11	6	1	0	1
Episode #11	41	12	3	1	1
Episode #12	32	3	1	1	0
Episode #13	8	5	1	3	3
Episode #14	38	13	1	0	0
Section type					
Introduction/ Conclusion	10	25	2	0	3
Dice roll	29	130	43	2	7
Storytelling	403	51	20	38	26

Figure 1. Illustration of the overall structure of the dice-rolling storytelling section.

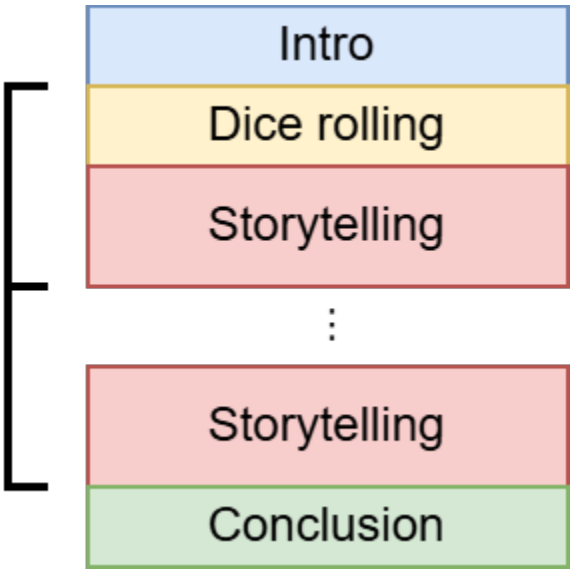

Figure 2. Proportion of addressee honorific forms in different sections and speaker types. The horizontal axis indicates different section types, and the vertical axis shows the proportion of addressee honorific forms over all sections of the same type. The error bars indicate the standard error of the estimated proportion. Different colors code whether the articulator is the presenter/commenter of the section. (a) The overall results. (b) The results for episodes where hierarchy is present. (c) The results for episodes where hierarchy is absent. p-values are indicated by asterisks. *: < 0.1, **: < 0.01, ***: < 0.001.

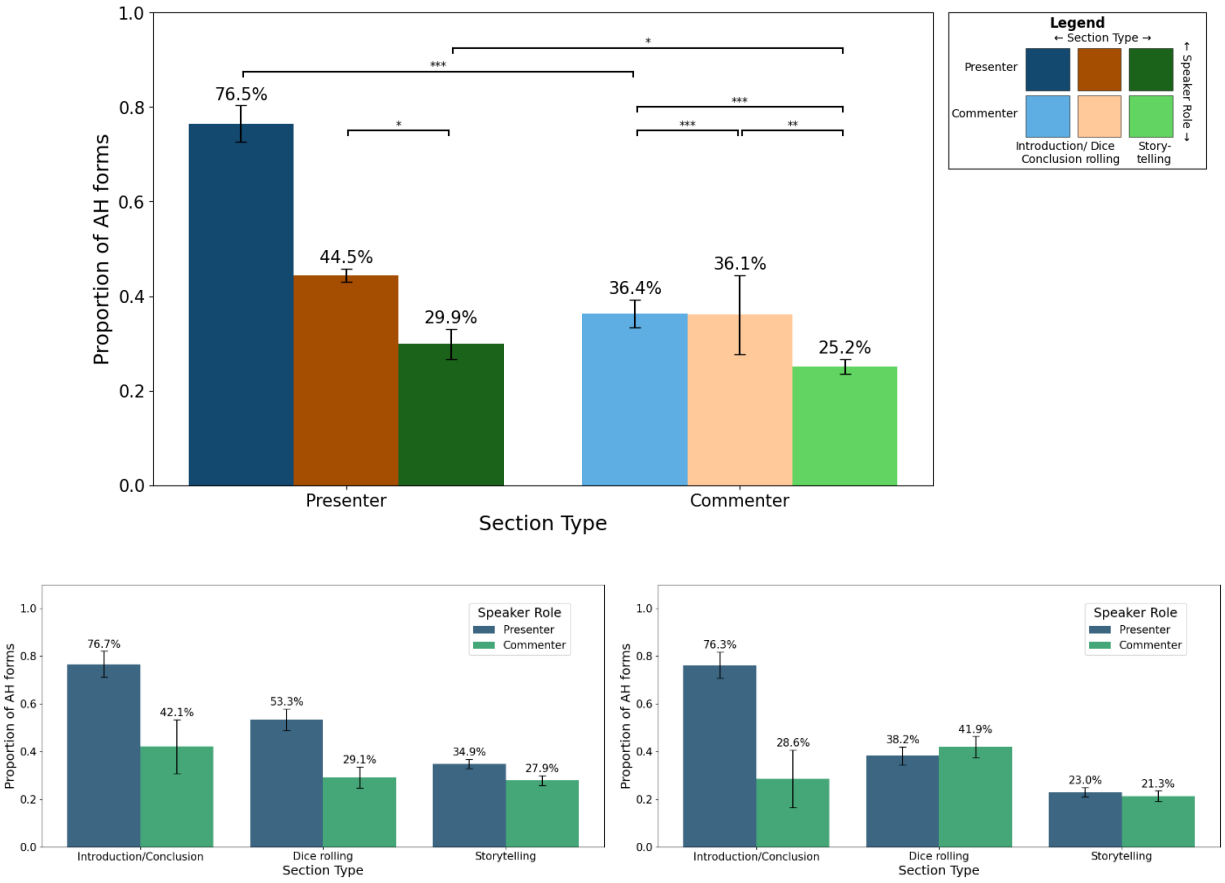

Figure 3. Proportion of addressee honorific (AH) forms along with the progression in a section. The horizontal axis indicates the progress in the section on a percentage scale, and the vertical axis shows the proportion of addressee honorific forms. The line represents the calculated proportion, while the shaded region indicates the standard error. The colors and hues indicate section types.