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Antonis Botinis

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Foreword

Welcome to the Linguistics 2025 International Conference on Linguistic Research and Applications. This hybrid event enables us to meet once again in Paris in person, thanks to the generous hospitality of Inalco, while also welcoming participants joining us online from around the world.

As an international forum for linguists across career stages, the Society is devoted to advancing the study of language through rigorous research and its diverse applications. We encourage both early-career and established researchers to engage in discussion and exchange on current developments in linguistics and related disciplines.

The origins of our conference series date back to 2006 in Athens, where the first Workshop on Experimental Linguistics (ExLing) was held under the auspices of ESCA (European Speech Communication Association), now ISCA (International Speech Communication Association). In subsequent years, the workshop was hosted in cities including Paris, Saint Petersburg, and Lisbon. In 2009, the ExLing Workshop evolved into the annual ExLing Conference with the establishment of the International Society of Experimental Linguistics (ExLing Society).

In 2024, on the occasion of ExLing 2024 Paris, the ExLing Society was restructured as the International Linguistic Society. This development reflects our vision of hosting multiple conference series throughout the year, ensuring continuous opportunities for scholars to submit their work and participate in Society events.

This volume contains the proceedings of Linguistics 2025 Paris. In line with the conference's scope, the papers presented here address core areas of linguistics as well as a range of applied and interdisciplinary perspectives.

We extend our sincere thanks to all participants of Linguistics 2025 Paris, to our keynote speakers Ad Neeleman and Greville Corbett, and to colleagues from the International Advisory Committee, the Review Committee, and the Organising Committee for their invaluable contributions to the success of this conference.

Antonis Botinis
The International Linguistic Society

Contents

Unraveling bilingual identity construction in different contexts

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Abstract

This study explores how bilingual speakers construct and negotiate their identities across different linguistic and cultural contexts. It addresses the following questions: How do bilingual individuals perceive their sense of self in each language, and what social or contextual factors shape these perceptions? Six bilingual participants with diverse language backgrounds participated in semi-structured interviews. The data were audio-recorded, transcribed, and analysed using inductive thematic analysis. The findings reveal that bilingual identity is shaped by access to linguistic communities, patterns of language separation or integration, and attitudes of the second language community. The study highlights bilingual identity as a dynamic and evolving process influenced by both social interaction and personal experience.

Keywords: bilingual identity, code-switching, community attitudes, identity construction, integrated identities

Introduction

Identity is not a fixed label but a dynamic and socially constructed process shaped through interaction and context (Block, 2007; Tajfel, 1978). While identity is often associated with social categories such as parent, teacher, or gender (Kanno, 2000), it is lived and linguistic experiences that play a central role in shaping how individuals perceive themselves. For bilinguals, identity construction becomes particularly complex due to their engagement with multiple languages and cultural environments.

One important site where bilingual identity becomes visible is code-switching. Beyond reflecting linguistic competence, code-switching functions as a means of negotiating belonging and social alignment (Auer, 2005). Previous studies suggest that bilinguals may experience either identity tension or integration when navigating different linguistic contexts (Fielding, 2016; Kanno, 2003). However, fewer studies focus on bilinguals' own perceptions of their identities across languages. This study aims to address this gap by examining how bilinguals understand and construct their sense of self.

Literature review

Fielding (2016) conceptualizes identity through three interrelated components: socialization, interaction, and investment. Socialization refers to developing a sense of belonging to a linguistic and cultural group (Tajfel, 1978), while interaction emphasizes the importance of sustained engagement with the language community. Moreover, investment reflects the value individuals attach to participating in that community (Norton, 2000).

Research suggests that bilinguals often use their languages for different purposes across social domains (Baker, 1996), which may lead to the development of distinct identities associated with each language (Kanno, 2000). In some cases, these identities remain separate, while in others they blend into a more integrated sense of self (Kanno, 2003).

Code-switching has been widely examined as a key practice in bilingual identity negotiation. Speakers typically assess their interlocutor's linguistic background before switching languages (Gumperz, 1982). Minority languages often function as a "we-code," signaling intimacy and in-group membership, whereas majority languages function as a "they-code," associated with broader societal participation. This dynamic highlights how bilinguals may shift identity positions depending on context (Kanno, 2000).

Bilinguals may also experience identity conflict, particularly when their heritage language is stigmatized. Liebkind (1995) describes this as a "conflict of identification," which may lead individuals either to reject or later re-embrace their linguistic and cultural identities. Additionally, studies have shown that language choice can influence identity expression, reflecting cultural norms embedded in each language (Ervin-Tripp, 1968; Grosjean, 1982).

Methodology

Participants

In this qualitative study, six participants were selected through convenience sampling. All were sequential bilinguals with diverse linguistic backgrounds, as presented in Table 1.

Table 1. Participant Profiles.

Participant	Languages	Age	Type of bilingualism
P1	English-Turkish	20	Sequential
P2	English-Farsi	21	Sequential
P3	English-Arabic	27	Sequential
P4	Turkish-German	28	Sequential
P5	Turkish-French	28	Sequential
P6	Azeri-Russian-Turkish	27	Sequential

Data collection and data analysis

Data were collected through semi-structured interviews focusing on language history, community interaction, code-switching, and identity perceptions. The interviews were transcribed and analyzed using inductive thematic analysis. Codes were cross-checked by both researchers to enhance reliability.

Findings

Five themes emerged from the analysis:

1. *Community access* was central to identity construction. Participants emphasized that opportunities to use their languages in social networks, family, and cultural groups shaped how confidently they identified with each language. Access to minority-language communities offered spaces of belonging, while limited opportunities often led to weaker attachment.
2. *Separation versus integration* reflected participants' experiences of feeling either like different people in different languages or navigating mixed identities. Some participants described experiencing "two different identities in two different languages". For example, P2 and P3 reflected on having both "American" and "L1-L2" selves, sometimes mixed, sometimes separate. This sense of living "between cultures" illustrates the ongoing negotiation of identity, resonating with Kanno's (2003) observation that bilinguals may struggle to identify themselves as entirely belonging to one group or another.
3. *Attitudes of the L2 community* influenced identity positioning. While majority languages enabled societal participation, minority languages symbolized distinctiveness and pride (Kanno, 2000). For instance, P1 felt unique being able to speak Turkish and Armenian and highlighted pride in sharing Armenian with peers in a student club. Positive recognition encouraged stronger attachment, while dismissive or stigmatizing attitudes reinforced feelings of exclusion.
4. *Conflict and resolution* described participants' emotional trajectories from shame to acceptance, aligning with Liebkind's (1995) notion of identity conflict. As children, P1 and P2 felt ashamed of their heritage languages, with P1 avoiding identifying as Armenian. Over time, however, both came to revalue and embrace their L1, culture, and identity. This trajectory from shame to acceptance highlights the temporal dimension of bilingual identity - it is not static, but evolves with personal growth and shifting contexts.
5. Finally, *integrated identities* emerged among participants who viewed their bilingualism as a unified resource rather than a division. For some participants, bilingualism was not about maintaining separate spheres but about creating an integrated identity. Rather than feeling "half-and-half," P5 explained: "I don't feel like I am split; I feel like I am double."

This reflects a sense of wholeness in which both languages and cultural affiliations are complementary. Integration allowed bilinguals to see their dual background not as a problem to resolve but as a resource for shaping a fuller self.

Discussion and conclusion

The findings support the view that bilingual identity is socially constructed and context-dependent. Community access, social attitudes, and code-switching practices shape how bilinguals perceive themselves. Importantly, participants moved toward integrated identities over time highlighting bilingualism as a resource rather than a challenge. These insights contribute to a deeper understanding of bilingual identity construction and have implications for educational and social contexts that engage with multilingual populations.

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AI vs. human (automatic) speech recognition: silence-replacement paradigm as a diagnostic

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Abstract

This study tests how vowels and consonants contribute to sentence-level word recognition in automatic speech recognition (ASR), using a silence-replacement paradigm modeled on classic human-perception research. I recorded 48 English sentences divided into two sets: 24 with a symmetrical ratio and 24 with an asymmetrical ratio. For each sentence I created two processed versions: CO (consonant-only; vowels replaced by silence) and VO (vowel-only; consonants replaced by silence). I then submitted all stimuli to two state-of-the-art ASR systems, TurboScribe and Whisper, and quantified word recognition as the percentage of original words correctly transcribed. When the material was symmetrical, VO speech outperformed CO speech, mirroring human patterns. However, with asymmetrical material, this advantage reversed dramatically, showing a strong interaction between segment type and stimulus structure.

Keywords: vowel importance, consonant importance, ASR, English, silence-replacement paradigm

Introduction

Consonants provide more information at the word level in many languages, such as English, Dutch, and Spanish (e.g., Van Ooijen, 1996; Cutler et al., 2000), while vowels provide more information at the sentence level in some languages such as English (e.g., Cole et al., 1996; Fogerty et al., 2012). In some tonal languages such as Chinese, vowels contribute to speech recognition and intelligibility at both word and sentence levels (e.g., Chen et al., 2013; 2015), while the opposite has been reported in Semitic languages such as Arabic (e.g., Aldholmi, 2018; Aldholmi & Pycha, 2023). The contribution of vowels and consonants is not a purely linguistic topic but has many implications in other relevant fields, such as human-machine interaction, and is important for understanding and developing automatic speech recognition (ASR) systems and hearing aids (e.g., Yan, Chen, and Li, 2025). In previous studies, silence- or noise-replacement was used in preparing the experimental stimuli, where in one version of the stimuli, vowels were replaced by silence or noise (consonant-only, CO) that was equal in duration to the original segment, while consonants were replaced in another version (vowel-only, VO). The human ability for speech recognition in such conditions varies due to both stimuli-related factors (e.g., word vs. sentence) and language-specific factors (e.g., concatenative vs. nonconcatenative), as well as the interaction thereof. Hence, this study attempts to examine how AI performs on

speech recognition when the silence-replacement paradigm is utilized in stimuli from a concatenative language, English. The silence-replacement paradigm could be a potential diagnostic for the future development of ASR systems.

Methods

I recorded 48 English sentences (adopted from Aldholmi, 2018) of an approximate length (*M* = 6 words per sentence), divided into two sets: 24 with a symmetrical (balanced vowel-to-consonant) ratio and 24 with an asymmetrical (consonant-heavy, with approximately 10 more consonants per sentence) ratio. For each sentence, I created two processed versions: CO and VO. Figure 1 below shows an example to illustrate the silence-replacement method.

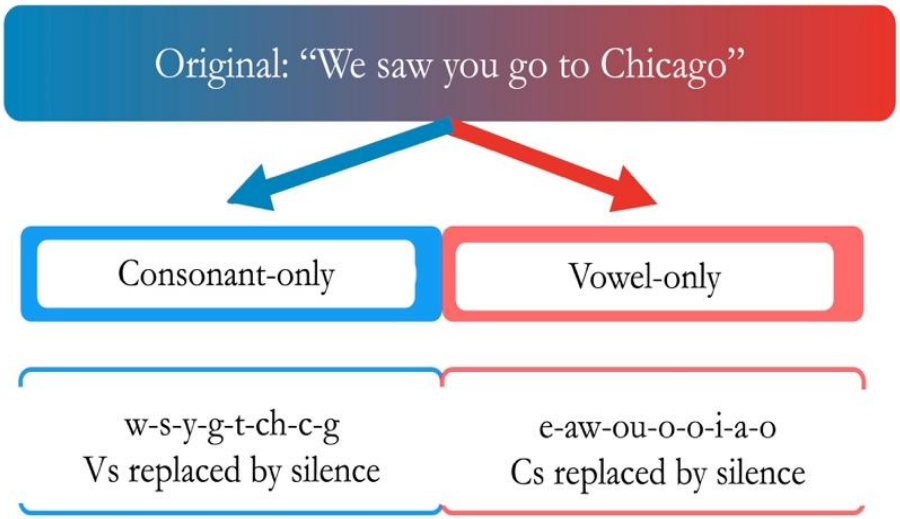

Figure 1. Illustration of the silence-replacement paradigm.

I then submitted all stimuli to two state-of-the-art ASR systems, TurboScribe (ChatGPT-integrated) and OpenAI/Whisper. The stimuli were sent to the two systems simultaneously to avoid any influence from time or system updates, and counterbalancing was used to prevent any impact from the order of conditions. I then quantified word recognition as the count and percentage of original words correctly transcribed by each system.

Results and discussion

I modeled the proportion of recognized words per item using binomial generalized linear models with cluster-robust standard errors by sentence, estimating the effect of segment (VO vs. CO) within each system (TurboScribe,

Whisper) and ratio (Symmetrical vs. Asymmetrical). In the symmetrical set, VO outperformed CO: mean recognition was approximately 51% (VO) versus 45–46% (CO), consistent with sentence-level vowel advantages reported in human English listeners. In the asymmetrical set, the pattern reversed: CO averaged approximately 55% recognition, whereas VO collapsed to 6–7%. Within-cell contrasts showed a nonsignificant VO advantage for symmetrical items in both TurboScribe and Whisper (ORs ≈ 1.8–1.9, *p*s > .14), but a large, reliable CO advantage for asymmetrical items in both systems (ORs ≈ 0.07 for VO vs. CO; *p*s < .001), indicating a strong segment-ratio interaction. Figures 2 and 3 below summarize the results.

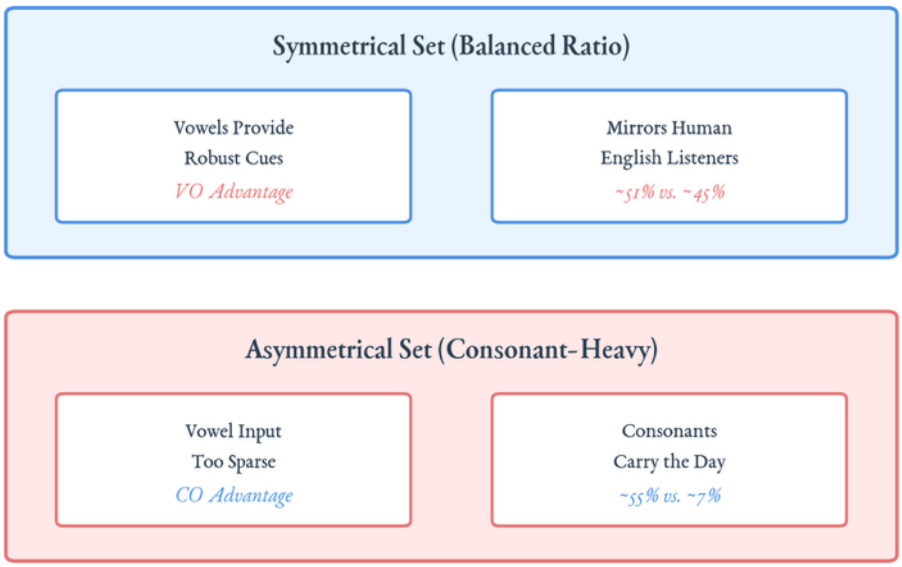

Figure 3. ASR performance by segment type and vowel-to-consonant ratio.

Methodologically, replacing one segment class with silence (equal in duration to the removed segments) isolates segment-type contributions while preserving temporal scaffolding. The symmetrical results suggest that, even for ASR, vowels tend to provide robust cues at the sentence level, echoing human data that attribute sentence-context benefits to vowel-borne envelope and suprasegmental information. However, when the vowel inventory is depleted by design (asymmetrical set), VO input becomes too sparse to sustain recognition, and consonants carry the load. Thus, the intelligibility advantage is not an intrinsic property of vowels or consonants alone; it depends on segmental ratio and available temporal-contextual cues.

Conclusion

This study tested how vowels and consonants contribute to sentence-level word recognition in ASR using a silence-replacement paradigm modeled on classic human-perception research. The findings bridge psycholinguistic results and engineering practice: ASR systems mirror human-like reliance on vowel information in sentences when vowels are sufficiently available, but they pivot to consonant information when vowels are scarce. Segment-aware preprocessing and training corpora that balance segmental distributions may improve ASR robustness under extreme degradations. The outcomes underscore that segment type and segment ratio jointly shape ASR performance and that silence-replacement is a useful diagnostic for probing what cues modern systems use.

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Spatial analysis of hand positions in French cued speech (LfPC)

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Abstract

Speech production relies on both acoustic and visual cues. While lip movements convey valuable information, many phonemes remain visually ambiguous. Cued Speech is a visual coding system that complements lipreading by combining mouth shapes with hand cues—specific handshapes and positions around the face—that encode consonants and vowels. It provides full visual access to spoken language and supports phonological awareness, literacy development, and oral language acquisition in deaf or hard-of-hearing individuals. This study investigates the spatial distribution of vowel-related hand positions in French Cued Speech (LfPC), which uses eight handshapes for consonants and five distinct positions for vowels.

Keywords: cued speech, deaf, hand position, vowels

Introduction

The French Cued Speech adaptation makes use of eight handshapes to encode consonants and five facial positions to encode vowels. Each syllable is represented by a combination of lip movement and a hand cue, also called a key, formed by a handshape–position pair. A simple syllable like CV or V is coded by a single key, while more complex structures, such as CCV, require multiple successive keys: for example, a 'C-' followed by a 'CV' structure (see Figure 1).

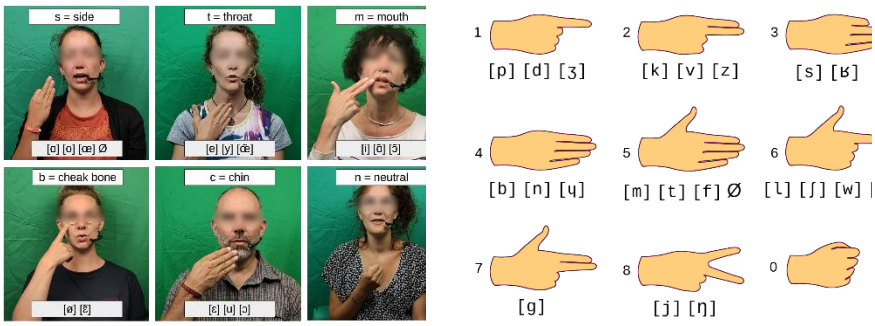


Figure 1. Positions representing vowels and handshapes representing consonants, in LfPC.

Below is a concrete example showing how a sentence is encoded into cues:

text:	Tu es gris.
phones:	t y e ɡ ʁ i
sequence:	C V V C C V
cues-structure:	C-V.-V.C-.C-V
cues code:	5-t.5-t.7-s.3-m

In practice, producing CS requires the hand to simultaneously adopt the expected shape and reach the correct position near/on the face.

The present study focuses on the distributional statistics of (x, y) coordinates of keys at the moment the hand reaches its target position.

Methods and materials

This study is based on CLeLfPC - *Corpus de Lecture en Langue française Parlée Complétée*, an open-access multimodal dataset of French Cued Speech (Bigi, 2022). Each participant read on a predefined topic containing four sessions: 32 CV syllables, 32 words or phrases, 7 to 10 isolated sentences, and one short text. For each participant, recordings were made under two distinct cueing instructions: 1/ a pedagogical condition (syllables and words/phrases reading), where participants were asked to produce cues as clearly as possible, 2/ a natural condition (sentences and texts reading), where they were instructed to cue as they would in spontaneous communication. The data for this study were drawn from a subset of the corpus comprising five highly proficient speakers.

Orthographic transcriptions were performed manually into the Inter-Pausal Units, normalized and converted into phonemes, then aligned with the audio signal using SPPAS (Bigi, 2015). All alignments were manually verified and corrected as necessary. Hand transitions were annotated frame-by-frame by a single expert. For each cued phoneme sequence, the frame at which the target position was reached was identified, allowing the extraction of spatial coordinates relative to the speaker's face. A total of 3,901 values were collected, normalized to a facial reference model (1000x1000 px), and analyzed to estimate mean positions and spatial variability.

Results

Table 1 & Figure 2 summarize vowel-related positions, associated phonemes, number of cues, and the mean and standard deviation of x and y coordinates. The four positions anchored on the face—cheekbone, chin, mouth, and throat—show relatively low variability, indicating stable production. In contrast, the 'side' position, which lacks a physical anchor point, displays the highest dispersion.

Figures 3a to 3d show results depending on the nature of the task, which influences spatial precision and variability. Cues produced during pedagogical

instruction (syllables and words) tend to be more stable than those produced during natural instruction (sentences and text).

Figures 4a to 4e show results depending on the speaker. While the overall structure of the system remains robust, individual strategies emerge, particularly in how some speakers realize peripheral positions such as "side" and "throat."

Table 1. Distributional statistics of (x,y) coordinates for targeted positions.

