

2024 한국언어학회 겨울 학술대회

발표논문 초록 모음집

- 주 제 : 언어 연구의 실험적 접근
(Experimental Approaches to the Study of Language)
- 장 소 : 성균관대학교 서울캠퍼스 국제관
- 일 시 : 2024년 11월 23일(토) 9:30 ~ 17:50
- 주 최 : 한국언어학회
- 주 관 : 성균관대학교 영어영문학과



한 국 언 어 학 회
The Linguistic Society of Korea

학술대회 조직위원회 및 프로그램 위원회

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초대의 말씀

존경하는 회원 여러분

안녕하십니까?

다름이 아니라, **2024년 한국언어학회 겨울 정기학술대회를 11월 23일 토요일 성균관대학교에서 개최하고자 합니다.** 국내외 언어학자, 연구자, 학생들이 한자리에 모여 최신 연구 성과를 공유하고 학문적 교류를 나누는 소중한 기회가 될 것으로 생각합니다.

이번 학술대회의 주제는 언어 연구의 실험적 접근 (Experimental Approaches to the Study of Language)으로, 오늘날 언어 연구가 직면하고 있는 다양한 과제와 가능성을 반영하고 있습니다. 언어 연구의 새로운 흐름을 탐색하고, 학제 간 협력을 통해 언어학의 지평을 넓힐 수 있는 기회가 될 것으로 생각합니다.

특히, 이번 학술대회에서는 서울대학교의 고희정 교수님과 성신여자대학교의 윤태진 교수님께서 기조 강연을 해 주실 예정입니다. 또한 다양한 분야에 걸친 우수한 논문들이 발표될 예정입니다. 활발한 학술적 토론과 함께 회원들 간의 인적 네트워크를 강화하고 새로운 연구 협력을 도모할 수 있는 소중한 자리가 될 것으로 생각합니다.

이 자리를 빌려 이번 정기학술대회를 준비해주신 조직위원회와 프로그램위원회 그리고 상임이사님들에게 깊은 감사를 드립니다. 또한 이번 학술대회 개최를 흔쾌히 수락해 주시고 물심양면으로 도와주시는 이한정 부회장님과 성균과대 관계자 여러분과 이번 학술대회를 뒤에서 헌신적으로 준비해 주신 운영진 모두에게 감사의 마음을 전합니다.

학기말과 한 해를 마무리하기에 여념이 없으시겠지만, 부디 참석하셔서 회원들과 학문적 성과를 나누는 유익한 시간을 보내시기를 바랍니다. 이번 학술대회가 여러분의 연구에 귀중한 자극이 되고, 학문적 성장을 위한 밑거름이 되기를 기대합니다. **2024년 한국언어학회 겨울 정기학술대회에서 뵙기를 고대하겠습니다.**

한국언어학회 회장
김종복 드림



Conference Program

Conference Program

일시

2024년 11월 23일(토) 09:30-17:50

Date

November 23, 2024. Saturday 09:30-17:50

장소

성균관대학교 국제관 B3층 9B312, 9B318, 9B320

Venue

International Hall B3 #9B312, 9B318, 9B320. Sungkyunkwan University, Seoul.

발표장

제 1발표장(Room 1): 9B320호; 제 2발표장(Room 2): 9B318호; 제 3발표장(Room 3): 9B312호

오전 1부	
10:00-10:10	개회사 김종복(학회장, 경희대) [Jong-Bok Kim (President, Kyung Hee Univ.)]
제 1 발표장	사 회 박동우(총무, 한국방송통신대) [Dongwoo Park (Secretary General, Korea National Open Univ.)]
Plenary Talk 제 1 발표장 사 회 박동우(한국방송통신대)	
10:10-11:10	Directionality and feature mapping in acquisition: Experimental evidence from L2-Korean resultatives 고희정(서울대학교)

오전 2부			
세션/발표장	일반 세션 1 제 1 발표장 (9B320)	일반 세션 2 제 2 발표장	일반 세션 3 제 3 발표장
	사 회 임수연(송실대)	사 회 박유경(서울대)	사 회 김나연(성균관대)
11:20-11:50	대규모 음성데이터를 활용한 한국어 모어 화자의 중국어 음성 오류 분석 이옥주, 박지은(서울대)	A Study on the Semantics and Pragmatics of Bias in High Negated Questions 이서영(서울대)	Using Machine Learning to Probe Neural Representation of Words and Grammatical Features 조정화(University of Michigan)
11:50-12:20	English voicing contrast in Seoul Korean and Mandarin Chinese learners of English 왕아림, 권하림(서울대)	Experimental Studies on Korean Multi-tonal Imperatives: Sentence-type Conventions and Politeness Inferences 홍승연(서울대)	문화적 맥락을 고려한 한국어 언어 모델 평가: 기계번역 데이터의 한계 이상아(서울대)