Position	Phonemes	Number	Mean(x, y)	Stdev(x, y)
cheekbone	[ø], [ɛ̃]	230	(144, 397)	(70, 92)
chin	[ɛ], [ɔ], [u]	529	(425, 888)	(112, 76)
mouth	[i], [ã], [ɔ̃]	676	(260, 682)	(79, 91)
side	[a], [ə], [œ], [o], Ø	1750	(-193, 635)	(241, 233)
throat	[y], [e], [œ̃]	584	(435, 1419)	(143, 223)

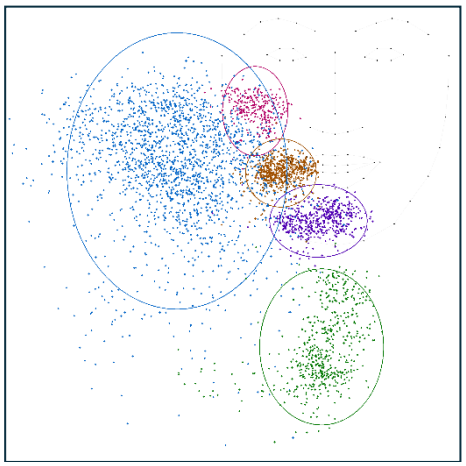
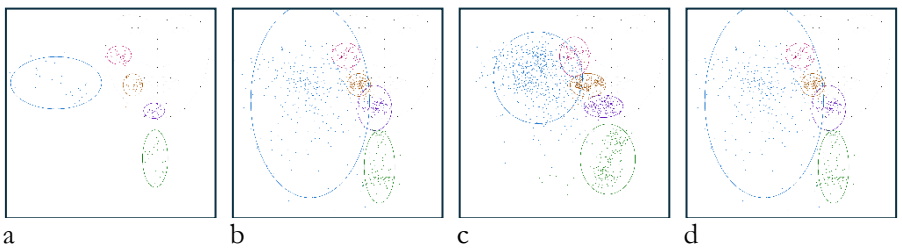
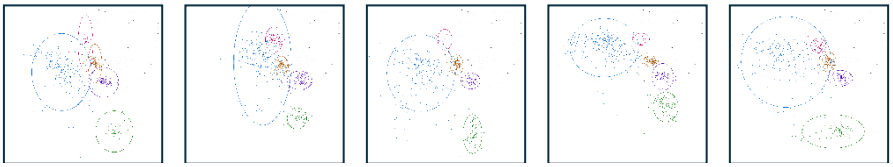


Figure 2. Visual distribution of hand targeted positions.



a b c d

Figure 3. (a) CV syllables, (b) words, (c) sentences, and (d) text conditions.



a b c d e

Figure 4. (a) CH, (b) VT, (c) AM, (d) ML, and (e) LM speakers

Conclusions

Despite extensive research on lipreading, few studies have quantitatively examined the spatial precision of hand cues in Cued Speech. In this study, mean coordinates are clearly differentiated across positions, confirming that vowel cues are spatially distinct and consistently produced. Further analysis revealed systematic variations depending on the nature of the task: natural reading versus pedagogical intent. This suggests that communicative purpose influences both precision and variability in cue production. Speaker-specific analysis confirmed the overall stability of the system, but also highlighted individual coding strategies, particularly for 'side' and 'throat' positions.

These results confirm the structured spatial organization of vowel cues in LfPC. Despite inter-speaker and task-related variation, the system ensures clear visual distinctions. The high dispersion of the 'side' cue emphasizes the role of anchoring in spatial accuracy. These findings inform linguistic modeling and practical applications, such as cue recognition or synthesis, and contribute to understanding the visual structure of Cued Speech. Future work will explore modeling of cue trajectories to support computer-based generation systems.

Acknowledgements

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On the multifunctionality of *literally* in American English youth speech

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Abstract

The aim of this study is to investigate, from both a qualitative and quantitative perspective, the multifunctionality of the adverb *literally* in present-day American English youth speech, in order to better understand the ongoing semantic change involving this adverb. Drawing from authentic spoken data taken from a teenage podcast, the analysis explores how *literally* is used beyond its prototypical literal meaning (i.e. 'in a literal sense') and develops a wide range of new functions, supporting the hypothesis of an ongoing grammaticalization process along with increasing subjectification.

Keywords: literally, grammaticalization, subjectification, American English, youth language

Introduction

In recent years *literally* has grown in frequency, and its semantic value has become a matter of debate within both academic studies and popular discourse. Previous studies on *literally* illustrate its development as the result of grammaticalization (or pragmaticalization; cf. Erman and Kotsinas 1993) — i.e., the process by which a word gradually shifts from a lexical to a grammatical function (Traugott 2003: 645) — in ways similar to other adverbs, such as *really* and *actually*, among others. In fact, the original meaning of the adverb at issue (i.e. 'in a literal sense') turns out to be partially blurred, giving way to new semantic and discourse functions that reflect increased (inter)subjectivity, i.e. involving speaker-based (or interpersonal) functions.

In more traditional accounts, *literally* is described either as a *subjunct* — i.e. a reinforcing adverb — or as a *disjunct*, i.e. a metalinguistic comment (Quirk *et al.* 1985: 583-589; 617-620). They also label some modern uses as "absurd", especially when *literally* is used with non-literal meanings (e.g. *I literally split my sides laughing*; Quirk *et al.* 1985: 619).

Powell (1992) and Israel (2002) are among the first scholars to analyze the modern uses of *literally* as part of an ongoing process of semantic change from "orthodox" to "unorthodox" meanings, interpreting this development as a «natural semantic extension of its basic metalinguistic meaning» (Israel 2002: 423; cf. Powell 1992 on the «attitude of aptness»). More recent studies, including works by Calhoun (2013), Bueno-Amaro (2022), and Aijmer (2023), confirm this kind of development from a corpus-based perspective (see also Park 2016).

While recent empirical studies have mostly focused on British English (e.g. Bueno-Amaro 2022, Aijmer 2023), our analysis aims to bring new insights into the development of *literally* in American English, focusing on informal conversation among young speakers. Our dataset consists of 23 episodes of *LOL Podcast*, specifically those published between September 14 and November 30, 2024. The show, aimed at a teenage audience, is hosted by five young Americans aged between 15 and 24. The corpus, therefore, consists of spontaneous, face-to-face, informal conversations, covering everyday topics. Two digital tools, i.e. *Filmot* and *Sketch Engine*, were employed to search, manage, and analyze the textual data. Each occurrence of *literally* was examined in terms of syntactic distribution, scope, and semantic-pragmatic function in context.

Data analysis and discussion

It is worth noting that across the 23 selected episodes, *literally* occurs 327 times. This indicates a remarkably high frequency of *literally* in our corpus, especially considering that its semantic shift is a rather recent phenomenon. Although this finding aligns with recent studies on *literally* (cf. Bueno-Amaro 2022; Aijmer 2023), its high frequency in the present data appears even more striking and represents evidence for its grammaticalization, a process which is related to and driven by frequency.

As shown in Table 1, *literally* exhibits a syntactic scope increase in its wide range of combinatorial patterns. Such a syntactic flexibility also reflects its functional versatility, thus entailing a grammaticalization process.

Table 1. Distribution of *literally* according to syntactic scope and combinatorial patterns.

Syntactic context	VP	NP	AdjP	PP	AdvP	Sub. clause	(Semi) independent	Stand alone	Null
Tokens	143	35	11	13	29	8	43	11	34

The combination with verb phrases (VP) remains the most common syntactic combination (143×) for *literally*, consistent with previous research, and is typically associated with its use as an emphasizer (see analysis below). A modest preference is observed for semi-independent uses (43×) — i.e. syntactically detached occurrences of *literally*, appearing at the sentence periphery or in an interpolated position, carrying no propositional meaning and having global scope over the discourse as a whole — along with 11× fully stand-alone occurrences. These findings support the idea of an ongoing grammaticalization of *literally*, pointing toward more (inter)subjective functions.

The textual analysis confirms a considerable functional versatility of *literally*. Compared to previous studies, in our dataset *literally* shows a wider and more nuanced range of functional layers. Some functions of *literally* are less subjective and relate to its prototypical metalinguistic value (i.e. metalinguistic operator, de-

emphasizer, metalinguistic emphatic operator), while others reflect the speaker's subjectivity and procedural-discourse level (i.e. truth emphasizer, focalizer, intensifier, rhetorical emphasizer, illocutionary emphasizer, pragmatic and response marker). For reasons of space, only some among the most relevant ones are discussed here (see Busetta and Nigrelli, forthcoming).

The original semantic value of *literally* ('in the truest sense of the word, non-metaphorically') aims to disambiguate any potential metaphoric or hyperbolic interpretation. In the present dataset, however, this core metalinguistic meaning is frequently intertwined with other senses and becomes partially blurred. For instance, *literally* occurs as a de-emphasizer and mitigator of a statement (i.e., 'simply', 'nothing else than'), when used to reduce the action's relevance or the speaker's commitment, as in (1):

(1) Cash: I **literally** just play the drums.

In (2), *literally* operates as a metalinguistic emphatic operator, connecting literal accuracy with more subjective meanings such as mirativity, surprise or shock, which represents an intermediate stage along the (inter)subjectification cline (cf. Bueno Amaro 2022: 286). In (3), instead, *literally* is used as a mere truth emphasizer: the utterance requires no disambiguation and *literally* simply conveys plain emphasis and the speaker's commitment and emotional involvement.

(2) Maverick: We almost died (group laughter). **Literally**, I kid you not. Worst honeymoon ever!
(3) Kate: I **literally** can't wait. I really can't.

Additionally, *literally* can function as a focalizer when it asserts the identity of two arguments. In (4) *literally* does not express metalinguistic accuracy nor truth emphasis: its primary role is to focalize the identity between, on the one hand, the gymnastic pose performed by Harper, to which *that* refers, and the phrase *how you do it*.

(4) Harper: That's **literally** how you do it (showing a gymnastics pose).

Literally also operates as a rhetorical emphasizer, strengthening hyperbolic or metaphorical statements for expressive or stylistic purposes, functioning as «a way of appreciating the non-literal» (cf. Powell 1992: 345). In several cases, *literally* functions as an illocutionary emphasizer, as in (5), reinforcing the illocutionary force of the speech act, which is commissive in this case.

(5) Cash: She is making this up now.
Kate: No, I **literally** swear. I'm not.

This function can be interpreted as a bridging context within the (inter)subjectification cline, as it links the subjective emphasis with more hearer-oriented and pragmatic functions. Indeed, moving beyond its illocutionary uses, in the sample literally is also used as a discourse-pragmatic marker (cf. Aijmer

2023 for British English), i.e. a syntactically independent and semantically bleached operator, used for various interactional purposes (e.g., follow-ups, agreement, floor-holding). Involving the interpersonal level (i.e. intersubjectification, in the narrow sense), this use of literally points to an advanced stage of grammaticalization, in which literally functions primarily as a pragmatic operator (i.e. pragmaticalization) rather than a subjectivity-related modifier (for further details see Busetta and Nigrelli, forthcoming).

Overall, the analysis of *literally* in *LOL Podcast* has provided new and significant evidence on its semantic shift. Its notably high frequency in the present corpus, along with its remarkable syntactic flexibility and scope increase, and its wide range of semantic-pragmatic functions, support the idea of an ongoing grammaticalization and (inter)subjectification process undergone by *literally*.

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Text segmentation affects oculomotor reading behaviour and reading comprehension

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Abstract

Modern digital reading tools often segment texts into smaller units to improve attention and comprehension, but evidence on their effectiveness is mixed. This study examined how segmentation affects eye-movement patterns and comprehension. Participants read either full texts, paragraph-by-paragraph, or sentence-by-sentence, and answered comprehension questions after each text. Eye movements were recorded and analyzed using mixed-effects models. Comprehension was highest in the sentence condition, suggesting that segmentation supports local integration and reduces distractions. Full-text reading led to longer reading times, more regressions, and stronger global wrap-up effect, whereas sentence-level segmentation increased local processing but resulted in more efficient comprehension overall.

Keywords: reading, eye-tracking, text comprehension, text segmentation

Introduction

Modern digital reading applications incorporate text segmentation features that present content in smaller linguistic units, such as phrases or sentences. These tools are designed to enhance attention and improve comprehension; however, existing data on their effectiveness is controversial (Koornneef, 2024; Lemarié, Eyrolle, Cellier, 2008).

On the one hand, segmentation may facilitate more focused processing by limiting the amount of visual information perceived at one time. This can help the reader to focus on deeper semantic processing of the segment, reducing the likelihood of good-enough comprehension and thereby improving understanding of the text as a whole (Lemarié, Eyrolle, Cellier, 2008; Prinz-Weiss, König, 2023; Gerber-Moron, Szarkowska, Woll, 2018).

However, it may also disrupt discourse coherence by reducing the accessibility of context, increasing the cognitive load and making it difficult to interpret the text as a whole (Delgado et al., 2018; Mangen, Walgermo, Brønnick, 2013). Furthermore, segmentation may disrupt the integrity of the text, hindering the reader's ability to construct a mental model of it, which is crucial for comprehension (Kintsh, 1998).

This study aims to investigate the impact of text segmentation on oculomotor reading behaviour and text comprehension, which is important not only for educational and informational applications, but also for contributing to a deeper

understanding of meaning construction in reading. We compared three reading conditions: full text on the screen, paragraph-by-paragraph presentation, and sentence-by-sentence presentation.

Materials and methods

12 encyclopedic-style texts 120-170 words long from the Russian subcorpus of Multilingual Eye-movement Corpus (Siegelmann et al. 2022) were chosen as stimuli. The texts are available at the project's OSF page (https://osf.io/3527a/).

The participants were asked to read the texts in one of the three conditions (full text, paragraph-by-paragraph, sentence-by-sentence) and answer 8 comprehension questions after each text requiring "yes" or "no" answers. Questions included literal and inferential ones. The eye-movements of the readers were recorded using the EyeLink 1000+ desktop mount eye-tracker (1000 Hz). One text served as a training trial during which eye-movements were not recorded.

81 native speakers of Russian (54 female) aged 18–61 with normal or corrected-to-normal vision and no reported reading disorders volunteered to take part in the study. Each participant was randomly assigned to one of the experimental conditions. The experiment was carried out in accordance with the Declaration of Helsinki, all the participants provided informed consent.

Results

Comprehension rates were analyzed, as well as saccadic activity, regression rates and reading time. Mixed linear models were used for statistical analysis, in cases where linear models could not be used, non-parametric statistical tests (Mann-Whithey U-test and Kruskal-Wallis test) were applied.

The segmentation condition (full text, paragraphs or sentence-by-sentence) was included as a fixed factor, while the participants and texts were included as random factors. Modelling was performed using the *statsmodels* package for Python (Seabold & Perktold, 2010).

Table 1 presents the average values of eye movement activity parameters when reading text in the three considered formats, as well as the results of the pairwise format comparisons. The proportion of correct answers to questions about the texts was calculated for each participant, and a statistically significant difference was found between the groups ($p = 0.041$), with higher text comprehension accuracy in the sentence-by-sentence condition.

Table 1. Oculomotor parameters for reading text in different text segmentation formats[1].

Parameter	Sentence-by-sentence presentation	Paragraph-by-paragraph presentation	Full text presentation
Total reading time (s)	72,3 (SD = 22.7) **	68,4 (SD = 20.2) ***	84,1 (SD = 24.6)
Fixation duration on the final words of the fragment compared to the other words (ms)	326 (SD = 89) vs 201 (SD = 70) *, **	298 (SD = 85) vs 254 (SD = 74)	–
Fixation duration on the final words of the text (ms)	209 (SD = 75) **	284 (SD = 88) ***	398 (SD = 97)
Average number of saccades per word	0,32 (SD = 0.08) *, **	1,33 (SD = 0.39) ***	0,82 (SD = 0.19)
Average number of regression saccades within a sentence	2,55 (SD = 1.14) *, **	2,18 (SD = 1.09) ***	2,76 (SD = 1.23)

Discussion

Our findings demonstrate that text presentation format significantly impacts reading strategies, eye movement activity and reading comprehension.

The longest reading time and the highest number of regressions were recorded in the full-text condition, since readers actively return to previously read information when the full context is available, forming a coherent mental model. The classic wrap-up effect is most pronounced in the full-text condition: the final word is perceived as the final point of the global semantic structure and the mechanisms that integrate the content of what has been read into a single mental model of discourse are activated (Kintsch, 1988).

Eye-tracking data revealed format-dependent differences in cognitive load: in paragraph-by-paragraph presentation, the total number of saccades increased, which is characteristic of scanning-type reading; in sentence-by-sentence presentation, the number of regressions remained unchanged compared to other conditions but was redistributed within the accessible fragment. This can be considered a kind of compensation for the inability to return to the left context. Additionally, under sentence-by-sentence condition, a pronounced wrap-up effect was observed at the boundaries of sentences, with the duration of fixations on the final words of sentences increasing significantly. This indicates enhanced integration of information within a single sentence, rather than across the entire text. Therefore, our eye movement data indicate adaptive mechanisms of attention regulation in conditions of limited visual context.

Comprehension accuracy was highest in the sentence condition, suggesting that segmentation may enhance local integration and reduce distractions, thereby supporting more effective processing of textual information. This is consistent with the idea that fragmented presentation can facilitate the retention of information in working memory (Koornneef, 2024).

Overall, sentence-level segmentation increased local processing effort but supported better comprehension, possibly by facilitating incremental integration and reducing interference from upcoming content. Full-text formats encouraged globally coherent reading but at a cost of longer processing time and more regressive eye movements.

Notes

1. One asterisk indicates a significant difference (p-value < 0.01) between the sentence-by-sentence presentation and the paragraph-by-paragraph presentation; two asterisks indicate a significant difference between the sentence-by-sentence presentation and the full-text presentation; three asterisks indicate a significant difference between the paragraph-by-paragraph presentation and the full-text presentation.

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Disagreement as an interactional resource for affiliation in South Korean conversation

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Abstract

This study investigates how South Korean speakers employ expressions of disagreement to promote social solidarity and convey affiliation. Using a conversation-analytic (CA) approach, it examines expressions of disagreement in naturally occurring Korean conversation drawn from the LDC CallFriend Korean telephone corpus. Prior CA research has generally treated disagreement as a dispreferred action, typically associated with resistance, opposition, or rejection in conflictual contexts. The present study explores how disagreement can be interactionally mobilized as a preferred action in South Korean conversation. By foregrounding the affiliative uses of disagreement in a specific cultural context, this study contributes to a more nuanced understanding of disagreement as a culturally variable and socially adaptive interactional resource.

Keywords: disagreement, South Korean conversation, conversation analysis, preference organization

Introduction

Prior conversation analytic research on expressions of disagreement has generally treated disagreement as a dispreferred action, typically associated with resistance, opposition, or rejection, with much of the literature focusing on its relation to epistemic stance and mitigation practices in conflictual sequences (Heritage, 2012; Pomerantz, 1984). In such contexts, particularly in English, Japanese, and South Korean conversations, disagreements are frequently delayed, mitigated, or preceded by devices such as initial agreements, pauses, or repetitions in order to manage the dispreferred nature of the action (Ha, 2018a; Ha, 2018b; Mori, 1999; Pomerantz, 1984; Schegloff, 2007). In South Korean conversation specifically, expressions such as kuntey 'but,' silence, laughter, and the [agreement + disagreement] format are commonly used to delay or soften the force of disagreement (Ha, 2018).

In this study, we argue that in South Korean conversation, disagreement is used not only to express divergent opinions in conflictual environments but also as a resource for enhancing social affiliation in non-conflictual contexts. We focus on these practices particularly in the environments of responding to compliments and responding to self-deprecation. Pomerantz (1978) showed that in English conversation, compliment responses typically involve agreement and avoiding self-praise. In contrast, studies of Korean interaction report a higher frequency of deflecting or downgrading responses (Kang, 2004). In English

conversation, self-deprecation has been examined as a social action that invites affiliative uptake, often prompting recipients to counter it with disagreement, reassurance, or upgraded praise (Speer, 2019; Pomerantz, 1984).

Data and methodology

This study employs a conversation-analytic (CA) approach to examine naturally occurring South Korean conversation. CA is a well-established qualitative methodology for analyzing social interaction, aiming to describe and understand talk-in-interaction through topics such as turn-taking, preference organization, and sequence organization (Sidnell, 2011). The data for this study come from the CallFriend Korean telephone corpus, which consists of naturally occurring conversations between native speakers of South Korean. All conversations were transcribed using standard CA transcription conventions, which enable the fine-grained, moment-by-moment analysis of interactional practices. A two-line transcription format is used in this study.

Data analysis

In this study, we focus on two interactional practices through which such disagreements function to reinforce social solidarity rather than to create conflict: disagreement in response to compliments and disagreement in response to self-deprecation. Excerpt (1) illustrates an example of a common interactional practice in South Korean conversation, in which speakers reject compliments directed at themselves or their family members. The excerpt presents a segment of conversation between two female speakers, Mijin and Bori, discussing Mijin's daughter. In (1), Mijin expresses disagreement with Bori's compliment about her daughter.

(1) Disagreement to compliment (Ko_6510)
01 Mijin: tantanhi kyoyuk sikhi-ko iss-tako
(I)'ve been disciplining (my child) quite strictly
02 hakkyo ka-se chinkwu-tul-hako chakha-key ha-lako::
to be nice towards (her) friends at school.
03 Bori:→ = a chakha-ci:: haha
(Your child) is a good:: haha
04 Mijin:→ °kulay?° way:: kulayto tto ci mamtaylo ha-llyeko kule-canha-yo.
°Do you think so? ° Well still (she) keeps trying to do things her own way

In the excerpt, Mijin talks about her daughter's school life and how she is disciplining her to behave at school (line 1). Upon hearing Mijin downgrading her daughter, Bori gives a compliment by saying a *chakha-ci*: *haha* '(Your child) is good' (line 3). Mijin immediately disagrees with this compliment in line 4. In this

non-conflictual context, the South Korean speakers achieve the interactional goal of solidifying social solidarity by both praising and rejecting the praise.

Excerpt (2) illustrates another common practice: the way a South Korean speaker expresses disagreement with an interlocutor's self-deprecation. In this example, two male friends, Minho and Hajun, discuss their schooling and career choices. Here, Minho disagrees with Hajun's self-deprecatory utterance, demonstrating how disagreement can function to affirm solidarity rather than express conflict.

(2) Disagreement to self-deprecation (Ko_6334)

01 Hajun:→ haha hwuhoy-lul manhi hays-e
haha (I) already regretted a lot
02 :→ ai ssi akka-we cwuk-keys-ci sikan-i.
Damn it It's a total waste of time.
03 Minho:→ mwe ceki (I sam nyen?) te ha-myen toy-nuntey mwe
Well (you) just need to (study) (two or three years?) more
04 ku- ku piyong-ppwun-i te an tul-canha.
The only thing is to pay for the cost.

In lines 1 and 2, Hajun says that he regrets having wasted so much time attending college. In response to this self-deprecation, Minho immediately disagrees, saying that Hajun simply needs to continue his schooling a bit longer and that what is really required is only the cost of schooling (lines 3 and 4). As Minho resists Hajun's self-criticism, the topic of their conversation shifts to the expenses associated with attending school, such as rent and tuition, as their conversation progresses. As this excerpt demonstrates, disagreeing with an interlocutor's self-deprecation can serve to reframe the situation more positively for the interlocutor and, in doing so, reinforce social solidarity.

Conclusion

The present study has examined how disagreement can be interactionally mobilized as a preferred and affiliative action in South Korean conversation. Specifically, the analysis demonstrates that South Korean speakers may deploy disagreement in non-conflictual contexts, such as in responses to compliments and self-deprecation, not to initiate conflict, but to foster social solidarity. Furthermore, unlike disagreements in conflictual environments, disagreements in these non-conflict contexts are often produced without delay or mitigation. These findings show that disagreement, typically treated as a dispreferred action, can serve affiliative functions depending on the type of preceding action (e.g., compliments or self-deprecation) in South Korean conversation. Although the current dataset is limited, future studies should incorporate a larger corpus of conversational data to examine the various contexts in which disagreement is

mobilized to express affiliation, thereby providing a more nuanced understanding of how this practice is organized and functions across different cultural contexts and social interactions.

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Women leading linguistic change: sociolinguistic reflexes of modernization in multilingual societies

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Abstract

This paper examines gendered patterns of linguistic variation and change in a multilingual society, focusing on Arabic speakers in the Israeli-Palestinian city of Taibeh. Drawing on sociophonetic data from 30 stratified interviews, reading tasks, and spontaneous speech recordings, the study analyzes how women and men differently negotiate phonological variation under conditions of modernization and sustained contact with Hebrew and English. Particular attention is given to the realization of /q/ and /ʕ/, as well as patterns of code-switching and lexical borrowing. The findings show that younger, educated women lead the adoption of urban prestige variants and engage in strategic cross-linguistic practices associated with mobility and professional identity, while older male speakers favor conservative forms linked to local solidarity. These results highlight gender as a central driver of language change in multilingual settings.

Keywords: gender, sociophonetics, Arabic, multilingualism, language change

Introduction

Language change in multilingual societies is rarely a neutral linguistic process. It is shaped by social hierarchies, ideological pressures, and unequal access to linguistic capital. Within sociolinguistic research, gender has long been identified as a key variable in explaining patterns of variation and change, particularly in contexts undergoing rapid social transformation. Women are frequently found to lead linguistic innovation, especially when novel forms carry symbolic associations with prestige, education, or modernity.

This study explores gendered language change within the Arabic-speaking community of Taibeh, an urban Palestinian city in central Israel. The linguistic ecology of Taibeh is characterized by sustained contact between Arabic, Hebrew, and English, alongside processes of urbanization, educational expansion, and labor market integration. These conditions provide fertile ground for examining how speakers mobilize linguistic resources to negotiate identity, belonging, and aspiration.

The paper asks: (1) how do male and female speakers differ in their use of selected phonological variables under conditions of language contact and modernization, and (2) how do these differences reflect broader sociocultural processes in a stratified multilingual society?

Sociolinguistic context: Taibeh as a multilingual ecology

Taibeh is a predominantly Arabic-speaking city whose residents participate daily in Hebrew-dominant institutional domains such as higher education, employment, and public administration. English also functions as a symbolic global language associated with academic success, technology, and professional advancement. As a result, Arabic speakers routinely navigate multiple linguistic systems, each carrying distinct ideological and social meanings.

Within this setting, linguistic choices often index social positioning. Urban speech styles associated with Hebrew-influenced or globalized norms may signal education, mobility, and access to wider networks, while conservative Arabic forms often index local solidarity and cultural continuity. Gender intersects with these dynamics, as women and men experience differential access to public space, education, and professional domains.

Previous research on Arabic sociolinguistics has shown that women are more likely to adopt supra-local or prestige variants, particularly in urban contexts. The present study builds on this work by combining sociophonetic analysis with qualitative interpretation, situating linguistic variation within lived social practices.

Methodology

The study employs a mixed-methods sociolinguistic design. Data were collected from 30 native Arabic speakers residing in Taibeh, stratified by gender, age group (18–30, 31–50, 51+), and education level. The corpus includes semi-structured sociolinguistic interviews, controlled reading tasks containing minimal pairs, and spontaneous conversational speech.

The analysis focuses on two phonological variables with strong sociolinguistic salience: the realization of /q/ and the weakening or reduction of /ʕ/. These variables were selected due to their documented sensitivity to urbanization and contact-induced change in Arabic-speaking communities. Instances of code-switching and lexical borrowing from Hebrew and English were also noted.

Phonetic analysis was conducted using acoustic measurements of relevant tokens, while qualitative interpretation drew on interview content and metalinguistic commentary. This combination allows for both quantitative patterning and socially grounded interpretation.

Results

The results reveal clear gendered patterns of variation. Younger and middle-aged female speakers show a significantly higher frequency of non-traditional realizations of /q/, including glottal and velar variants associated with urban prestige. Similarly, /ʕ/ is frequently weakened or omitted in their speech, particularly in professional or mixed-language contexts.

In contrast, older male speakers overwhelmingly favor conservative realizations of both variables, maintaining emphatic articulations associated with rural or traditional speech norms. These speakers rarely engage in code-switching and explicitly describe their linguistic choices as expressions of authenticity and cultural preservation.

Female speakers, particularly those with higher education, demonstrate strategic code-switching into Hebrew or English, often for pragmatic or stylistic purposes. Borrowed lexical items are embedded smoothly into Arabic discourse and function as markers of competence and modern identity rather than deficiency.

Discussion: gender, prestige, and linguistic agency

The findings support the view that women act as key agents of linguistic change in contexts of social transition. In Taibeh, women's adoption of urban prestige variants reflects not only exposure to contact languages but also active linguistic agency. Phonological and lexical choices are deployed reflexively to navigate professional environments, public interaction, and shifting gender roles.

Men's preference for conservative forms can be understood as a counter-strategy emphasizing continuity and local solidarity. Rather than lagging behind change, these patterns reflect differing ideological orientations toward language and identity.

Importantly, the data show that language contact does not operate uniformly across speakers. Gender mediates access to linguistic resources and shapes the meanings attached to variation, reinforcing the need to analyze language change as socially embedded and ideologically charged.

Conclusion

This study demonstrates that language change in multilingual societies is deeply gendered. In the Arabic-speaking community of Taibeh, women lead phonological innovation and cross-linguistic practices that index modernity, mobility, and professional identity. Men, by contrast, tend to maintain conservative forms aligned with cultural continuity.

By foregrounding gender as a central axis of sociolinguistic variation, the paper contributes to a more nuanced understanding of how marginalized speakers navigate linguistic hierarchies under conditions of modernization. Language change emerges not as an abstract process, but as a socially situated practice shaped by power, identity, and agency.

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Exploring the impact of CLIL on high school learners' Spanish L1 vocabulary production

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Abstract

The present paper attempts to explore the effects that further exposure to English (L2) through CLIL programmes can have on learners' productive vocabulary in Spanish (L1). To this end, a comparative study of 21 CLIL and traditional EFL learners' Spanish L1 vocabulary production was conducted by means of a lexical availability task (LAT). The results showed no statistically significant differences in terms of vocabulary size. However, CLIL learners outperformed their non-CLIL peers in token production within the four prompts. Additionally, both learner cohorts produced similar lexical items. Nonetheless, CLIL learners elicited some exclusive words related to the English culture in Spanish. These findings go along with previous studies that denied any potential menace of CLIL on learners' L1.

Keywords: Content and Language Integrated Learning (CLIL), English as a Foreign Language (EFL), multilingualism, Spanish (L1), vocabulary production

Introduction

Content and Language Integrated Learning (CLIL) can be defined as "a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language" (Coyle et al. 2010, p. 1). This educational approach was firstly implemented in Europe during the 1990s as a means to reinforce the presence of English at the classroom. However, the different linguistic contexts across Europe have resulted in a great diversity of CLIL programmes adapting to the needs and characteristics of the area where it is implemented. In La Rioja, the region where data was collected, we can distinguish between two ways of implementing CLIL.: Bilingual Sections and Schol Language Innovations Projects (Jiménez Catalán & Geoghegan 2023).

Although several research studies addressing the impact of CLIL can be spotted on a wide array of linguistic aspects in English L2, the effects that CLIL may have on learners' mother tongue is still underexplored. In fact, we are only aware of three previous papers that examine the impact of CLIL on learners' L1 in terms of literacy (San Isidro & Lasagabaster 2018), verbal intelligence and motivation (Pérez Cañado 2018), and students' results in the Spanish Language subject tests (Navarro-Pablo & López Gándara 2019). The results of these studies evinced a positive influence of CLIL programmes at both primary and secondary education levels, as researchers acknowledged improvement in L1

proficiency, greater motivation and higher metalinguistic awareness, denying any potential menace of CLIL on learners' L1. Nevertheless, research is still needed to examine the effects of CLIL on learners' L1 lexical competence.

Methodology

11 CLIL and 10 traditional EFL 8th-grade learners were tested their productive vocabulary in Spanish L1 by means of a lexical availability task (LAT) in order to ascertain learners' vocabulary size (RQ1), and to account for differences and similarities in learners' most available words (RQ2). Learners were explained the instructions for completing the task in Spanish. Afterwards, they were provided two minutes to write as many words as came to their minds in response to four prompts: 'Comida y bebida', 'Amor y felicidad', 'Celebraciones y festivos', and 'Educación Física'. The results from the LAT were then coded and processed in a Microsoft Excel file according to the CLIL variable following the same protocols used in previous research on lexical availability (see Geoghegan 2023). Finally, LexPro was employed to conduct data analysis.

Results

To address RQ1 related to learners' productive vocabulary size in Spanish L1, Table 1 includes the type and token production, as well as the type-token ratio (TTR). When it comes to type and token production, CLIL learners outperformed their non-CLIL peers. However, the differences were not statistically significant (p = 0.13, 0.13, 0.1, 0.08; respectively). As regards lexical diversity, the TTR values show greater lexical diversity in favour of traditional EFL learners. Nevertheless, we may take those values with caution due to the small sample of participants.

Table 1. Descriptive results in Spanish L.

Prompt	CLIL learners			Non-CLIL learners		
	Types	Tokens	TTR	Types	Tokens	TTR
'Comida y bebida'	135	265	0.5	112	206	0.54
'Amor y alegría'	85	129	0.65	63	80	0.78
'Celebraciones y festivos'	72	129	0.55	51	90	0.56
'Educación Física'	80	160	0.5	56	102	0.54

Pertaining to RQ2, Table 2 displays the top ten most available responses of CLIL and non-CLIL learners in the four prompts. The shared words appear highlighted in bold. In this respect, learners shared four words in the 'Comida y bebida' prompt, five words in 'Educación Física', and six words in the rest of the prompts. As concerns non-shared words, CLIL learners produced some cultural-specific L2 terms (e.g., *pizza*, *Halloween*). In addition, as shown by the figures in

brackets, CLIL learners' most available words were more repeated by the group members suggesting a more homogeneous and solid productive vocabulary.

Table 2. Most available words elicited by group per prompt.

Prompt	CLIL learners	Non-CLIL learners
'Comida y bebida'	**Agua** (8), **hamburguesa** (6), manzana (7), pizza (6), **cocacola** (7), fresa (6), plátano (6), pera (7), **arroz** (4), ensalada (4).	**Agua** (9), **hamburguesa** (7), **cocacola** (6), **arroz** (6), lechuga (5), fanta (4), paella (4), pollo (4), chocolate (4), leche (5).
'Amor y alegría'	**Familia** (8), **amigo** (8), sentimiento (3), fútbol (3), **abrazo** (4), **felicidad** (4), feliz (2), **corazón** (4), **beso** (2), deporte (2).	**Amigo** (4), **familia** (4), sonrisa (3), **corazón** (2), **beso** (3), diversión (2), **felicidad** (2), tristeza (2), **abrazo** (2), jugar (2).
'Celebraciones y festivos'	**Semanasanta** (9), **navidad** (7), **sanmateo** (8), **sanbernabé** (7), fiestasdepueblo (5), halloween (5), **cumpleaños** (5), **verano** (4), sanjosé (3), **pascua** (4).	**Navidad** (8), **semanasanta** (7), **pascua** (5), **sanmateo** (4), **cumpleaños** (6), **verano** (4), **sanbernabé** (3), fiesta (4), añonuevo (2), díadelniño (2).
'Educación Física'	**Fútbol** (11), **baloncesto** (9), **tenis** (7), **voleibol** (5), **correr** (6), acrosport (5), baile (7), atletismo (6), **pádel** (5), gimnasiarítmica (5).	**Fútbol** (9), **baloncesto** (9), **correr** (5), **tenis** (7), **voleibol** (7), bádminton (5), jugar (3), saltar (3), **pádel** (3), balón (7).

Discussion and conclusions

Having analysed the results from the LAT, it is time to answer the previously formulated RQs. RQ1 dealt with possible differences in terms of vocabulary size in Spanish L1. With this respect, one may affirm that CLIL learners possess a more extensive vocabulary than their non-CLIL peers. However, those differences are not statistically significant. These results thus appear to converge with previous studies evidencing an advantage for the CLIL group in terms of Spanish L1 competence. As regards RQ2, CLIL learners retrieve more homogeneous responses than their non-CLIL counterparts. Additionally, the two groups curiously shared more words in open-nature than in taxonomic prompts which may reflect similar extralinguistic and cultural experiences among learners (Mora & Šifrar Kalan 2025).

As the sample of participants was limited to 21 students, results should be viewed as exploratory rather than conclusive. Thus, findings may serve to establish hypotheses within future larger-scale studies. Additionally, this paper opens future research lines such as exploring learners' productive vocabulary across their whole linguistic repertoire. In this regard, oncoming studies could cross-linguistically compare CLIL and non-CLIL learners' productive vocabulary, as well as to explore whether these findings apply to other European CLIL settings.

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An experiment on 'cute' vowels in Japanese

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Abstract

This study experimentally examined which vowels can be associated with cuteness, or *kawaii*, in Japanese, from the perspective of sound symbolism. The results showed that /a, i/ were more likely to be perceived as 'cuter' than /u, e, o/ (when the surrounding consonants are all obstruents). To explain this result, I presented the babyishness and familiarity hypotheses.

Keywords: babyishness, cuteness, familiarity, sound symbolism, vowels

Introduction

Sound symbolism is a phenomenon in which a sound conveys a particular meaning (e.g., Hinton et al. 1994). Recent studies have examined which phonetic and phonological factors make names sound cute (e.g., Kumagai 2022; Schmitz et al. 2023). Schmitz et al. (2023) conducted experiments on 'cute' vowels primarily with German speakers. They reported that when a character name containing /aː/ is larger or when a character name containing /iː/ is smaller, each tends to be perceived as cuter. This suggests that size and cuteness are correlated in names containing /a/ or /i/. To the best of my knowledge, no such experiments have been conducted on Japanese 'cute' vowels. Therefore, this study involved an experiment to examine which vowels are perceived by Japanese speakers as cute.

Experiment

Task and stimuli

In this study's task, given a pair of two nonce words, participants were asked which name sounds cuter than the other. Japanese has a five-vowel system: /i, e, a, o, u/. Therefore, the present study compared /a, i/ with /u, e, o/ as well as compared /a/ with /i/ (provided that these two vowels sound cuter than other vowels). Table 1 presents examples of pairs of stimuli (relevant files for the present experiment are available at the Open Science Framework (OSF) repository: https://osf.io/n9vku/). Set 1 compared /a, i/ with /u, e, o/. Set 2 compared /a/ with /i/. Each set had two conditions: whether the surrounding consonants were sonorants or voiceless obstruents. Each condition comprised eight pairs. A total of 32 pairs (= 2 sets * 2 conditions * 8 pairs) were presented. All nonce words were three-mora long. See the OSF repository for all stimuli.

Table 1. Examples of pairs of stimuli.

Set	Vowels	Conditions	Examples
1	ai (vs. ueo)	sonorants	/minari/ (ai) vs. /monere/ (ueo)
		voiceless obstruents	/kasiti/ (ai) vs. /kesuto/ (ueo)
2	a (vs. i)	sonorants	/manara/ (a) vs. /miniri/ (i)
		voiceless obstruents	/kasata/ (a) vs. /kisiti/ (i)

Procedure

The experiment was implemented online using the SurveyMonkey (surveymonkey.com) questionnaire platform. Participants were recruited in May 2024 using the buy-response function provided by the company. Participants were first asked to agree to participate via a consent form. They were allowed to participate if their first language was Japanese and if they had never studied sound symbolism. Subsequently, participants were required to select which name sounded cuter (*kawaii* in Japanese) between the two nonce words. Additionally, they were instructed to provide an answer after pronouncing each name, as written stimuli were used. The stimuli were presented with Japanese katakana characters (the orthography typically used for loanwords), similar to those used in previous experiments on cuteness in Japanese (e.g., Kumagai 2022). Thirty-two pairs of stimuli were randomly presented to each participant.

Participants

In total, 150 participants completed the task. Of these, 71 participants were females, 68 were male, and 11 did not select any gender. Twenty-two were aged 18−29 years, 89 were aged 30−44 years, and 39 were aged 45−60 years.

Statistics

The results were analysed with a Bayesian mixed-effects logistic regression, using 'brms' (Bayesian regression model using Stan; Bürkner 2017) in R version 4.2.2 (R Core Team 2022). Regression analysis was performed for each set of stimuli. The dependent variable was binary (1 vs. 0): it was coded as '1' when a stimulus group (/a, i/ for Set 1; /a/ for Set 2) was selected as a cute name, and '0' when the other stimulus group was selected as a cute name. The independent variables were the consonant type (sonorants vs. voiceless obstruents) and vowel type (/a, i/ vs. /u, e, o/ for Set 1; /a/ vs. /i/ for Set 2). The interaction between the vowel and consonant types was included in the model. Additionally, the analysis included by-stimulus and by-participant random intercepts, as well as by-participant random slope adjustments to the vowel and consonant types. See the OSF repository for details.

Results

Table 2 presents the rates at which the /a, i/-containing words (Set 1) or /a/-containing words (Set 2) were selected as cute names (see the OSF repository for graphs). For Set 1, the coefficient for /a, i/-containing words was positive (coefficient (β)=0.53, error (E)=0.34), but the 95% Credible Interval (CI) included 0 ([−0.16, 1.21]). Thus, it was unclear whether the difference between the two groups was credible. Meanwhile, the coefficient for the interaction between /a, i/ and voiceless obstruents was positive (β=1.42, E=0.46), and the 95% CI did not include 0 ([0.50, 2.32]). Thus, /a, i/-containing words were perceived as cuter when they contained voiceless obstruents as opposed to when they contained sonorants.

Table 2. Rates.

Set	Vowels	Conditions	Rates
1	ai (vs. ueo)	sonorants	/minari/=0.552 (vs./monere/)
		voiceless obstruents	/kasiti/=0.688 (vs./kesuto/)
2	a (vs. i)	sonorants	/manara/=0.462 (vs./miniri/)
		voiceless obstruents	/kasata/=0.524 (vs./kisiti/)

For Set 2, the coefficient for /a/-containing words was negative (β=−0.46, E=0.32), but since the 95% CI included 0 ([−1.09, 0.15]), I cannot say that the difference between /a/ and /i/ was credible. For the interaction between /a/ and voiceless obstruents, the coefficient was positive (β=0.72, E=0.37), but the 95% CI included 0 ([−0.00, 1.46]).

Discussion and conclusion

The present experiment showed that the /a, i/-containing words were perceived as cuter in the voiceless obstruent condition than in the sonorant condition. Thus, the combination of /a, i/ and voiceless obstruents enhanced the image of cuteness. This may be attributable to the cuteness effect of consonants: sonorants have a stronger effect of cuteness than obstruents (Kumagai 2022). Therefore, the cuteness effect of sonorants may have cancelled out that of vowels in the sonorant condition.