오후 1부	
Plenary Talk 제 1 발표장 사 회 권하림(서울대)	
13:40-14:40	Uncovering Sound Patterns from Large-Scale Speech Corpora 윤태진(성신여자대학교)

오후 2부			
세션/발표장	일반 세션 4 제 1 발표장	일반 세션 5 제 2 발표장	일반 세션 6 제 3 발표장
	사 회 이옥주(서울대)	사 회 임동식(홍익대)	사 회 김옥기(경희대)
14:50-15:20	Acoustic Analysis of Cross-Linguistic Voice Quality in Korean-English Bilinguals 이하늘, 권하림(서울대)	Subject of Consciousness in Causal Connective Construction: A cognitive semantic approach to <i>-(u)n nameci</i> construction in Korean 강지인, 권익수(한국외대)	A QUD-Based Analysis of Multiple Sluicing Constructions 김지민(서울대)
15:20-15:50	Statistical analysis of asymmetric phonotactic patterns 박신애(경북대)	The Need for a Korean-Specific Classification of ECM Verbs: An ANOVA Study on Allowance for Exceptional Case Marking in Matrix Verb Classes (Assertives, Doxastics, and Appraisals) 양희욱(서울대)	한국어 다중 분열문의 통사론 이정훈(서울대)
15:50-16:20	The effect of talker identity and language experience in perceiving foreign-accented speech 조정화(University of Michigan), 권하림(서울대)	Age and Dialect in Korean Case-stacking: Experimental Data and Theoretical Challenges 이영호, 강민하(서울대)	제주어 청자 지향 문말 담화표지들의 담화기능과 분포적 제약 홍용철(성신여대)



오후 3부			
세션/발표장	일반 세션 7 제 1 발표장	일반 세션 8 제 2 발표장	일반 세션 9 제 3 발표장
	사 회 오은정(상명대)	사 회 이상아(서울대)	사 회 허세문(홍익대)
16:30-17:00	Hearing shapes, seeing sounds: Early word learning through sound symbolism in Korean infants	Exploring Multimodal Perception in Language Models: Insights from Sensory Rating Evaluations	The processing of backward Noun Phrase Ellipsis
	고연숙(조선대)	이종현(서울대)	하윤서, 김나연(성균관대)
17:00-17:30	How Emotion Affects Code-Switching during Natural Communication	Pragmatic inference of scalar implicature by LLMs	The Role of Distinctness and Alignment in Korean Nominative Object Constructions
	이석화(연세대)	조예은(성균관대)	조주연(서울대), Rebecca Tollan(Univ. of Delaware)

총 회 및 폐 회 식(General Assembly & Closing Remarks, 제 1발표장)	
17:30-17:50	연구윤리 교육 오은정 (편집위원장, 상명대) [Eunjeong Oh (Editor-in-Chief of The Korean Journal of Linguistics, Sangmyung Univ.)]
	폐회사 이정미(프로그램위원장, 서울대) [Jungmee Lee (Program Committee Chair, Seoul National Univ.)]
	사 회 박동우(총무, 한국방송통신대) [Dongwoo Park (Korea National Open Univ.)]





Plenary Talk

Directionality and feature mapping in acquisition: Experimental evidence from L2-Korean resultatives

고희정
(서울대학교)

Building on rich studies on the typology of resultatives, this paper examines two prominent issues in learnability with reference to L2-Korean resultatives. The first issue concerns how the directionality of acquisition interacts with L1-transfer effects. Given that Korean resultatives show much wider syntactic and semantic distribution than English ones (Ko 2015), the question arises on whether expansion of the grammar would trigger the same type of difficulty as unlearning. Our study investigates how L1-English speakers acquire L2-Korean resultatives and examine whether they face the same type and degree of difficulty as L1-Korean learners. The second issue is how intra-linguistic complexity would affect feature mapping in L2 acquisition. Korean resultatives can be marked by two morphemes, *-key* or *-lo*, with much different syntax and semantics. We investigate how the existence of two resultative morphemes in Korean may affect the overall learning process (cf. Salabakova 2016).