The present experiment suggests that /a, i/ can be associated more with cuteness than /u, e, o/. I propose at least two hypotheses to explain this result. The first is the babyishness hypothesis, which states that the early-acquired sounds are associated with images of babies or cuteness (see Kumagai 2022 for an explanation of 'cute' consonants). Acquisition progresses through contrasts of two phonemes. For vowel acquisition, first, the wide vowel is opposed to a narrower vowel (e.g., *papa* vs. *pipi*, Jakobson 1941). Considering this, /a, i/ are considered as early-acquired sounds, which can be associated with the image of babies or cuteness. However, to the best of my knowledge, there is no corpus-

based evidence to suggest that /a, i/ are acquired earlier than /u, e, o/ in Japanese. If such evidence is found, then the babyishness hypothesis will be supported.

Second, I propose an alternative, the familiarity hypothesis, which states that 'familiar' sounds are associated with cuteness. This is based on a psychological study showing that cuteness (kawaii) is closer to 'familiar' than 'unfamiliar' (Nittono 2016). Japanese orthography uses hiragana and katakana, each letter of which consists of either a combination of one consonant and one vowel (e.g., /ka/ 'か'), a moraic nasal alone (/ɴ/ 'ん'), or a vowel alone (e.g., /a/ 'あ'). In the hiragana and katakana syllabaries, the five vowels are ordered as follows: /a/ 'あ', /i/ 'い', /u/ 'う', /e/ 'え', /o/ 'お'. An important point here is that the vowels /a, i/ precede the other three vowels in the syllabaries, which may allow Japanese people to become more familiar with /a, i/ than with /u, e, o/.

Therefore, /a, i/ may be considered as 'familiar' vowels, which are associated with cuteness. However, a drawback of this hypothesis is that there is no reason for the borderline to appear between /a, i/ and /u, e, o/.

In conclusion, this study showed that Japanese speakers tended to perceive words containing /a, i/ as cuter than those containing /u, e, o/ in a particular condition. Whether the two proposed hypotheses are plausible requires further investigation.

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The role of deixis in multi-verb sequences in English

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Abstract

This paper explores the role of deixis observed in multi-verb sequences in English. It deals with four types of multi-verb sequences: *V-and-V*, *V-to-V*, *V-V*, and *V-Ving*. Multi-verb sequences are divided into two types: regular and irregular. Only the deictic verbs *come* and *go* can occur in all four types of irregular multi-verb sequences. This paper shows that irregular multi-verb sequences have a reduced structure that does not include two verb phrases despite the presence of two verbs, and that there are two constraints on irregular multi-verb sequences: the integrity constraint and the subject constraint. Consequently, one conclusion can be drawn: the deictic verbs *come* and *go* play a vital role in forming irregular multi-verb sequences.

Keywords: multi-verb sequence, deixis, fully syntactic structure, reduced structure

The definition of multi-verb sequence

The term *multi-verb sequence* is defined in four ways: the *V-and-V*, *V-to-V*, *V-V*, and *V-Ving* sequences, where the first verb slot is always a single verb, and the second verb slot can be either a single verb or verb in a verb phrase. In this paper, the first verb is always the deictic verb *come* or *go*, and the second verb can be either intransitive or transitive. The multi-verb sequence always lacks an intervening word or phrase between the first and second verbs. We syntactically categorize the various uses of multi-verb sequences into two types: the regular multi-verb sequences and irregular multi-verb sequences.

Regular and irregular multi-verb sequences

The concepts of 'regularity' and 'irregularity' are fundamental to understanding the nature of multi-verb sequences. Within these sequences, regularities coexist with irregularities. Nevertheless, previous studies have predominantly focused on what this paper terms regular multi-verb sequences, as exemplified in (1).

(1) a. I like to put lots of ketchup on my fries.
b. My father always enjoyed playing golf.
c. You'll have to wait and see what happens.
d. He helped organize the party.

The regular multi-verb sequence comprises two verb phrases due to the presence of two verbs, indicating a fully syntactic structure. In contrast, the

previous studies have scarcely treated what this paper terms irregular multi-verb sequences, as shown in (2).

(2) a. She came to pick me up.
b. He came bearing gifts.
c. A lot of our friends came and saw me.
d. Come join us.

This paper hypothesizes that irregular multi-verb sequences possess a reduced structure that does not comprise two verb phrases despite the presence of two verbs. Many existing studies overlook the clear distinction between regular and irregular multi-verb sequences. Consequently, this paper focuses on examining the features of irregular multi-verb sequences.

Key features of the irregular multi-verb sequence

This paper shows that the first verbs in irregular multi-verb sequences are limited to the verbs *come*, *go*, *run*, *sit*, *stand*, *start*, *try*, and *up*. The most distinctive feature is that only the deictic verbs *come* and *go* can occur in all four types of multi-verb sequences, as shown in (2) and (3).

(3) a. He went to see 'Twelfth Night'.
b. She went sobbing up the stairs.
c. He went and bought thirty doughnuts.
d. Go wash your hands.

A sure sign that irregular multi-verb sequences constitute irregularities is that such sequences do not comprise two distinct verb phrases. In other words, an irregular multi-verb sequence functions as a constituent of a single verb phrase.

Regarding (3a) and (3b), semantically, what appears to be the second verb phrases *to see 'Twelfth Night'* in (3a) and *sobbing up the stairs* in (3b) seem to function as adjunct; however, their status as adjuncts remains unclear. Huddleston and Pullum (2002: 1223-1224) note that *in order* cannot be inserted in the (3a), and that (3a) is not interpreted as answering the question *Why did he go?* They also observe that *sobbing up the stairs* in (3b) cannot be omitted. Regarding (3c), syntactically, it does not represent full coordination because it violates the Coordinate Structure Constraint (Ross 1967:161), as defined in (4).

(4) The Coordinate Structure Constraint: In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct.

Specifically, extraction of a noun phrase from what appears to be the second verb phrase of the coordinated structure is possible, as in *What did he go and buy?*

From a phonological standpoint, Carden and Pesetsky (1977) note a difference between the *go-and-V* sequence with a reduced structure and the one with a fully syntactic structure. While the *go-and-V* sequence with a reduced structure represents the reduced pronunciation of *and* when spelled *'n'* in phrases like *rock'n'roll*, the *go-and-V* sequence with a fully syntactic structure has a pause before *and*. With respect to (3d), the *V-V* sequence is often regarded as a grammatical exception where the conjunction *and* is left out. Thus, irregularities are initially observed across multiple levels in (3).

Two constraints on the irregular multi-verb sequence

This paper shows that there are two constraints on irregular multi-verb sequences, the integrity constraint in (5) and the subject constraint in (6).

(5) The integrity constraint: No word can be inserted between the first verb and the word following the first verb in the irregular multi-verb sequence.
(6) The subject constraint: The first and second verbs in the irregular multi-verb sequence share the same subject.

As shown in (7), no word or no phrase can be inserted between the first verb and the word immediately following it.

(7) a. *He went in order to see 'Twelfth Night'.
b. *She went really sobbing up the stairs.
c. *He went at three and bought thirty doughnuts.
d. *Go immediately wash your hands.

This shows that the integrity, or inseparability, is consistently strong in irregular multi-verb sequences. It is therefore reasonable to state that irregular multi-verb sequences function as a single verb phrase despite containing two verbs. Conversely, as shown in (8), one or more words can be inserted between the first verb and the word following the first verb in regular multi-verb sequences.

(8) a. I like not to put lots of ketchup on my fries.
b. I can remember his reading some of the passages aloud to me.
c. Start slowly and gain some experience directly.
d. He helped her organize the party.

This means that the integrity, or inseparability, of regular multi-verb sequences is consistently weak because such sequences involve two verb phrases. The integrity constraint does not apply to regular multi-verb sequences.

With respect to the subject constraint, as shown in (2) and (3), the first and second verbs in irregular multi-verb sequences share the same subject. This sharing of the subject is closely related to the integrity constraint. In other words, there are no separate slots to express the subject of the second verb because the integrity, or inseparability, is consistently strong in irregular multi-verb sequences. It is therefore reasonable to state that irregular multi-verb sequences function as a single verb phrase despite containing two verbs. Conversely, the first and second verbs do not always share the same subject in regular multi-verb sequences. As shown in (9), the subject constraint does not apply to regular multi-verb sequences.

(9) a. The accident helped (to) promote gun control.
b. I remember my father bringing home a huge Christmas tree.
c. At school I boxed and I played rugby.

As shown in (9a), the subject of the second verb is generic and distinct from that of the main clause. In (9b) and (9c), the subject of the second verb is positioned between the first and second verbs, reflecting the weak integrity, or inseparability, characteristic of regular multi-verb sequences. The two constraints reveal that the irregularities discussed here are inherent properties of irregular multi-verb sequences.

Concluding remarks

Focusing on irregular multi-verb sequences, this paper has argued that irregularities are not peculiarities, but a normal part of the English Language. It is clear that the deictic verbs *come* and *go* play a vital role in forming irregular multi-verb sequences. It is also reasonable to conclude that deixis is significantly related to irregular multi-verb sequences.

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Digital vitality assessment: a comparative study of Brajbhasha and Kumaoni

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Abstract

Traditional language vitality metrics are insufficient in the digital era, necessitating new ways to measure digital vitality. This study examines Brajbhasha and Kumaoni, two less-resourced Indo-Aryan languages from North India, through the Digital Language Vitality Scale (DLVS) methodology. This study attempts to adapt the DLVS by prioritizing local government/welfare digital services over global platforms. A hybrid methodology – combining community surveys, fieldwork, and objective verification – was utilized to counteract subjective bias and capture functional support. The study validates the utility of the adapted DLVS in understanding how community resilience and collective identity influence digital action, despite technical limitations, and offers actionable insights for future assessments in similar communities worldwide.

Keywords: digital vitality, Indo-Aryan languages, DLVS (Digital Language Vitality Scale), Brajbhasha, Kumaoni.

Introduction

Traditional language vitality methods, emphasizing intergenerational transmission and speaker population, are increasingly insufficient. In the era of rapid digital transformation, a language's ability to sustain a Digital Presence is a critical indicator of its survival and relevance (Kornai, 2013). For languages facing resource constraints and the dominance of superstratum languages, a verifiable measure of digital vitality is essential (Soria, 2017). The framework applied here is the Digital Language Vitality Scale (DLVS) (Ceberio, 2018).

This study examines the digital trajectories of Brajbhasha and Kumaoni, two less-resourced Indo-Aryan languages from North India with deep literary traditions. Both face intense pressure from superstratum languages like Hindi and English in high-status domains. Kumaoni benefits from a robust collective linguistic identity, translating to greater awareness and loyalty. Conversely, Brajbhasha exhibits a less cohesive identity, resulting from fragmented institutional support and higher stigma (Mittal, 2024). This difference in identity is hypothesized to drive divergent patterns of digital resilience.

The research's primary objective is to provide a structured, comparative assessment using the DLVS. This study refines the methodology for use in multilingual settings, taking into account reliance on government and welfare digital services, as well as local web platforms. By adapting the DLVS, the study

aims to refine a verifiable methodology for future digital assessments in similar low-resource, multilingual contexts.

Methodology

The DLVS framework (Ceberio, 2018) is used to assess vitality across three core dimensions: digital capacity, which measures technological prerequisites; digital presence and use, which captures actual language use in communication; and digital performance, which assesses the functional availability of digital tools and services.

The DLVS was adapted for this study to accurately reflect low-resourced languages in multilingual settings. Since the original scale prioritizes advanced, often irrelevant, global tools, the refinement focused on modifying the digital performance indicators. This involved substituting reliance on global platforms with metrics for local factors, such as operational dependence on local government, welfare digital services, and regional web platforms.

A hybrid data strategy ensured methodological soundness. Subjective data, measuring actual usage and perceived readiness, was collected via a remote Google Form questionnaire. Furthermore, the study included the interviewer's observations during separate fieldwork for both languages to assess the setting and factors. Primary data was then followed by objective verification during the analysis. This step confirmed scores and avoided inherent subjective bias and overestimation. Raw scores for capacity and performance were checked against objective sources, including internet penetration and the availability of the languages on local and state government welfare service portals. This dual approach ensures DLVS scores are grounded in verifiable evidence.

Results and analysis

The comparative DLVS assessment reveals distinct digital trajectories for Brajbhasha and Kumaoni, despite sharing fundamental technical limitations. The synthesis of scores from the hybrid data strategy is presented in Table 1.

Table 1. Synthesized DLVS Scores and Overall Levels for Brajbhasha and Kumaoni (Levels 1–6)

Dimension	Indicator Focus	Brajbhasha Score (Level 1-6)	Kumaoni Score (Level 1-6)
Digital Capacity (avg.)	Infrastructure, input, LR support	1.4	1.6
Digital Presence & Use (avg.)	Usage frequency, media content	3.5	3.0

Digital Performance (avg.)	Local services & platforms, official support	2.5	3.5
Overall DLVS Level (Weighted Average)		2.5	2.7

The shared technical limitation

Analysis of the Digital Capacity dimension confirms a critical constraint faced by both languages. This dimension includes an objective correction on infrastructure: contrary to subjective community reports, government sources indicate Kumaoni (Uttarakhand) benefits from objectively higher internet penetration than Brajbhasha (Uttar Pradesh) (Press Information Bureau, 2024). This objective fact grants Kumaoni a slightly higher capacity score (approx. 1.6) compared to Brajbhasha (approx. 1.4). However, the scores for both are severely limited by the lack of formal Input and Language Resource (LR) Support (Level 1). To illustrate this constraint, one question asked: "*When you type [language] words... do you have to use English (Roman) letters instead?*" The response confirmed that high percentages of speakers (over 67%) rely on romanization or unverified hacks, indicating that despite using the common Devanagari script, the languages lack dedicated digital support. Both are widely viewed primarily as carriers of culture rather than official administrative languages; thus, institutional work is largely unavailable in either.

Divergence in presence and use

The digital presence and use scores reveal the first major divergence in community action. Brajbhasha exhibits a higher individual usage frequency (score: 3.5), reflecting widespread, high-volume activity in private messaging and public social media. This activity, however, is often fragmented. Conversely, Kumaoni shows a slightly lower usage frequency (score: 3.0). This divergence supports the hypothesis that Brajbhasha's digital activity, though high in volume, is individual-driven and fragmented, whereas Kumaoni's pattern suggests a user base characterized by collective awareness and a focus on content quality, indicating a greater potential for long-term digital resilience.

The identity-action nexus in performance

The digital performance dimension validates the role of identity and proves the success of the methodology's adaptation. Brajbhasha scores 2.5, confirming the institutional void. Kumaoni, however, achieves a marginally superior score (3.5). This is not due to formal official recognition, as neither language enjoys official status at the state or central government level, and online government services are largely absent for both. Rather, it is attributed to Kumaoni's stronger collective linguistic identity. This robust identity translates into resilient action,

where the community is more effective at converting its awareness into functional support and advocacy. This proactive stance leads to a higher verified presence in local digital initiatives, affirming that digital vitality is determined by how effectively a community converts its collective identity into actionable resilience against shared external limitations.

Conclusion

The research concludes that assessing digital vitality is critical for understanding linguistic survival and revitalization. The comparative assessment using the adapted DLVS reveals that both Brajbhasha and Kumaoni sit at a Low Emergent/High Dormant Level (approx. score: 2.5-2.7), fundamentally constrained by the absence of formal technological support.

Both languages share a pervasive technical limitation due to the lack of formal Input and Language Resource (LR) Support (Level 1). While Brajbhasha exhibits higher individual usage frequency (Level 4 for Presence), Kumaoni demonstrates greater collective linguistic identity. This identity translates into a more effective digital trajectory (Level 3.5 for Performance), showing successful local innovation and actionable resilience against persistent limitations.

This study demonstrates that the current DLVS design is insufficient for assessing vitality in resource-constrained multilingual communities that rely heavily on government services and local digital platforms. There is a demonstrable need to develop a more robust assessment framework than the current DLVS to capture digital resilience completely. Future efforts should target the integration of foundational functional services, such as speech-to-text and text-to-speech services, and focus advocacy on making e-government and welfare service portals accessible in these languages. This study provides justification for developing a more robust framework tailored to unique resource needs and superstratum dominance.

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The role of linguistic input in language development among children with hearing loss: a narrative review

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Abstract

Linguistic input is critical for language development, yet children with hearing loss (HL) often experience reduced auditory access. This narrative review, using a Flexible, Rigorous, and Practical (FRP) framework, synthesized studies (2014–2024) examining how input characteristics affect spoken language in children using hearing aids (HAs) or cochlear implants (CIs). From 234 records screened, seven studies met inclusion criteria. Findings indicate that high-quality, responsive input—especially caregiver behaviours like expansions and open-ended questions—supports language growth more than input quantity. Socioeconomic and contextual factors further shape outcomes, while passive input (e.g., electronic media) relates negatively to development. Early enriched environments foster cumulative, non-linear progress, underscoring the need for context-sensitive interventions and continued research on input–outcome dynamics in children with HL.

Keywords: hearing loss, language input, outcomes

Introduction

Linguistic input is a key driver of language development in typically developing children (Friedmann et al., 2015). Children with hearing loss (HL) often experience inconsistent access to auditory-linguistic input, elevating the risk for language delays (Sultana et al., 2024). Even with hearing aids (HAs) and cochlear implants (CIs), language acquisition is not guaranteed; input must be both present and accessible (Nittrouer et al., 2020; Poupore et al., 2024).

This narrative review synthesizes empirical evidence on the role of linguistic input in children with HL. It identifies key elements that promote successful spoken-language outcomes. It also highlights conceptual gaps to guide parent-focused interventions and future research.

Methods

This narrative review followed the Flexible, Rigorous, and Practical (FRP) approach (Sukhera et al., 2022) to examine how linguistic input affects spoken language outcomes in children with HL using HAs or CIs. A PubMed search (February–March 2025) targeted studies published between 2014–2024 using the Boolean string: (((language input OR quantity OR quality) AND (hearing loss

OR hard of hearing OR deaf)) AND (language development OR language outcomes)) NOT (sign language).

Eligible studies were peer-reviewed English articles on spoken-language development in children with HL that measured both linguistic input and outcomes; we excluded reviews/editorials, lab-based, and sign-language studies. Records were screened in three stages (identification; title/abstract; full text), data were extracted (design, participants, input/outcome measures, findings), quality was appraised with MMAT (2018), and results were narratively synthesized to identify input–outcome patterns (Popay et al., 2006).

Results

Study selection and characteristics

Records were screened in three phases: (1) identification of 234 records through database searches, (2) title and abstract screening after duplicate removal (n = 23), and (3) full-text eligibility assessment (n = 16). Finally, seven studies met the inclusion criteria and were included in the final synthesis. All included studies examined linguistic input—quantity, quality, or both—and spoken language outcomes in children with HL using HAs or CIs. The studies primarily focused on preschool-aged children and used quantitative, qualitative, or mixed-methods designs. Key variables included both quantity and quality of linguistic input—such as lexical diversity, syntactic complexity, caregiver responsiveness, mental-state talk—as well as socioeconomic and demographic factors. Common tools included LENA recordings, standardized language assessments (e.g., PPVT, CASL), and observational or transcription-based measures of caregiver–child interaction. Findings consistently highlighted that high-quality, responsive input—rather than input quantity alone—was more strongly associated with better receptive and expressive language outcomes.

Methodological quality

All included studies were appraised using the Mixed Methods Appraisal Tool (MMAT, 2018). Most studies met 4–5 out of the 5 criteria, indicating good methodological quality. Overall, the reviewed evidence was sufficiently robust to support reliable conclusions in the subsequent narrative synthesis.

Narrative synthesis

Across seven studies, linguistic input quality—especially caregiver responsiveness and linguistic complexity—outperformed sheer quantity in predicting spoken-language outcomes for children with HL; richer, contingent input was linked to stronger receptive and expressive skills, particularly in CI users. Early, enriched exposure further boosted acquisition, suggesting a sensitive period. Socioeconomic factors (e.g., SES, maternal education) shaped access and the input environment, but in structured auditory-driven programs (e.g., AVT)

SES itself did not consistently predict outcomes; effects appeared to operate mainly via access pathways (referrals, service availability) (Binos, Papastefanou, & Psillas, 2023). Passive input (e.g., electronic media) correlated with fewer interaction opportunities and weaker comprehension, underscoring the need for interactive, developmentally appropriate input.

Discussion

This review confirms that high-quality caregiver input is crucial for spoken language development in children with HL. Also, findings reinforce the idea that input must be not only audible but developmentally rich. Early intervention should prioritize interactive environments.

Notably, gaps remain in understanding how the beneficial elements of input interact with each other and under which environmental or acoustic conditions they effectively support children with HL. Further research is needed to explore these complex input–outcome dynamics, including the potential influence of pre-implant linguistic exposure.

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Language attitudes and child-directed speech in Bangladeshi Bangla

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Abstract

This study examines morphological variation in child-directed speech (CDS) of native Bangla-speaking families from Bangladesh by analysing the style-shift between standard and non-standard Bangla with a focus on present-tense verb forms: e.g., *korchi* do.1sg.pres (standard) vs *kortesi* do.1sg.pres (non-standard). Style shifting has been found to occur variably in CDS depending on the age and gender of the addressee as well as language attitudes of the addresser. Proceeding from an initial analysis of the variable use of standard and non-standard verbforms, we focus on quantitatively analysing language attitudes of potential relevance for patterns of style shift. The aim of this is to gain an understanding of the motivation behind interlocuters' style shifting choices in CDS.

Keywords: Bangla, Bangladesh, child directed speech, language attitudes

Introduction

This paper investigates child-directed speech (henceforth, CDS) of native Bangla speakers in Bangladesh and the style shifting between standard and non-standard Bangla through morphological variation. Subsequently, it also focuses on the language attitudes of relevance for each variety amongst the speakers.

Child-directed speech (CDS) refers to speech directed towards infants by their parents or caregivers; it is also called baby talk or caregiver speech (Van De Mieroop et al. 2016; Reese et al. 1996). Smith et al. (2007) mention that when addressing very young children, mothers are prone to use standard variants more frequently. This is notable as children are typically exposed to high levels of input from female caregivers in the early acquisition phases (Labov 1990).

Although there have been studies regarding CDS in other languages focusing on children's exposure to one variety over the other (Foulkes et al. 2005; Van De Mieroop et al. 2016), these studies have not touched upon the more general language attitudinal factors that underlie patterns of style-shift. Therefore, this study aims to explore how language attitudes affect patterns of variation in CDS with a specific focus on Bangla as an understudied language in this area.

Indeed, Bangladeshi Bangla is particularly complex in this respect due to an established situation of diglossia. Two main speech codes or registers can be identified: Shadhu Bhasha (SBh) refers to the standard prestigious literary variety, whereas Cholito Bhasha (CBh, 'current language') is a non-standard colloquial variety that is used in informal day-to-day conversation.

Research aims

Based on first-hand observation of parental speech habits in everyday conversation, we suspect that SBh occurs with particularly high frequency in Bangla CDS. We therefore sought to measure use of the two registers in parent-to-child speech and to observe whether the variation is affected by parental gender, child gender and/or child age. We also aimed to investigate how SBh and CBh are evaluated by adult speakers. Our expectation in this regard is that gaining an understanding of the language attitudes that Bangla speakers associate with the two registers could help to explain why parents may prefer to interact with their children using the prestige register.

Methods

Responding to these goals, we first analysed patterns of morphological variation in a series of YouTube vlogs created by five Bangladeshi families. Vlog data was chosen due to the lack of Bangla CDS corpora. We focused our analysis of verbforms in parent-to-child and parent-to-parent interactions. This decision is motivated by the fact that SBh and CBh are mainly differentiated by their verbal morphology: e.g., SBh *korchi* vs CBh *kortesi* (do.1SG.PRES in both cases). Secondly, using a combination of focus groups and online questionnaires, we surveyed 102 Bangla speakers (54 females, 48 males) about their attitudes towards SBh and CBh. In the online questionnaire, we asked respondents to evaluate both registers and to provide ratings for a set of social attributes. This included formality, educatedness, friendliness, masculinity vs femininity as well as childishness, slanginess and trendiness.

Results

Our findings regarding modulation between SBh and CBh in the corpus of YouTube vlogs are summarised in Figure 1 (see Authors ANON for a full analysis). We observe approximately a 50:50 split between use of SBh and CBh verbforms in interparental speech. SBh, however, occurs with greater frequency in all parent-child interactions. Although use of the prestige code is high when both mothers and fathers address their sons, a striking finding is that CBh is rarest in speech directed at daughters, particularly in mother-daughter speech.

Turning now to our findings from the attitudinal survey, Figure 2 summarises the responses to the social-attribute ratings task. In general, in comparison to CBh, the prestige register, SBh, is rated as being less trendy, less slangy, less friendly and less rural-sounding. CBh as the non-prestige register achieves lower ratings for formality and educatedness, and is evaluated as sounding somewhat more rural, lower class and childish. Interestingly, neither register is strongly associated either with feminine or masculine-sounding speech. And contrary to our expectations, SBh receives a slightly lower rating than CBh with regard to middle class status.

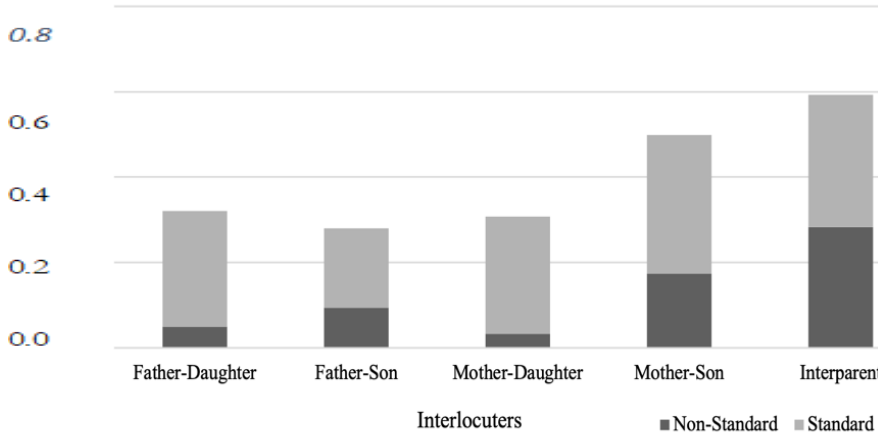

Figure 1. Style shifting in CDS.

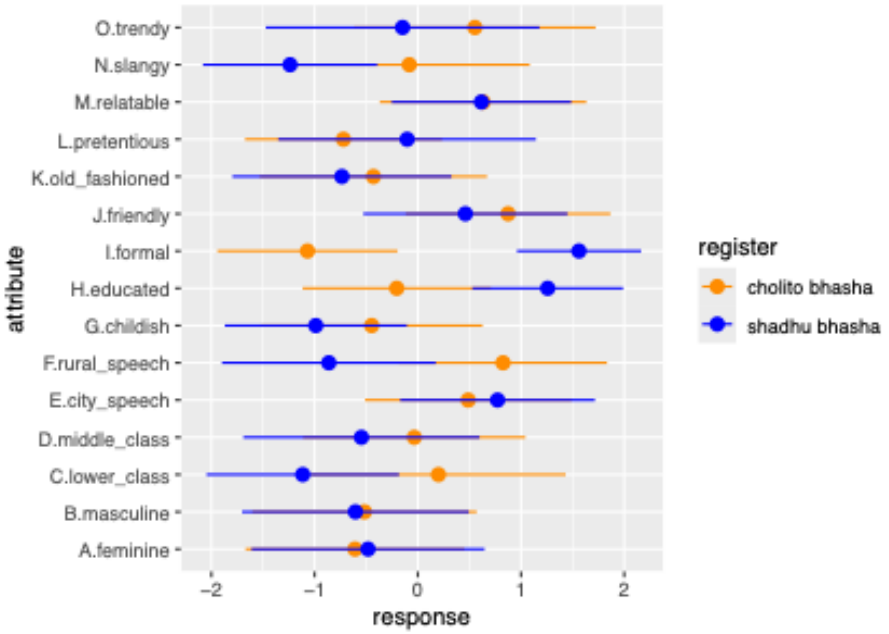

Figure 2. Attitude ratings for CBh and SBh: y-values indicate degree of agreement (–2 = "strongly disagree, 2 = "strongly agree").

Discussion and conclusion

The results gained from the study show, in accordance with previous research on CDS, that Bangladeshi parents favour the standard prestige register of Bangla when addressing children. Whilst this tendency is observed in all CDS, gender produces strong effects. Both mothers and fathers appear to suppress use of the non-standard register when addressing their sons. However, this effect is much more pronounced when parents address their daughters. Indeed, it is in mother–daughter interactions that we observe greatest use of SBh overall.

Although we were not fully able to investigate child age as a predictor of variation, De Houwer (2003) reports that older children are gradually shifted towards inter-adult speech patterns. Foulkes et al. (2005) also make the observation that parents gradually revert to speaking as they would to an adult as children grow up and CDS diminishes. We did note in the YouTube videos that older children tended were exposed to fewer standard forms and a greater number of non-standard forms. Nevertheless, further work will be necessary in order to assess whether this is a robust finding for Bangla.

Regarding language attitudes, our study has uncovered some interesting patterns in terms of the social meanings attached to CBh and SBh. Given the clear effects in language use where interactions between parental and child gender appear to condition different usage of the two registers, it is striking to observe that neither register appears to carry strong gender associations. We suggest that it is the dimensions of social meaning where SBh and CBh are evaluated most differently that probably play a role in parental style shifting. That is, the perceived formality and educatedness of SBh versus the rural-sounding character of CBh which may also overlap with its association with lower class speech.

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The development of growth mindset in the Japanese EFL discussion task

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Abstract

The concept of Group Mindset (Dweck, 2006) is examined through the lens of group dynamics (Dörnyei & Murphey, 2003) in a Japanese EFL setting. The study aimed to explore how learners' beliefs and their English expression change through peer interaction in a CALL classroom. 60 Japanese undergraduates took part in a weekly 15-minute spoken discussion over a semester. The mixed-method approach revealed that group dynamics scaffolded English conversation and fostered a growth mindset. However, despite its benefits, using technology during spoken communication decreased opportunities for communicative risk-taking and peer bonding. These findings highlight the need for teaching strategies that balance technology use in class to help learners develop a growth mindset and the skills necessary for practical English communication.

Keywords: growth mindset, group dynamics, communicative competence, multimodal discourse analysis, CALL

Introduction

Approximately 80% of Japanese undergraduates reported unpreparedness for real-life English communication regardless of studying English since elementary school (MEXT, 2024). A key issue is the lowered priority of discussion skills underpinned by communicative competence (Canale & Swain, 1980; Swain, 1984) and demotivation toward language learning. This exploratory study aims to understand the cause via growth mindset (Dweck, 2006), group dynamics (Dörnyei & Murphey, 2003), and social comparison (Smith, 2000).

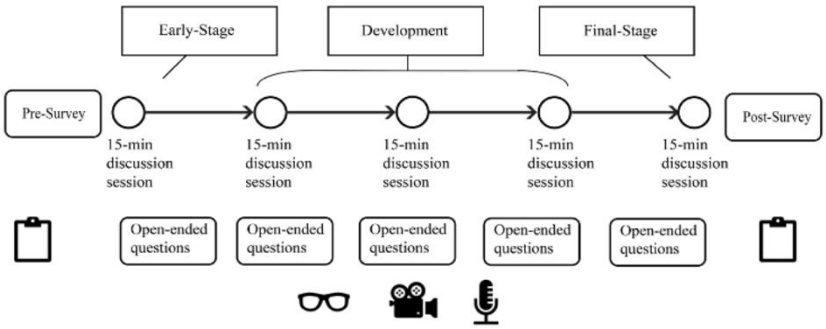
This study attempts to answer four questions: (1) Do growth mindsets, goals, and emotional responses change over time? (2) Do growth mindsets, goals, and emotional responses change through social comparison? (3) Which modes are prominent in students involved in group dynamics? Finally, (4) what communicative competence was prominent among students?

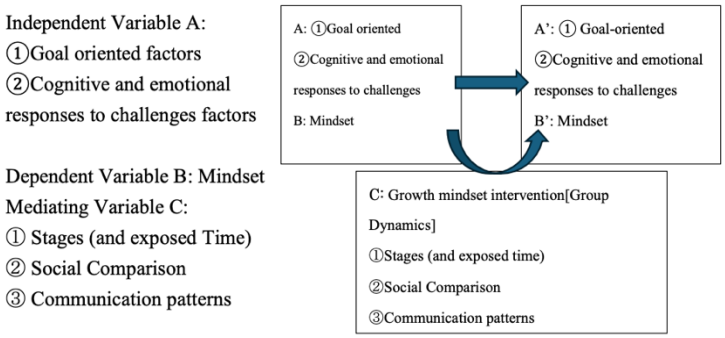
Methodology

Methods

Sixty-four first-year undergraduate students in the School of Law at a Japanese university participated in this exploratory study. Their English proficiency ranged from A2 to B1 in CEFR. Following Chang's (2007) ideal number of focus group

members, five to seven students were randomly selected for 15-minute face-to-face discussion sessions. Diagrams 1 & 2 summarize the procedure.





Data collection and measures

The Mindset system model questionnaire (Lou et al., 2022), which incorporates major conceptions of Mindset (Dweck, 2006), Goals (Elliot & Church, 1997), Language use anxiety (Gardner et al., 2004), and social comparison (Smith, 2000), measured qualitative data for later statistical analysis purposes. Also, in-class observation with supplementary audio and video recording was conducted to triangulate quantitative data from a multimodal perspective. After all, spoken communication and paralinguistic information, such as gestures, were sorted based on three stages of group dynamics (Dörnyei & Murphey, 2003).

Results

Pre- and post-questionnaires showed perceived development in mindset components of achievement goals, language anxiety, and social comparison components. The unpaired MANOVA and multi-regression analysis of the post-questionnaire showed statistical significance in relation to social comparison and mindset-related factors. (Mindset: $p<.00005$, Mastery goal: $p<.028$, and

Persistence: p<.014, below p-value<.05 n=60, effect size=.2). However, no statistical significance was found between growth mindset and time. (Repeated MANOVA and Pillai Test; F-value=.8727, n= 15, effect size=.030).

The in-class observation revealed interesting patterns of student conversation. To begin with, discourse, strategic, and sociolinguistic competence were prominent, leaving grammatical competence aside, because active participation provokes more grammatical errors. Meanwhile, sharing significant events in life, such as personal experiences and goals, promoted discussion; it varied by factors such as group familiarity, knowledge of the discussion topic, the ability to logically present ideas, and, occasionally, attitudes toward the ethical use of technology. Notably, students were divided into speakers and followers, clearly distinguishing between active presenters and listeners. Also, the ones who asked for help more often were the ones who used less technology.

Discussion

1. Do growth mindsets, goals, and emotional responses change over time?
A growth mindset wasn't necessarily linked to exposure time; The development of a growth mindset was more complex (See, Discussion 2.) Notably, the growth mindset students in the questionnaires did not necessarily have active spoken communication, which showed a tangible difference from past studies.

2. Do growth mindsets, goals, and emotional responses change through social comparison?
The components of growth mindset, mastery goals, and persistence were correlated with social comparison. Unlike past studies, the results showcased that a typical Japanese hierarchical relationship among students, such as Sempai (Senior position) and Kohai (Junior position), was not significant in tertiary-level education; instead, they all sought support in handy technology for feedback. This explains that research designs should be carefully implemented, because groups behave differently depending on the setting.

3. Which modes are prominent in students involved in group dynamics?
First, students tend to actively communicate verbally and in writing, code-switching between Japanese and English. Then, students strategically utilized digital tools and engaged in active discussions before seeking help from others. The triangulation emphasizes the importance of seeing data multidimensionally, especially in the presence of perceived growth mindsets. Being inactive in discussion does not necessarily mean disengaged in a language learning activity.

4. What communicative competence was prominent among students?
The data suggested that negotiation of meaning grounded in communicative competence fosters abstract thinking, which is highly exposed to Japanese

sociolinguistic cues, regardless of the language in use. This finding highlights a typical aspect of English education in the Japanese context.

Conclusion

The multi-modal analysis revealed dynamic dimensions of the growth mindset in the Japanese EFL setting. While technology is increasingly integrated as a support tool in face-to-face discussions, the overuse of such tools is like a double-edged sword. That is, although it saves time and avoids communication breakdown, it relinquishes opportunities for reflective experiences and peer feedback, changing the landscape of interaction and social comparison. Future research should examine how digital tools affect fostering a growth mindset, considering classroom group dynamics.

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Linguistic differences in humour: a feature-based comparison between human and AI-generated jokes

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Abstract

Humour is one of the most creative and socially embedded forms of human communication. With the rise of large language models (LLMs), questions about whether artificial intelligence can identify and generate jokes have become central to computational humour studies. This paper conducts a systematic comparison of human- and AI-generated jokes across multiple linguistic dimensions: lexical, syntactic, affective, semantic, and prosodic. To this end, we first constructed a parallel joke corpus by instructing LLMs to extract meta-information from human-authored texts and generate comparable jokes. By applying Elastic Net logistic regression on our parallel corpus of human and AI humour, we found that AI-generated jokes relied on connectives and retrospective narration. In contrast, human humour was characterised by greater lexical density, conditional subordination, emotive language, and semantic incongruity, as well as an increased use of nouns, interrogative words, social references, and intentional rhythmic devices. These findings highlight the gap between human and AI humour in terms of creativity, emotional depth, and prosodic design. The study contributes both to the theoretical validation of humour mechanisms and to the practical advancement of explainable and human-like humour generation in LLMs.

Keywords: computational humour, quantitative linguistics, stylometric, machine learning

Introduction

Humour was once thought of as a uniquely human quality. It is deeply embedded in the human condition, shaped by our shared vulnerabilities and capacity to find mirth amidst hardship (Morreall, 2011; Martin & Ford, 2018). However, with the rapid development of large language models (LLMs) in recent years, whether machines can truly understand or produce humour has become an increasingly controversial topic. Although existing studies have shown that LLMs demonstrate certain humour-generation capabilities (Gorenz & Schwarz, 2024), systematic linguistic evidence explaining the fundamental differences between human and machine humour remains lacking. Hence, the primary goal of this study is to identify which linguistic features most effectively distinguish and explain the differences between human and machine humour. To achieve this, this paper first constructs a comparable corpus. Based on representative human humour corpora, prompt strategies, grounded in humour theory, were designed to extract joke meta-information. Then, three mainstream large language models

were used to generate machine humour texts with controlled length and comparable semantics. Second, this paper proposes a systematic linguistic indicator framework covering five dimensions: lexical, syntactic, semantic, emotional, and prosodic. Finally, based on these linguistic features, this paper employs interpretable machine learning for human-machine humour classification and feature importance analysis.

Methodology

Comparable human and AI-generated humour data were collected for this study to enable systematic analysis of human-AI humour differences. For human humour, three datasets were selected: Reddit Jokes, Short Jokes, and Pun of the Day. For AI-generated humour, three large language models (GPT-4.1-mini, Llama-3.3-70B, DeepSeek-V3-Chat) were employed. Human jokes were first analysed using a prompt template to extract meta-information, including humour keywords, semantic incongruity, and current events, based on semantic incongruity theory and the General Theory of Verbal Humour (GTVH) (Ruch et al., 1993; Attardo, 1997). A second prompt guided the models to generate jokes within word limits and context comparable to the original human jokes.

A multidimensional metric system covering lexical, syntactic, emotional, semantic, and prosodic features was applied to analyse stylistic differences. Texts were vectorised across these features for computational modelling. Elastic Net logistic regression was used to distinguish human and machine humour, with separate datasets split 8:2 for training and testing. Three classification experiments (Human vs GPT-4.1-mini, Human vs Llama-3.3-70B, Human vs DeepSeek-V3-Chat) achieved average F1-scores above 0.8. Top-20 indicators per dimension were extracted, and features consistently appearing across all three experiments were marked as strong indicators of human-machine humour differences. The multidimensional metric system and the complete statistical results of this study are provided in:
https://github.com/adventurer-chy/human_AI_humor_comparison.

Results and discussion

Lexical distinctions

At the lexical and syntactic levels, there are several linguistic metrics that distinguish human and machine humour. At the lexical level, Lexical Density (LD3) human humour (7.459) surpasses machine humour (5.292). Human humour tends to rely on high-information-load content words (nouns, verbs, adjectives), while machine humour uses more function words, which results in reduced content density and a lack of lexical innovation. Similarly, the Noun Ratio (0.190 vs. 0.168) suggests that human humour achieves narrative vividness by introducing specific settings and characters. This aligns with Barnden's theory

(Barnden, 2017), which emphasises that concrete nouns are crucial for linguistic expressiveness. By contrast, machine humour lacks this scenic texture. In addition, the Wh-Pronoun Ratio (0.013 vs. 0.004) shows that human humour uses interrogative structures more frequently. Meanwhile, machine humour relies frequently on declarative statements and thus tends to produce flatter and more expected punchlines.

Syntactic distinctions

At the syntactic level, Average Sentence Length (17.211 vs. 13.365) indicates that human humour favours longer and more elaborate structures. Noun Subject Ratio (0.128 vs. 0.131) suggests machine humour depends on explicit SVO templates. In contrast, human humour more frequently features omitted or implicit subjects and invites the audience to co-construct meaning.

Affective and semantic distinctions

At the affective and semantic level, human and machine humour differ in emotional and contextual expressiveness. The proportion of social words is higher in human humour (0.130) than in machine humour (0.115), which reflects that human-created jokes are more grounded in shared human experiences. In contrast, machine humour tends to rely on object- or event-focused descriptions, which often lack relational depth. The proportion of emotive words (LIWC) is also higher in human humour (0.839) compared to machine humour (0.804), which suggests how human jokes often integrate emotional cues, whereas machine humour leans toward neutrality and emotional flatness. In addition, auxiliary and modal verbs are used more often by humans. Human humour's higher frequency of modals reflects a greater capability for handling ambiguity and subtlety, while this lack in machines suggests rigid propositional framing. Lastly, semantic incongruity (0.620 vs. 0.605) and WSD-based incongruity (0.694 vs. 0.681) are higher in human humour. This indicates that human-generated jokes are more adept at creating unexpected contrasts in conceptual combinations. Together, these findings indicate that human humour balances emotional resonance, social context, as well as surprise, while machine humour remains relatively literal and semantically predictable.

Rhythmic and phonetic distinctions

Human humour (0.030) slightly exceeds machine humour (0.027) in rhythmic features. Machines generate rhymes or repetitions incidentally, and thus lack a deliberate rhythm. Human humour (0.894) also far exceeds machine humour (0.193) in the use of repetitive dyads. Repetition is one of the key techniques for comedians, as it helps establish rhythmic patterns and dramatizes tension (Schwarz, 2009). In contrast, AI-generated humour rarely employs repetition deliberately or strategically, which results in noticeably weaker rhythmic patterns

and reduced dramatic structure in its narrative. Human humour (0.049) again outperforms machine humour (0.021) in rhyme similarity. Machines rarely design rhyme explicitly, which reduces the musicality that well-crafted humour often relies on. Overall, human humour exhibits more intentional musicality, while machine humour remains comparatively limited in its use of sound.

Conclusion

Having systematically compared human- and AI-generated humour across lexical, syntactic, emotional, semantic, and prosodic dimensions, findings show that, despite structural similarities, human jokes demonstrate greater creativity, emotional depth, as well as more deliberate rhythmic expressiveness. These differences highlight how humour reflects uniquely human cognitive and social capacities that AI has yet to replicate. By identifying where AI humour differs from human-like expression, this research provides empirical support for humour theory and a framework for enhancing computational humour. Future work could integrate cross-cultural data and interpretability metrics to develop more context-sensitive humour systems, ultimately improving AI's ability to engage in authentic, human-like communication.

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Improving intelligibility of time-scale compressed speech for visually impaired and sighted listeners

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Abstract

Time-scale compression enables faster speech playback but often reduces intelligibility, especially under high compression rates where non-stationary speech components are distorted. This work investigates improving intelligibility for visually impaired and sighted listeners by protecting non-stationary regions during time-compression. Using Waveform Similarity Overlap Add (WSOLA), we propose a protection method that adapts scale factors based on three non-stationarity criteria derived from Root-Mean-Square (RMS) energy and Line Spectrum Frequencies. Experiments with visually impaired and control participants evaluate intelligibility and listener preference across uniform and protected WSOLA variants. Results show that RMS-based-protected WSOLA improves intelligibility, while equal word per minute comparisons reveal smaller perceptual differences. Findings highlight the importance of preserving transient information for accessible high-speed speech.

Keywords: speech, transformations, intelligibility, visual-impairment, perception

Introduction

Time-scale compression (TSC) of speech enables listeners to consume spoken content significantly faster. This is especially beneficial for visually impaired individuals, who often depend on screen-reading software and routinely listen to speech at speeds far beyond those comfortable to sighted individuals. However, as playback speed increases, speech intelligibility typically declines. The primary reason is that non-stationary speech components – brief transients, plosives, fricatives, and rapid transitions – tend to be lost or heavily distorted when compression is too aggressive.

Time-domain TSC algorithms such as the Waveform Similarity Overlap-Add method (WSOLA) provide high-quality compression for many types of audio. WSOLA preserves local periodicity by adaptively shifting analysis windows to maintain waveform similarity. Despite its success, when high compression factors are applied, WSOLA still reduces or eliminates transient regions. This leads to a characteristic loss of clarity, particularly in languages containing many stop consonants or short syllables. As visually impaired individuals often rely on rapid audio consumption, the loss of intelligibility becomes a barrier to accessibility and efficient information processing.

To address this issue, we explore a method that selectively protects non-stationary regions during time-scale compression. Rather than applying a single uniform compression factor across the signal, we extract time- and frequency-domain features to identify portions of the waveform where intelligibility-critical content appears. These segments are then compressed less aggressively, allowing transient cues to remain intact while more stationary voiced regions undergo stronger compression. The goal is to balance faster playback with speech clarity.

This work proposes and evaluates three non-stationarity detection criteria. Integrated into a non-uniform WSOLA framework, these criteria dynamically adjust the local compression factor. We evaluate this system using listening tests with both sighted and visually impaired individuals to determine whether protecting non-stationary content yields measurable improvements in intelligibility and listener preference.

Methods

Materials

Our experiments utilized the GrHarvard corpus (Sfakianaki, 2021), a phonetically balanced Greek sentence dataset designed to parallel the structure of the classic Harvard/IEEE corpus. This dataset contains 720 sentences organized into 72 lists of 10 sentences each. The design ensures broad phonetic coverage, consistent sentence length, and controlled phonotactic structure across speakers. Each sentence includes exactly five keywords, making the corpus well-suited for intelligibility experiments where keyword recognition serves as a standardized performance metric.

For the purposes of this study, only a subset of the corpus was used. Specifically, we selected four lists: two for intelligibility tests and two for preference tests. This choice balanced the need for controlled experimental design with the time demands placed on participants, particularly visually impaired individuals.

Before applying time-scale compression, all recordings were preprocessed by removing leading and trailing silences. This ensured that time-scale factors were applied only to active speech content and not distorted by silent intervals.

Experimental design

The backbone of our approach is the Waveform Similarity Overlap-Add (WSOLA) algorithm, a widely used time-domain method for modifying speech rate without affecting pitch. WSOLA operates by splitting the signal into overlapping frames, then adaptively shifting these frames to maximize waveform similarity when reconstructing the compressed output. This mechanism helps preserve local periodicity, making WSOLA particularly effective for voiced speech. However, like other OLA-based methods, WSOLA can shrink or skip rapid transients when compression is high, reducing intelligibility.

To address this limitation, we introduce a non-stationarity detection frontend that modifies WSOLA's local scale factors. Instead of prescribing a global time-scale ratio, our method generates a time-varying scale factor sequence where each value corresponds to the stationarity level of the underlying signal frame. Regions identified as non-stationary receive milder compression, preserving critical phonetic cues, while stationary voiced regions undergo stronger compression. This adaptive factor is then fed to the WSOLA backend, which adjusts frame selection accordingly. Non-stationarity detection is performed using three criteria derived from prior work on transient analysis and spectral dynamics. The first criterion (C1) tracks rapid changes in frame RMS amplitude, which highlights plosive bursts and other abrupt energy shifts. The second criterion (C2) uses the gradient of Line Spectral Frequencies (LSFs) fitted across time, capturing changes in spectral envelope shape associated with formant movement and transitions. The third criterion (C3) combines C1 and C2 to leverage both temporal and spectral cues for improved robustness.

Results and discussion

We conducted two sets of listening experiments involving both sighted participants and visually impaired participants, all of whom had prior experience listening to spoken Greek. The first experiment compared uniform WSOLA to the C1-protected and C3-protected versions under standard compression rates. Participants listened to each sentence only once, and intelligibility was measured as the percentage of correctly reported keywords. Results demonstrated a significant advantage for the C1-protected WSOLA method, which consistently yielded the highest intelligibility scores across most compression factors.

Sighted listeners showed clear and statistically significant preferences for the C1-protected method. They reported better preservation of plosives, clearer consonant–vowel transitions, and less smearing of rapid onsets. Preference test outcomes aligned with intelligibility scores, revealing that C1-based protection not only improved recognition but also created a more pleasant listening experience. C3-protected WSOLA also improved performance over uniform WSOLA but to a lesser degree, likely due to its noisier behaviour in stable voiced regions.

Visually impaired participants displayed similar trends, though statistical significance was limited due to their small sample size. These participants often listen to speech at extremely high playback speeds, and their auditory processing has adapted accordingly. In many cases, they demonstrated higher baseline intelligibility for compressed speech than sighted listeners. Nevertheless, they still showed improved recognition with non-stationarity-protected compression, especially at moderate compression values where transient cue preservation remained crucial.

A second experiment evaluated all methods under equal words-per-minute (WPM) constraints by adjusting output lengths. This reduced differences in listening duration but also minimized acoustic differences between methods. Across both participant groups, distinctions became more subtle and statistical significance weaker. Even so, C1-protected WSOLA maintained a slight intelligibility advantage, confirming its robustness even under constrained conditions. However, the reduced perceptual separation makes this scenario more challenging for listeners, and larger sample sizes would be needed to confirm significance in future studies.

Conclusions

This work demonstrates that protecting non-stationary regions during time-scale compression significantly improves the intelligibility of fast speech, particularly when using WSOLA as the underlying transformation. The RMS-based criterion (C1) emerged as the most effective detector of linguistically important transient events, leading to the best intelligibility and strongest listener preference across both sighted and visually impaired participants. Future work should refine the non-stationarity detection mechanism, explore pitch-synchronous segmentation, evaluate more advanced TSC models, and conduct larger-scale listening tests with visually impaired populations. Integrating these techniques into assistive technologies and screen-reading systems has strong potential to enhance accessibility for users who rely on rapid speech playback in daily life.

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Prayers as forms of speech act modification in Saudi Hijazi Arabic

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Abstract

Prayers (God invocations) are fixed religious terms that are highly frequent and multifunctional in casual and formal conversations among native speakers of Arabic. Examples such as '*Inshallah'* (God Willing) and '*Jazak Allah khair* (may Allah reward you) are specific to Arabic in a way that makes them difficult to translate into other languages (Shammas, 2005). Muslim societies, even the ones whose first language is not Arabic, use them in their everyday speech. They are also found to be used by non-Muslim native Arabic speakers, suggesting that such phrases are widely used among Arabs regardless of their religious affiliations (Clift & Helani, 2010). Such expressions were identified by different names in the literature; examples include "Allah lexicon" (Morrow, 2006), "God-wishes" (Ferguson, 1983), "Arabic God-phrases" (Welji, 2012), and "religious formulas" (Migdadi & Badarneh, 2013). They will be referred to as prayers in this paper. In addition to their typical function as religious expressions, prayers have been demonstrated in pragmatic studies (Al-Khalifa, 2024; Alqahtani, 2024; Al-Rojaie, 2021; Al-Saeedi, 2019) to be strategically employed as linguistic tactics to achieve politeness. Drawing its theoretical background from Politeness Theory (Brown & Levinson, 1987) and Speech Act Theory (Austin, 1962), this study aims to determine whether these prayers are used in some or all of the speech act types created by Searle (1969). These are classified as "Assertives" (e.g., statements, conclusions, claims, reports); "Directives" (e.g., requests, commands, suggestions, giving advice); "Commissives" (e.g., promises, offers, vows, guarantees); "Expressives" (e.g., thanks, apologies, congratulations, compliments, praises, curses); and "Declarations" (e.g., "I now pronounce you husband and wife"). The study will also investigate the main pragmatic functions/illocutionary roles of prayers within various speech act sets in the speech of Arabic native speakers, particularly in Saudi Hijazi Arabic.

Keywords: Speech acts, prayers, Saudi, Arabic, politeness

Methodology

The study used a mixed-method approach, combining data from discourse completion tasks (DCTs) and naturally occurring conversations among Saudi Hijazi Arabic speakers in Jeddah, Saudi Arabia. A total of 180 participants, balanced by gender and age, contributed to the study. Instances of prayers embedded in speech acts were identified and analysed to determine their type according to Searle's classification, their pragmatic functions, and the speech act type in which prayers most frequently occurred.

Data results

Table 1. Prayers in Saudi Hijazi Arabic.

	Expression in (Hijazi Arabic)	Translation	Speech Act Type	Pragmatic / Illocutionary Role
1	السلام عليكم / وعليكم السلام	Peace be upon you / And upon you be peace	Expressive 220	Expressing social attitude/ritualised greeting/positive politeness/solidarity
2	الله يوفقك	May God grant you success	Expressive 139	Expressing wishes/positive politeness/ equivalent to "Good Luck"
3	في أمان الله	In God's protection	Expressive 57	Expressing positive politeness/ entrusting listener to God/ending a conversation
4	الله يسهل الأمور	May God make things easy	Expressive 1	Expressing uncertainty and doubt but wishing and hoping for the best
5	الله يسعدك / الله يخليك /الله لا يهينك	May God make you happy/ preserve you /not humiliate you	Expressive 267	Expressing polite appeal to H after a request in the imperative form/ often replace "please" /usually come after a directive (request) to soften it
6	أعوذ بالله	I seek refuge in God	Expressive 31	Expressing disapproval and contempt
7	الله يقرفك	May God digust you	Expressive 1	Expressing insult and disgust
8	الله يقطع شكلك	May God cut off your looks	Expressive 1	Expressing joking and playfulness/teasing H using humour
9	قول والله	Say, by God	Directive 1	Requesting H to confirm and strengthen truth claim by using God's name
10	سبحان الله / بسم الله الرحمن الرحيم	Glory be to God / In the name of God, most Merciful, most Gracious	Expressive 14	Expressing being surprised/ showing astonishment

11	جزاك الله خير	May God reward you (with good)	Expressive 76	Expressing Gratitude/ Religious thank you/ appreciation/positive politeness
12	الحمد لله والله ما في صديق زيك	Praise be to God, by God there's no friend like you	Expressive 1	Expressing gratitude / Appreciation for H's friendship/positive politeness
13	والله	By God	Assertive 198	Adding "wallah" reinforces the assertive by expressing the speaker's commitment to the truth of what they say, similar to saying "I swear" in English.
14	الله أكبر عليهم	God is greater (than them)	Expressive 10	Expressing disdain/ complaint/anger/ injustice/condemnation
15	ما شاء الله عليك /ما شاء الله بسم الله عليك	What God has willed/God's name on you	Expressive 92	Expressing compliment/ balances praise with protection from envy (evil eye)
16	الله يذكرها بالخير	May God remember her with good	Expressive 1	Expressing positive politeness/showing blessing for someone absent
17	إن شاء الله (affirmative use) بِإِذْنِ الله	God willing/ I promise you by God's permission	Commissive 426	Promising/agreeing and guaranteeing H to do something/affirmation/ commitment to a future action
18	اللهُ اللهُ روعة	Repeating God's name	Expressive 1	Expressing amazement/ praise/positive politeness

Conculsion

Analysis of the data in Table 1 revealed 1,534 total occurrences of prayers, which were distributed across four of Searle's five speech act types. This distribution was predominantly characterized by Expressives (909 occurrences), Commissives (426 occurrences), and Assertives (198 occurences), with a minimal presence of Directives (1 occurrence). There were no representations of "Declarations" in the data. This pattern suggests that the Saudi Hijazi prayers' main pragmatic function is overwhelmingly centred on the performance of socio-emotional and volitional acts. These acts encompass a broad range of interactional strategies, including: positive attitudes (such as expressing solidarity,

thanks, promises, compliments, praise, affirmation, care, respect, and love), mitigation (of the force of direct requests), protective actions (seeking refuge from the evil eye), and the expression of diverse emotions (including wishes, hopes, sympathy, consolation, disgust, contempt, humour, anger, and injustice). The central pragmatic function of these prayers, when viewed through the lens of politeness theory, is to act primarily as positive politeness markers. This is achieved by demonstrating solidarity, claiming common ground with the hearer, and building rapport, rather than serving as negative politeness markers.

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Word perception errors of children and adults in noise and quiet

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Abstract

Accurate speech perception is vital for spoken language comprehension and effective communication. Especially for children, spoken word recognition is crucial for vocabulary, language, and knowledge acquisition in general. However, listening conditions in the classroom are often adverse, due to poor classroom acoustics. The present study investigates word perception errors made by adults and children in noise and quiet. Besides performance (word recognition score), word misconceptions are also analysed in relation to phonological, semantic and other lexical properties, i.e. word familiarity and frequency as well as phonological neighbourhood density metrics. This type of error analysis can be more informative of the nature of difficulties encountered by the listener during speech recognition in adverse conditions, and provide insights into the relationship between linguistic knowledge and speech perception in noise.

Keywords: speech perception, noise, word errors, children, adults

Introduction

Previous research has shown that children are more susceptible to auditory masking than adults (Leibold, Buss 2019; Sfakianaki et al., 2021). Although quantitative measures, such as percent correct word or phoneme scores, have been primarily employed to explore differences in child vs adult performance, a qualitative analysis of the types of errors children make in comparison with those made by adults would help more accurately define the difficulties faced when identifying speech in noise. The current study investigates errors made by adults and children with normal hearing and typical development in the perception of Greek disyllabic words, without the aid of context, in quiet and in two-talker noise, which has been found more challenging than speech-shaped noise (Corbin et al. 2016). The analysis focuses on the effect of noise on word misperceptions in relation to phonological, semantic and other lexical properties. Such properties have been examined in prior studies, and have been found to play a role -albeit not always straightforward, in speech perception speed and accuracy (e.g. Braza et al. 2022; Garlock et al. 2001).

Methodology

A corpus was created for the experiment, consisting of disyllable words embedded in the phrase "Say the word …". The corpus included 250 familiar

words selected from the Greek first-grade primary school textbook and 250 low frequency words, expected to be unfamiliar to the children, selected from database Greeklex 2 (Kyparissiadis et al. 2017). The corpus was recorded with one female adult speaker with no speech or hearing disorders. The clean stimuli were then mixed with a two-talker masker, created by superimposing the separate recordings of two female adult speakers reading children's literature excerpts. Subsequent to a pilot experiment, the SNR level for adults was set at 2.5 dB and for children at 7.5 dB, so as to avoid floor or ceiling effects.

Ten adults (mean age: 36.3, SD: 12.35) and ten children (mean age: 7.08, SD: 0.31), who had just completed the first year of primary school, participated in the perception experiment. Participants were Greek native speakers of typical development with no speech or hearing disorders, subsequent to thorough audiometric evaluation. Each participant listened to 80 randomized stimuli, 40 in noise and 40 in quiet, at 65 dB SPL from a loudspeaker placed in front of the listener at a radial distance of 0.9m in a soundproof recording studio.

Responses that deviated in any way from the original lexical form were classified as incorrect. The binary score data amounted to a total of 1600 items and was analyzed using Mixed Analysis of Variance (fixed factors: age group, gender, noise, word familiarity; random factors: participant, word). An error analysis of the word misconceptions in noise followed. A comparison between target and recognized word was conducted regarding 6 types of measures: 1) phonemic alteration type (substitution, omission, insertion or a combination of alterations), 2) phonemic alteration position in word (first syllable, second syllable, both syllables or addition of syllable(s)), 3) semantic alteration, 4) word frequency alteration, 5) Levenshtein distance, a comparison of target word sequence with recognized word sequence, calculating a single distance, and 6) PLD20 (Phonological Levenshtein Distance), a summary statistic over the word's 20 nearest neighbours in order to show phonological neighbourhood density difference between target and recognized word.

Results

Regarding the binary score analysis, both children and adults showed statistically worse performance in noise vs quiet and in low vs highly familiar words in noise, but not in quiet. Age (df= 1, F=0.05, p=0.834) and gender (df=1, F=0.18, p=0.676) were not significant factors, but noise (df=1, F=660.36, p=0.000) and word familiarity (df=1, F=59.95, p=0.000) were statistically significant, along with the random factor 'word' (p=0.000). Interactions age*noise (df=1, F=5.26, p=0.022) and noise*familiarity (df=1, F=70.19, p=0.000) were also found statistically significant.

A total number of 256 word misconceptions in noise were made by both age groups. Children and adults produced the same number of misconceptions when SNR level was 5 dB higher for children in comparison with that for adults. Also,

errors in unfamiliar words were twice as many as in familiar words in both age groups. Regarding the word error analysis, the following observations were made:

1) *Phonemic alteration type:* Omission (adults and children: 5.47%) and insertion (adults: 11.72%, children: 18.75%) occurred less frequently for both age groups, while substitution (adults: 28.13%, children: 39.06%) or a combination of the above alterations (adults: 54.69%, 35.94%) were observed more frequently.

2) *Phonemic alteration position*: Phonemic alteration occurred more frequently across both syllables for adults (34.38%, children: 20.31%), while children more often altered the first syllable (37.50%, adults: 22.66%) or added syllables either before or after the target word, especially in familiar words (33.33%, adults: 23.40%).

3) *Semantic alteration*: For both age groups the recognized word was more often semantically different than the target word (adults: 81.25%, children: 60.16%); child misconceptions were more often nonexistent words, especially when the target was an unfamiliar word (40.70%, adults: 13.58%).

4) *Word frequency alteration*: For both age groups, the recognized word often had higher word frequency than the target word, which was more evident in words of lower familiarity (adults: 70.37%, children: 50.00%).

5) *Levenshtein distance*: According to independent-samples t-test, the Levenshtein distance between target and recognized word was significantly higher for adults (M: 2.47, SD: 1.48) than children (M: 2.05, SD: 1.20) ($t(256)=2.51$, $p=0.013$). It was also higher in familiar (M: 2.42, SD: 1.19) vs unfamiliar (M: 2.17, SD: 1.44) words, but the effect was not statistically significant ($t(256)=1.52$, $p=0.13$). 6) *Phonological Levenshtein Distance*: Based on paired-sample t-tests, PLD20 of the recognized word (M: 1.70, SD: 0.47) was not significantly higher from PLD20 of the target word for adults (M: 1.67, SD: 0.28, $t(128)=0.62$, $p=0.538$). In contrast, a statistically significant increase in PLD20 between the target (M: 1.63, SD: 0.29) and the recognized word was observed for children (M: 1.79, SD: 0.55, $t(128)=2.92$, $p=0.004$).

Discussion

Based on the above analyses, noise poses a greater obstacle in word recognition for children, in line with the literature (Leibold & Buss, 2019), as first graders required a 5 dB SNR advantage in two-talker noise in order to reach adult performance. Word recognition was lower for unfamiliar words in noise, but not in quiet, both for children and adults. Also, most lexical properties of misconceptions were significantly affected by word familiarity; for example, the word frequency increase and Levenshtein distance decrease in misconceptions were more pronounced for unfamiliar vs familiar word targets. Misconception analysis results indicate that, when struggling to recognize a word in noise, children do not hesitate to venture words that do not exist and that their misconceptions are closer phonologically (lower Levenshtein distance) to the

target word as compared with adults. Similar findings have been reported for the misconceptions of younger vs older adults (Vickery, 2021). Children seem to be more constrained by the actual sounds of the target word; they report a higher percentage of phonemes as heard despite the fact that, in the end, the recognized word does not make sense or is less frequent. Adults seem to pay more attention to meaning and to the frequency of occurrence of a word due to their linguistic experience and richer vocabularies. In addition, when striving to recognize words in noise, especially unfamiliar ones, both children and adults report words higher in frequency of occurrence, as also documented in previous work (e.g. Cooke et al., 2019 for adults), but children also seem to select words with far less phonological neighbours (high PLD20). Thus, under perceptual stress, children tend to compensate for weak lexical knowledge by relying on phonological distinctiveness.

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Language, cognition, and poetics of solitude in Dylan Thomas

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Abstract

This paper presents a stylistic and cognitive-poetic analysis of Dylan Thomas's poem "Ears in the Turrets Hear", with particular attention to how linguistic form and literary imagination converge to represent artistic isolation and existential dilemma. The central aim is to investigate how cohesion, repetition, and parallelism interact with embodied metaphors and conceptual mappings to dramatize the poet's oscillation between solitude and social contact. Drawing on stylistics and cognitive poetics—especially Text World Theory and Conceptual Metaphor Theory—the paper shows how linguistic patterning functions as both a textual and cognitive network, foregrounding recursive thought, hesitation, and the gradual negotiation of artistic identity.

Keywords: stylistics, cognitive poetics, Dylan Thomas, isolation, metaphor

Introduction

The poem *"Ears in the Turrets Hear"*, by Welsh poet and writer, Dylan Thomas, is built on a self-questioning theme. The poet is deeply concerned with the problem of the isolation of the individual, and in particular the isolation of the artist. The poem is permeated by an intense sense of fear—fear of contact, fear of contamination, and fear of loss of artistic integrity. It presents a dramatic situation in which the poet is torn between the desire for complete isolation and the equally compelling need for communication with others. This tension runs through the entire poem and determines its structure as well as its imagery, producing an impression of solitude and inwardness. What calls for closer examination, however, is how this psychological conflict is articulated through the poem's linguistic and stylistic organization. This paper therefore examines the interaction between linguistic texture and psychological experience in the poem, asking how stylistic patterning functions as a means of representing mental states and the creative struggle between withdrawal and expression.

Methodology

The analysis of Dylan Thomas's *"Ears in the Turrets Hear"* adopts a dual framework combining stylistic analysis and cognitive poetics to examine how linguistic form and literary imagination converge to represent artistic isolation and existential dilemma. Classical stylistics accounts for the poem's structural and semantic organization, while cognitive poetics extends this analysis to the mental

processes through which meaning is constructed. By situating linguistic choices within broader cognitive processes—such as perception, conceptualization, and embodied simulation—the study draws on Text World Theory (Werth 1999; Gavins 2007), Cognitive Grammar (Langacker 2008), and Conceptual Metaphor Theory (Lakoff and Johnson 1980) to read the poem as a dramatization of the mind's negotiation between containment and permeability.

Stylistic analysis

The poem's language itself becomes a means of expressing the poet's psychological conflict. The recurrent use of repetition, parallelism, and structural symmetry reflects the poet's hesitation and uncertainty. The poem is characterised by cohesion, achieved through the repetition of words, phrases, and syntactic patterns. These cohesive devices bind the poem together and contribute to the development of its central themes. Both lexical and semantic cohesion are prominently employed. Lexical cohesion includes repetition of "ears" and "hear" (lines 1, 17); "hands" (lines 2, 9, 25, 26, 32); "eyes" and "see" (lines 3, 19). Semantic cohesion occurs in parts of body (flesh, hair, bone, ears, hands, eyes, fingers), architectural structures (turrets, gables, doors, white house), geographical features (island, sea, coast, land, hills, bay, sand, slates), classical elements (land, wind, fire, sea, rain), lexical items pertaining to the sea (island, sea, coast, ships, sailor, anchor, bay), and lexical items pertaining to isolation (alone, unseen, beyond, bound, out of). Verbs also show semantic cohesion: perception (hear, see), motion (grumble, flying, pass, run, beats), static (stay, hold, bound, lies), change (unbolt, die, disturbs, anchor, welcome). Repetition, parallelism, and semantic oppositions (locks vs. unbolt; stay vs. run; land vs. sea; poison vs. grapes) reinforce cohesion.

The poet is acutely self-conscious of his isolated existence within the turreted house, fully aware of both sensory perception and action. This awareness is articulated through material processes such as "Hands grumble on the door" and "The fingers at the locks," alongside mental processes like "Ears in the turrets hear" and "Eyes in the gables see." Although all the senses are oriented toward unlocking the door, fear and indecision leave the action incomplete, crystallized in the question "shall I unbolt or stay alone." Loneliness appears necessary to artistic creation, yet permanent isolation is terrifying. Opening the door risks individuality while promising recognition; remaining closed preserves autonomy but forecloses visibility. Lexical choices such as alone and unseen reinforce the "white house" as a guarded private space, while "stranger-eyes," intensified in line 7, "Unseen by stranger-eyes," signals anxiety about the unfamiliar. The question "Hands, hold you poison or grapes?" further encodes uncertainty, with the conjunction or lexically realizing the dilemma. By projecting sensory organs as agents, the poem animates the "white house," merging body and dwelling into a single sentient, islanded entity.

The poet's and island's isolation is explicit. The preposition 'beyond' shows the island is far from the mainland, bounded by sea and coast. The metaphorical expressions "a thin sea of flesh" and "a bone coast" identify the island with the poet. "The land lies out of sound / And the hills out of mind" implies all landscapes lie beyond perception and comprehension. His body acts as both barrier and means to access the world. The poet fears human reaction: will he receive poison or grapes? Lines "No bird or flying fish / Disturbs this island's rest" foreground the island as a sentient being undisturbed by creatures. Transferred epithet in "flying fish" balances swiftness; birds symbolize soaring freedom.

The poet's anxiety and restlessness grow. He seems to stand on the shore of his island. "Ears in this island hear" and "Eyes in this island see" show nearness. The simile "the wind pass like a fire" shows intensity of anxiety. Ships from the mainland arrive; the poet asks whether to run to the ships or stay. Lines "Shall I run to the ships / With the wind in my hair" reveal hidden desire to meet people despite valuing seclusion. He fears societal judgment and injury, questioning whether to live aloof or engage.

Repetition of lines "Hands grumble on the door" and "Ships anchor off the bay" shows ongoing processes and anxiety. Short sentence repetition conveys fear and indecision. Heavy rain suggests sailors seek refuge, and the poet faces moral responsibility to welcome them. Two lines contemplating letting in visitors show growing importance of this option, reinforced by foregrounded last lines. The last two lines shift focus to visitors: "Hands of the stranger and holds of the ships / Hold you poison or grapes?" The poet now considers what his work offers society. The near homophonic pun in "holds" and "hold" suggests multiple meanings. His dilemma remains unresolved, but the last lines show the poet's change of mind: he is no longer alone; his privacy has been intruded, and his work is open to judgment as poison or grapes.

Phonological cohesion is achieved through alliteration, assonance, and internal rhyme creating a sonic texture that parallels the thematic rhythm of hesitation and recurrence. The interplay of soft fricatives *(*"flesh," "flying fish") and plosive consonants *(*"bones," "bay," "beats") intensifies the sensory experience of the poem. These sound patterns enact the pulse of cognitive oscillation, as if the phonetic fabric itself embodies the tension between resistance and release.

Cognitive-poetic interpretation

From a cognitive-poetic standpoint, "Ears in the Turrets Hear" stages the mind's struggle between self-preservation and the desire for connection. Recurrent spatial metaphors—house, island, door, sea, ships—function as conceptual containers that map psychological boundaries. Within the mappings SELF IS ISLAND and MIND IS HOUSE, the "white house" signifies both purity and confinement, while the "door" marks the threshold between solitude and contact. The island "bound by a thin sea of flesh / and a bone coast" exemplifies

embodied metaphor, fusing body and landscape to show the self as a cognitive boundary.

In Text World Theory terms, the poem constructs nested worlds: the inner "white house," the island, and the external world of ships and strangers. Deictic "this" anchors consciousness within shifting mental spaces, while rhetorical questions signal recursive decision-making. Conceptual Metaphor Theory further reveals CONTACT IS RISK and COMMUNICATION IS INGESTION, as "poison or grapes" frames artistic exposure as both nourishing and destructive. Thomas thus transforms cognitive hesitation into poetic form.

Conclusion

Patterns of cohesion, parallelism, and foregrounding illuminate how the poem encodes isolation not merely as theme but as linguistic structure. The image of the "white house" figures the body as a bone-bound island—at once a site of enclosure and a medium of perception—through which experience is filtered and negotiated. This enclosure, however, is not absolute: the tentative admission of the reader signals a fragile opening toward communication. Read through a stylistic and cognitive-poetic lens, Thomas's language functions as both textual fabric and cognitive network, making perceptible the processes by which consciousness organizes itself. The poem's poetics of solitude thus articulates not simple withdrawal, but the ongoing cognitive labour of sustaining selfhood at the threshold between isolation and relation.

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Vocabulary diversity of reading materials at the beginning of primary school

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Abstract

Vocabulary represents the most dynamic aspect of language development, continuously changing, expanding, and being acquired throughout life. Lexical diversity serves as a predictor of academic achievement and is a hallmark of competent communication in adulthood. Increasingly, there is concern regarding the limited understanding of word meanings among younger school-aged children, while less attention is given to how vocabulary development and lexical diversity can be systematically monitored. This paper therefore analyses all mandatory reading materials for first- and second-grade primary school students to calculate lexical density and diversity, defined as the ratio of the number of variants to the total number of occurrences. It is hypothesized that unfamiliar and archaic words appear frequently, and that sentence structures may be more complex than expected for this age group. The data gathered yield a frequency dictionary that may be applied in constructing tests for assessing lexical diversity and competence in early school-age children.

Keywords: obligatory reading books, textbooks, Croatian language, reading, lexicon

Introduction

Vocabulary development plays a crucial role in overall language acquisition, as it unfolds throughout an individual's entire life. In early childhood, preschool, and the initial school years, vocabulary growth serves as a key indicator of linguistic development and a predictor of educational success and later academic skills (Radić et al., 2010). In Croatian, as a first language, there are no standardized tools for measuring vocabulary development; rather, it is typically estimated based on researchers' observations. It is generally assumed that a child's mental lexicon contains approximately one thousand words at the age of three, four thousand by the age of four, and around ten thousand by the age of six or seven—when entering school (Pavličević-Franić, 2011). Naturally, learning words in one's first language differs substantially from learning words in a second language, primarily because exposure in the first language occurs through both spoken and written modalities (Webb & Nation, 2017). Similarly, Biber and Conrad (2001) emphasize that lexical competence relies on pragmatic, syntactic, morphological, and phonological knowledge, particularly in the case of the first language.

The impact of sociocultural factors is confirmed by Southwood et al. (2021), who identified gender, age, environment, and initial education as key predictors

of lexical diversity. Moreover, Duff et al. (2015) demonstrated that reading habits and experiences not only expand vocabulary size but are also closely linked to literacy development. Song et al. (2015) further notes that individual differences in vocabulary breadth and richness are shaped by cognitive skills—especially working memory and morphological awareness—as well as by the home environment. Ultimately, as Webb and Nation (2017) stress, words form the very structure of language and hold a central position in all linguistic activities—listening, speaking, reading, and writing—while also constituting an essential part of everyday communication. In traditional education, vocabulary teaching was often neglected (Duan & Da, 2015), with greater emphasis placed on grammar and orthography than on lexical acquisition. Yet, even in first-language contexts, vocabulary learning is of paramount importance.

Books read in childhood profoundly shape vocabulary acquisition, and reading habits substantially influence vocabulary growth, as shown by Cvikić (2007), who found that school-age children acquire between 500 and 1,000 new words each year. To fully acquire a new word, children typically need to encounter it seven to ten times in different contexts (Laufer, 2005), while being encouraged to use it in both spoken and written forms. Reading, as a secondary linguistic activity, plays a particularly important role by exposing children to new information and enabling implicit vocabulary learning through text.

Research methodology

This study examined books designated as mandatory reading according to the *National Curriculum for the Croatian Language* (2019), intended for students at the beginning of schooling—specifically, in the first and second grades of primary education within the subject *Croatian Language*, which serves as students' first and native language. The analyzed works included fairy tales by the Brothers Grimm (*Little Red Riding Hood*, *Snow White*, and *Sleeping Beauty*) and those by Hans Christian Andersen (*The Emperor's New Clothes*, *The Ugly Duckling*, and *The Daisy*). In addition to these literary works, the study also included textbooks from three publishing houses used in the first and second grades, covering *Croatian Language*, *Science and Society*, and *Mathematics*. The texts were processed using **Sketch Engine**, a software tool for computational text analysis. The quantitative data obtained were subsequently analyzed and compared using **SPSS**. The research questions were: **P1 and P2:** To examine lexical diversity and density in the corpus of required reading and textbooks for the first and second grades of primary school. **P3:** To examine the number of words per sentence in the corpuses; **P4:** To examine the ratio of low-frequency to high-frequency words in the corpuses.

The first research goal was to determine lexical density and diversity within the mandatory reading materials assigned to students at the beginning of schooling. The results revealed that these texts contain approximately **1,020 lemmas**, **1,621 distinct word forms**, and **4,014 tokens**. Lexical diversity, expressed

as the ratio of distinct word forms to the total number of words, was **0.40**, while lexical density, defined as the ratio of lemmas to tokens, was **0.25**. These findings indicate that the texts are lexically rich, with approximately **25%** of words recurring, while **48%**of words occur only once.

The second objective of the study was to examine lexical density and diversity in textbooks for *Croatian Language*, *Mathematics*, and *Science and Society* published by three different publishing houses. Out of a total of **51,125 words**, the number of distinct word forms was **12,354**, and the number of lemmas was **6,335**. Lexical diversity across textbooks for all three subjects amounted to **0.12**, while lexical density was **0.24**. Approximately **35%** of words were repeated, and **52%** appeared only once. These findings suggest that textbooks are lexically less demanding than mandatory literary works, as the number of recurring words is significantly higher in textbooks compared to required readings. When comparing the textbook corpus with the corpus of mandatory reading materials, it becomes evident—as expected—that a greater variety of words occurs in the literary texts. As previously discussed, reading plays a crucial role in vocabulary development; therefore, a larger number of unfamiliar words and a richer lexical structure in literary works naturally contribute to vocabulary expansion among students.

The third objective of the study was to analyze the sentence structure of the texts. In the textbook materials, a total of **5,232 sentences** were identified, while the corpus of literary works contained **169 sentences**. By dividing the total number of tokens by the number of sentences, it was determined that the average sentence length in the textbook corpus was **9.77 words per sentence**, whereas in the corpus of literary works it was **9.59 words per sentence**. These results indicate that sentence length in both corpora is comparable and appropriate for children aged seven to nine years, corresponding to the expected developmental level at the beginning of schooling.

The fourth research objective was to identify the words that occur most frequently in the required reading texts and in the textbooks. As expected, **nouns** dominate in the literary corpus, often serving as the key elements of the stories—for instance, *queen*, *dwarf*, *mirror*, *Snow White*, *seven*, and the adjective *beautiful*. In contrast, **verbs** predominate in textbook materials, typically serving instructional functions such as directing or engaging the learner—for example, *to know*, *to develop*, *to write*, and similar forms.

Conclusion

The analysis confirmed that vocabulary plays a crucial role in understanding both literary and textbook materials. At the beginning of schooling, it is particularly important to select words carefully for the texts used in instruction. Equal attention should also be devoted to the vocabulary of mandatory reading materials, as these texts have a significant influence on the process of vocabulary enrichment during early education.

The findings of this study revealed that some texts are excessively complex for students' comprehension levels, highlighting the necessity of monitoring and adjusting lexical complexity. High lexical difficulty can substantially hinder text comprehension and, consequently, students' overall learning success.

Therefore, the vocabulary used in both textbooks and literary works should be appropriate to students' developmental stages, enabling children to expand their lexicons through exposure to suitable linguistic input. Such materials not only facilitate knowledge acquisition but also contribute to the development of linguistic confidence and communicative competence.

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Experimental evidence on requests in English varieties from the perspective of local grammars

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Abstract

This study investigates the speech act of requesting in British, American, and Hong Kong English through the lens of local grammars. Using an experimental design with 150 speakers, the study analysed elicited requests to identify variety-specific patterns. The results reveal that while indirectness is a common feature, its linguistic implementation varies significantly. British English speakers favor politeness markers to achieve indirectness, American English speakers use more direct forms emphasizing modal verbs, and Hong Kong English speakers employ an integrated strategy of deference and indirectness. These findings demonstrate that request-making is deeply rooted in local socio-cultural norms, challenging universalist approaches and highlighting the value of the local grammar framework in understanding intercultural communication.

Keywords: speech acts, requests, English varieties, local grammars

Introduction

The ability to make requests effectively is fundamental to human interaction. As a universal speech act, requesting is realized through a variety of linguistic forms, which are shaped not only by the universal principles of language but also by the specific socio-cultural norms of a speech community. The study of these variations, often conceptualized through the framework of "local grammars" (Stirling, 2004), allows for a deeper understanding of how language is used in context and how speakers negotiate social relationships through their linguistic choices. This paper examines the speech act of requesting in three distinct English varieties: British English (BrE), American English (AmE), and Hong Kong English (HKE).

Previous research has established that the realization of speech acts, including requests, can vary significantly across different cultures and language varieties (Blum-Kulka, House, & Kasper, 1989). These variations are often attributed to differing concepts of politeness, face-saving strategies, and the perceived social distance between interactants. While general patterns of indirectness and directness in requests have been identified, the specific linguistic mechanisms employed and their interplay with socio-cultural factors warrant detailed investigation within specific varieties. This study aims to fill this gap by employing an experimental approach to elicit and analyze requestive speech acts from native speakers of BrE, AmE, and HKE, viewed through the lens of their

respective local grammars. By uncovering the unique patterns and strategies employed by speakers of each variety, this research seeks to highlight the nuances of intercultural communication and inform pedagogical practices for teaching English as a second language.

Methodology

The study involved 150 participants, with 50 native speakers from each of the three target English varieties: British English, American English, and Hong Kong English. Participants were recruited through university networks and social media platforms. All participants were monolingual speakers of their respective English varieties and provided informed consent.

A controlled experiment was designed to elicit requestive speech acts. Participants were presented with a series of 20 scenarios, each depicting a different socio-pragmatic context. These scenarios were crafted to vary in terms of the relationship between the requester and the addressee (e.g., close friend, colleague, stranger), the imposition of the request, and the formality of the situation. This variation was intended to elicit a range of request strategies.

Participants were asked to write down how they would make a request in each of the 20 scenarios. The collected requests were then analyzed using the local grammar framework. This involved identifying and quantifying key linguistic features, including: Indirectness Rating: A rating from 1 (highly direct) to 7 (highly indirect) was assigned to each request based on its semantic and syntactic directness; Modal Verb Count: The frequency of modal verbs used in requests (e.g., could, would, can, will); Politeness/Hedging Marker Count: The frequency of explicit politeness markers (e.g., please, kindly) and hedging devices (e.g., a bit, perhaps, sorry to bother you). The collected data was then subjected to statistical analysis.

Analysis of Variance (ANOVA) was performed to compare the mean scores for indirectness ratings, modal verb counts, and politeness marker counts across the three English varieties. Post-hoc Tukey's Honestly Significant Difference (HSD) tests were conducted where significant differences were found to determine which specific variety pairs differed.

Results and discussion

The results reveal distinct, variety-specific patterns in how requests are formulated. As shown in Figure 1, British and Hong Kong English speakers employ significantly more indirectness than American English speakers, who favor more direct forms. Figure 2 explains the linguistic basis for this difference: British speakers achieve indirectness through a high frequency of politeness markers, whereas American speakers rely more heavily on modal verbs to soften their direct requests. Hong Kong English speakers use a blended strategy, showing a high use of politeness markers similar to the British but also

incorporating modal verbs. Furthermore, Figure 3 illustrates a strong positive correlation between the use of politeness markers and indirectness ratings for British English speakers, confirming this is their primary strategy.

These findings highlight the significant impact of local grammars on speech act realization. The variations observed suggest that "politeness" is not a monolithic concept but is enacted through contextually specific linguistic choices. The indirectness in BrE, achieved through a heavy reliance on politeness markers, contrasts with the directness in AmE, characterized by modal verbs. HKE speakers present a fascinating blend, utilizing both strategies, possibly reflecting a pragmatic negotiation between their linguistic background and the need to communicate effectively in a global English. This study challenges a universalist view of request-making, underscoring the importance of understanding localized linguistic practices.

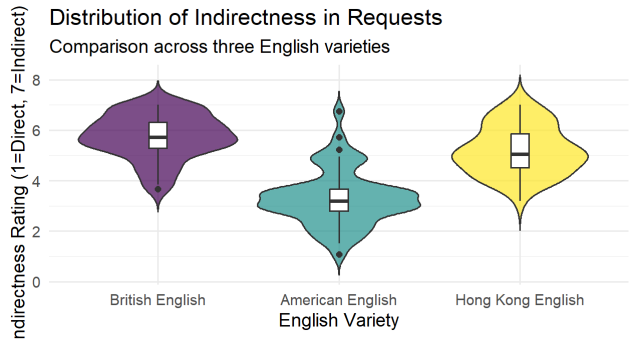

Figure 1. Distribution of Indirectness in Requests.

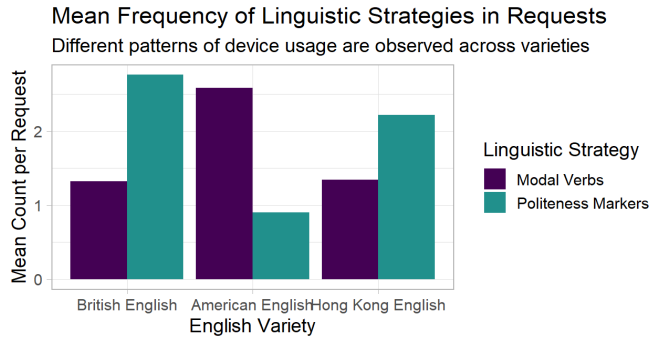

Figure 2. Mean Frequency of Linguistic Strategies in Requests.

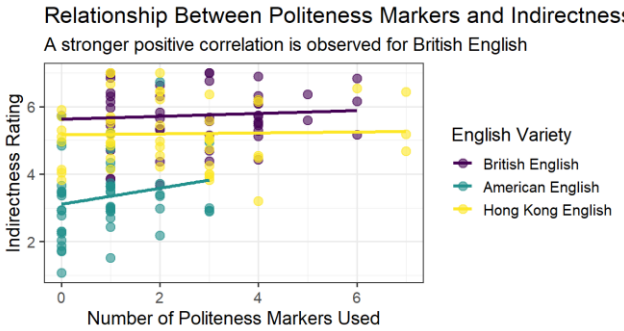

Figure 3. Relationship between Politeness Markers and Indirectness.

Conclusion

In conclusion, this study provides empirical evidence that the speech act of requesting is realized through systematically different local grammars in British, American, and Hong Kong English. The variations in indirectness and the preferred linguistic strategies for achieving it underscore the deep influence of socio-cultural context on language use. These findings challenge a universalist view of request-making and demonstrate the value of the local grammar framework for analyzing nuanced linguistic behaviors. The insights are practically relevant for improving intercultural communication and for teaching English as a second language, as they emphasize the importance of understanding the subtle, context-dependent nature of pragmatic competence.

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Island effects and amelioration by resumption in Hong Kong English: an auditory acceptability-judgement study

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Abstract

This study investigates island effects and amelioration by resumption in Hong Kong English, a primarily spoken language with grammatical-resumption features. To our knowledge, this is the first formal-experimental study exploring island effects in a spoken variety of English. This study presents evidence from four auditory acceptability-judgment studies that explore two types of syntactic dependencies and four island types, both with and without resumption. The experiments examine 16 distinct conditions, quantifying the acceptability of sentences with gaps versus those with resumption. This study carefully selects two strong islands (adjunct islands and complex-NP islands) and two weak islands (wh-islands and "whether" islands) to enhance the interpretability and generalizability of the results. The findings reveal two main sources of variation: first, variation across dependency types in the occurrence of island effects with gaps, and second, variation across island types in the amelioration of island violations by resumption. This study discusses the implications of these results for four major theories of island effects, highlighting the challenges posed by our data and suggesting possible directions for future research. Furthermore, this study explores the consequences of the variation in amelioration for theories of resumption, arguing that both base generation and movement options must be accessible to learners of Hong Kong English. The study also identifies individual variation in the availability of resumption across dependency types, which warrants further investigation. This research significantly contributes to our understanding of how resumption affects island phenomena in a non-native English variety and provides valuable insights into the formal and experimental study of syntax.

Keywords: island effects, amelioration, resumption, Hong Kong English

Introduction

Syntactic islands, domains from which constituent movement is restricted, have been a cornerstone of generative linguistic theory since Ross's foundational work (1967). These constraints, such as the prohibition of extraction from adjunct clauses (Adjunct Island) or complex noun phrases (Complex-NP Island), are considered by many to be a core component of Universal Grammar. However, certain linguistic devices can appear to circumvent these restrictions. One such device is resumption, where a pronoun appears in the canonical position of the moved element, or "gap". While resumption is ungrammatical in standard

English, it is a feature of many world languages and is observed in non-standard English, including Hong Kong English (HKE).

HKE presents a unique opportunity to study the interplay of islands and resumption. As a contact variety influenced by substrate languages like Cantonese, it has developed distinct grammatical features. This study provides the first formal experimental investigation into island phenomena in this spoken, non-native variety. We ask: (1) Are speakers of HKE sensitive to the distinction between strong and weak islands found in native English varieties? (2) Does the presence of a resumptive pronoun ameliorate, or improve, the acceptability of island-violating sentences? (3) Is the effect of resumption uniform across different island types and different syntactic dependencies? By addressing these questions through a series of auditory acceptability judgment tasks, this paper provides crucial data for theories of syntax, second language acquisition, and the grammar of world Englishes.

Methodology

Forty adult speakers of Hong Kong English (25 female, 15 male; mean age = 22.5 years) were recruited from a local university. All participants were native speakers of Cantonese and began learning English in early childhood. All provided informed consent and were compensated for their time.

The study employed a 2×4×2 within-subjects factorial design. The independent variables were: (1) Syntactic Dependency (2 levels): Dependency_A (e.g., subject extraction) and Dependency_B (e.g., object extraction); (2) Island Type (4 levels): Two strong islands (Strong_Adjunct, Strong_ComplexNP) and two weak islands (Weak_WH, Weak_Whether) ; (3) Resumption (2 levels): Sentences containing a gap (Gap) versus sentences containing a Resumptive_Pronoun. This design resulted in 16 conditions per participant. For each condition, multiple sentence sets were created and counterbalanced across participants using a Latin square design. All stimuli were recorded by a native speaker of HKE to ensure authentic prosody and were presented aurally.

The acceptability ratings were analyzed using a linear mixed-effects model with maximal random effects structure, including random intercepts for participants and items, as well as by-participant random slopes for all fixed effects.

Results

The results of this study reveal a systematic and rule-governed grammar underlying island phenomena in Hong Kong English (HKE). The primary finding is that resumption serves as a powerful and consistent strategy for ameliorating island violations. As illustrated in Figure 1, sentences containing a resumptive pronoun (yellow bars) were rated as significantly more acceptable than their counterparts with a gap (purple bars) across all four island types. This provides clear evidence that resumption is a productive grammatical tool used by

HKE speakers to repair otherwise unacceptable extractions. Furthermore, the data show that HKE speakers are highly sensitive to island strength, a distinction central to syntactic theory. Violations of strong islands (Strong_Adjunct, Strong_ComplexNP) were consistently judged more harshly than violations of weak islands (Weak_WH, Weak_Whether). Crucially, the ameliorating effect of resumption was most pronounced for the most severe violations (i.e., strong islands), lending support to a "last resort" analysis where this strategy is most readily deployed to salvage derivations that would otherwise be grammatically impossible (Shlonsky, 1992).

Figures 2 and 3 offer a more granular view of the data distribution, moving beyond simple averages. These visualizations reveal that for Gap conditions, especially within strong islands, the ratings are not only low on average but are also tightly clustered at the bottom of the scale. This is indicated by the compressed boxes in Figure 3 and the wide base of the violins in Figure 4, reflecting a strong consensus among speakers regarding their unacceptability. In contrast, the distributions for the Resumptive_Pronoun conditions are not only shifted higher but are also considerably wider. This suggests that while resumption is consistently beneficial, there is greater individual variation in how acceptable speakers find the resulting "repaired" sentence.

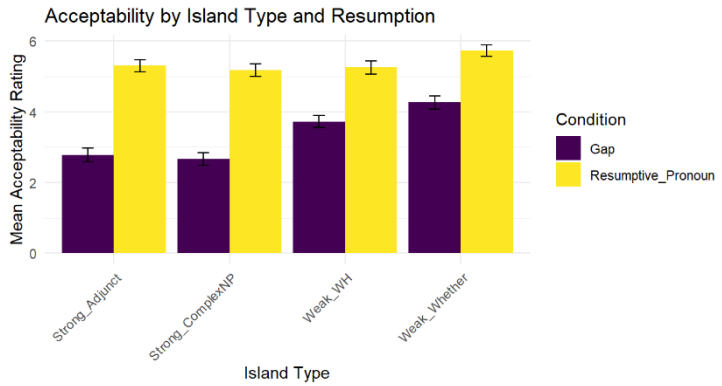

Figure 1. Acceptability by Island Type and Resumption.

Taken together, these findings point toward a dual-strategy grammar in HKE. The clear sensitivity to island constraints in Gap conditions suggests that HKE speakers command a movement-based grammar similar to standard English. However, the robust and systematic amelioration from resumption demonstrates the availability of an alternative, likely base-generation, strategy that is immune to island effects (McCloskey, 2006). This study thus provides experimental evidence that the grammar of HKE is a complex, rule-governed system whose properties can offer significant insights into linguistic theory.

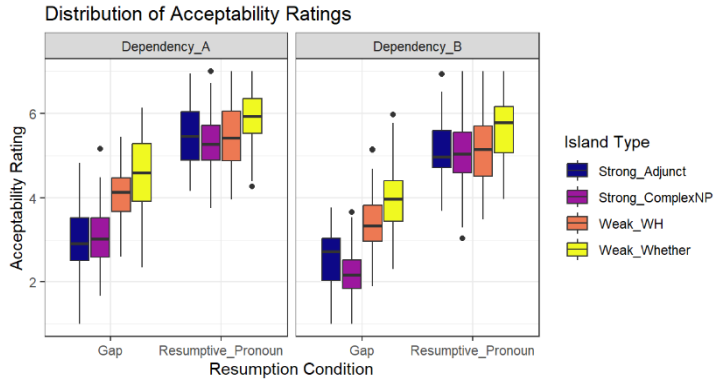

Figure 2. Distribution of Acceptability Ratings.

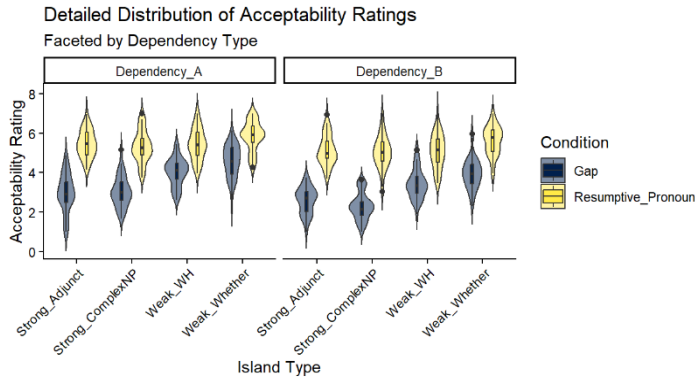

Figure 3. Detailed Distribution of Acceptability Ratings.

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How dipping-tones evolve: a case study of Jìn Chinese

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Abstract

This paper, includes a sample of 22 cases of Lǔliáng Jìn Chinese dialects, reveals that there are five types of dipping tones in Lǔliáng. Thirteen cases exhibit a three-dipping-tone contrast, while nine cases demonstrate a two-dipping-tone contrast. The most common dipping-tone contrastive pattern is "low-dipping vs. back-dipping vs. mid-short low-dipping". The two long dipping tones, T1a and T2, are neutralizing into one dipping tone, forming the two-dipping-tone contrast. The T4bs are lengthening from mid-short to long and raising the tonal head from low-dipping to back-dipping tone.

Keywords: Jìn Chinese, dipping tones, multi-dipping-tone system, tonal evolution

Introduction

A dipping tone has a falling-rising contour. The most familiar case is Shǎngshēng in Běijīng Mandarin, which is transcribed as [214] using Chao tone letters. The tonal value numbers indicate their falling-rising contours and different heights. Dipping tones appear in a number of Chinese dialects. Zhu et al. (2012) first classified seven types of dipping tones under the framework of the "multi-register and four-level" tonal model, and provided a sketch map of the evolution of dipping tones. The low-dipping tone is commonly used in Chinese dialects. The Shǎngshēng [214] in Běijīng Mandarin has a low-dipping contour. Zhu (2018) exhibited a more comprehensive evolutionary network of dipping tones, which is a low-dipping-tone-centered network. A low-dipping tone can evolve to a back-dipping tone by raising its tonal head. If the turning point of a low-dipping tone moves forward, it can become a front-dipping tone. If the turning point is lowered, a low-dipping tone can become a creaky dipping tone. When the duration of a low-dipping tone is prolonged, it can evolve to a double circumflex tone with a falling-rising-falling contour.

Jìn is a variety of Chinese spoken in Shānxī province (山西省) (Hou, Wen 1993). The Lǔliáng dialect is a sub-dialect of Jìn. This study, by analyzing 22 cases of Lǔliáng dialects, finds that there are three dipping tones in a six-tone system, and two dipping tones in a five-tone system. In the following sections, we offer insight into the types of dipping tones in Lǔliáng, and explain how dipping tones in Lǔliáng are evolving.

Data analyses

This study, conducted on a sample of 22 cases of Lǔliáng dialects, reveals that 13 cases exhibit a three-dipping-tone contrast, while nine cases demonstrate a two-dipping-tone contrast. In the following sub-sections, we first illustrate the two common contrastive patterns of three-dipping-tone systems. Next, we focus on the two-dipping-tone systems, which develop from the merger of T1a and T2. Afterwards, we concentrate on T4b, which has a tendency to evolve from a low-dipping tone to a back-dipping tone. We also demonstrate two special cases, which indicate two possible routes of the evolution of Lǔliáng dipping tones. Finally, we summarize the contrastive patterns of dipping tones in our Lǔliáng dialect corpus and their evolutionary routes.

Contrastive tone patterns

There are nine speakers maintaining a "low-dipping vs. back-dipping vs. mid-short low-dipping" contrastive pattern (pattern A). This is the most common dipping-tone contrastive pattern in Lǔliáng dialects. There are three cases displaying a "low-dipping vs. back-dipping vs. mid-short back-dipping" contrastive pattern (pattern B). In patterns A and B, T1a and T2 are long tones. T1as are low-dipping, and T2s are back-dipping. However, T4b is a mid-short low-dipping tone in pattern A and a mid-short back-dipping tone in pattern B. The figure below shows the tonal curves from the two patterns.

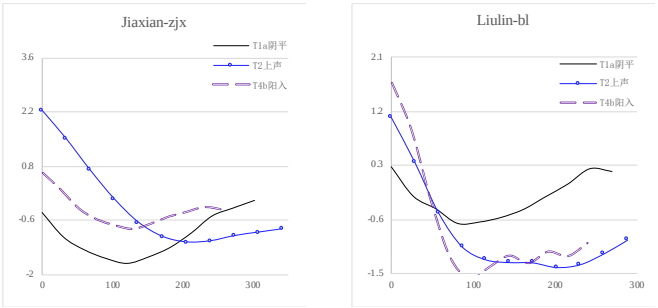


Figure 1. Contrastive tone patterns A (left) and B (right).

A B

The merger of T1a and T2s

Eight cases show a merged T1a and T2 tone, which can be low-dipping or back-dipping. Five cases have a neutralized back-dipping tone, while three cases have a neutralized low-dipping tone. The T4bs can be a mid-short low-dipping tone, or a mid-short back-dipping tone. Figure 2 shows the tonal curves of two Lǔliáng dialect sites whose T1a and T2 have merged into one dipping tone.

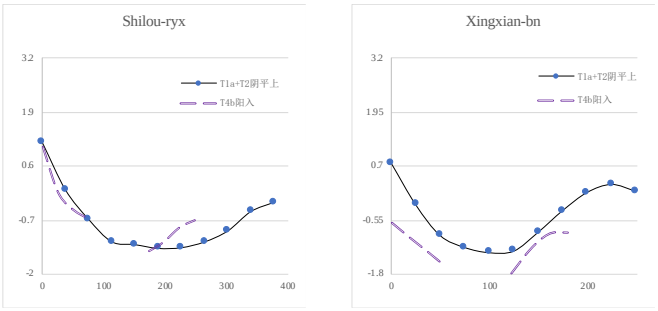


Figure 2. Two sites whose T1a and T2 have merged into one dipping tone.

T4b: from low-dipping to back-dipping

In all the 20 cases we have discussed in the preceding sections, the T4b in thirteen cases (13/20) is a mid-short low-dipping tone; and the T4b in seven cases (7/20) is a mid-short back-dipping tone. Within the 12 cases which maintain a three-dipping-tone contrast, the T4b in nine cases (9/12) is a mid-short low-dipping tone; while the T4b in only three cases (3/12) is a mid-short back-dipping tone. These two facts indicate that the major and basic tonotype of T4b is the mid-short low-dipping type.

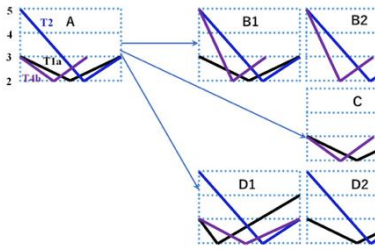
In the systems that have gone through a merging of T1a and T2, the T4b exhibits different contours in different tonal systems. If T2 merged into T1a and became a low-dipping tone finally, its T4b is a low-dipping tone as well. However, if T1a merged into T2 and formed a back-dipping tone, its T4b is also a back-dipping tone in most of the cases. From these synchronic variations of T4b in Lǔliáng, we can infer that Lǔliáng T4b is evolving from a low-dipping tone to a back-dipping tone.

Besides the twenty typical cases we have discussed above, the Wúbǔ-lcz and Fényáng-gf cases provide other contrastive possibilities of the dipping tones in Lǔliáng dialect. In the case Fényáng-gf, a "front-dipping vs. back-dipping vs. low-dipping" contrastive pattern has been formed. In the case of Wúbǔ-lcz, T4b prolonged its duration and finally merged into T1a. As a result, in the tonal system of Wúbǔ-lcz, two dipping tones remain.

Discussion

To recaputulate, there are five types of dipping tones in Lǔliáng, including three long dipping tones and two mid-short dipping tones. These five types of dipping tones construct six different kinds of contrasts, as the following Figure 3 shows. The basic pattern is represented by the diagram on the left side marked "A" in Figure 3. In this pattern, the T1a is a low-dipping tone, the T2 is a back-dipping tone, and the T4b is a mid-short low-dipping tone. When the T4b evolves from a mid-short low-dipping tone to a mid-short back-dipping tone, the pattern B1 "low-dipping vs. back-dipping vs. mid-short back-dipping" is formed. Pattern B2

represents the systems whose T1a has merged into T2. Pattern C shows the systems whose T2 has merged into T1a. Patterns D1 and D2 are the cases Fényáng-gf and Wúbǔ-lcz respectively. When the T4b is prolonged from a mid-short low-dipping tone into a long low-dipping tone, one result is that T1a is pushed to become a front-dipping tone, as shown in D1; and the other result is that it merges into T1a, as shown in D2. To have a clearer presentation, we list the corresponding dialect sites of each pattern in the following table.



Dipping tone pattern	Dialect sites
A: low-dipping vs. back-dipping vs. mid-short low-dipping	Jiāxiàn-zjx(65), Jiāxiàn-wzm(66), Wúbǔ-kcl(57), Líshí-yhx(53), Línxiàn-hls(70), Línxiàn-fyj(21), Fāngshān-lhp(63), Liǔlín-zdm(67), Líshí-ql(24)
B1: low-dipping vs. back-dipping vs. mid-short back-dipping	Liǔlín-bl(24), Zhōngyáng-yjp(37), Líshí-gxw(22)
B2: back-dipping vs. mid-short back-dipping	Shílóu-cgh(37), Shílóu-ryx(23), Jiāokǒu-mjq(37), Jiāokǒu-zjy(22), Fényáng-lwy(23)
C: low-dipping vs. mid-short low-dipping	Lánxiàn-wzw(37), Xīngxiàn-wlx(70), Xīngxiàn-bn(22)
D1: front-dipping vs. back-dipping vs. low-dipping	Fényáng-gf(42)
D2: low-dipping vs. back-dipping	Wúbǔ-lcz(66)

Figure 3. Contrastive patterns and evolutionary routes of dipping tones in Lǔliáng.

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