We conducted an Acceptability Judgment Task (AJT) experiment with 92 volunteers (25 L1-Korean controls and 67 L1-English learners of Korean). We tested how syntactic/semantic differences between Korean and English affect acquisition of L2-Korean resultatives. Our results show that advanced learners can acquire properties of L2-Korean that are not overtly expressed in their L1, English. Our study ascertains that ultimate attainment from a subset (English) to a superset language (Korean) happens. Our study thus provides novel evidence for the claim that the Subset Principle is at work in L2 acquisition (Wexler and Manzini 1987). Moreover, we found that advanced learners successfully distinguish *-lo* resultatives from *-key* resultatives. This indicates that overgeneralization can be properly controlled, despite the lack of such resultative markers in the L1. Our results thus reconfirm the prediction of the Full Transfer/Full Access hypothesis (Schwartz & Sprouse 1996) by showing L1-transfer effects and overgeneralization can be overcome as the learner's proficiency gets improved.

Uncovering Sound Patterns from Large-Scale Speech Corpora

Tae-Jin Yoon
(Sungshin Women's University)

This presentation synthesizes my past research on phonetics and phonology that has been conducted alone or in collaboration with other researcher. In this talk, I will re-examining key findings with the insights afforded by large-scale speech corpora and computational advancements. Through resources like the Boston University Radio Speech Corpus, the TIMIT Corpus, Speech Accent Archive and large-scale speech coropora made available by the National Institute of Korean Language and NIA(National Information Society Agency), my work has explored aspects of prosodic structures, pitch accent patterns, and phonetic variation across dialects, genders, and age groups. These foundational studies have been enriched by predictive modeling and forced alignment techniques, which now allow for more precise segmentation and labeling, thereby expanding upon traditional analytical approaches.

Additionally, this retrospective highlights methodological challenges I have encountered in corpus phonetics, such as achieving an optimal balance between sample quantity and quality while maintaining authenticity in data interpretation. The research also considers the broader implications of AI and machine learning in phonetic and phonological studies, especially within the growing field of automatic speech recognition. By integrating these advanced computational techniques with empirical data, this study highlights how modern phonetic research can bridge traditional linguistic inquiry with innovative AI-driven approaches, offering a robust framework for studying natural speech patterns across diverse linguistic communities.



Abstracts

대규모 음성데이터를 활용한 한국어 모어화자의 중국어 음성 오류 분석

이옥주, 박지은
(서울대학교)

한국어 모어화자의 중국어 발음 습득 및 음성 오류는 그동안 중국어 음성·음운론과 교육 영역에서 지속적으로 연구가 진행되었다. 자음과 모음뿐만 아니라 성조, 강세, 억양 등 초분절음 산출 특성에 대한 연구는 언어 간 음운·음성 간섭 및 발음 오류와 교육에 대한 이해를 확대하는데 기여하였다(이미경 2005, 2006, 陈燕玲 2008, 한희창 2010, 고미숙, 김병창, 성운숙 2011, 이선희 2013, 2018, 고미숙 2014, 임범중 2016, 한서영 2017, 김보경 2018, 백승석 2018, 김희성 2019, 2022, 서춘란 2019, 심소희, 董聰 2022 등; 심소희 1999, 이옥주 2007, 2008, 2014, 한희창 2009, 손남호 2010, 권경인, 김창대 2015, 이미경 2015, 安宇雪 2018, 高琪 2020, 오한나 2021 등). 그러나 거의 모든 기존 연구는 교수자가 교육 현장에서 경험한 주관적 관찰에 근거하거나 개인 연구자가 수집한 소규모 음성자료를 분석한 것이다. 따라서 한국어 모어화자의 중국어 음성 오류 유형을 체계적으로 파악하는 데 한계가 있으며, 학습 경험과 수준에 따라 변화하는 음성 특성에 대한 이해는 여전히 매우 제한적이다.

본 연구는 AI Hub [교육용 한국인의 다국어 음성데이터] (<https://www.aihub.or.kr>)의 중국어 음성데이터를 활용하여 한국어 모어화자의 중국어 음성 오류를 분석하는 것을 목적으로 한다. 이 데이터는 약 510시간의 한국인의 중국어 음성데이터로, 국내외를 막론하고 가장 규모가 큰 비모어화자 중국어 음성데이터 가운데 하나이다. 본 연구는 데이터에 포함된 ‘발음 평가용 데이터’를 활용하여, 자음 대체오류(substitution) 총 104,632개(고급 5,702개, 중급 31,096개, 초급 67,834개)를 추출하여 분석하였다. 분석 결과에 의하면, 한국어 모어화자의 중국어 자음 오류는 치음이 후치조음(권설음)으로 대체되는 오류와 후치조음이 경구개음으로 대체되는 오류가 가장 빈번하게 발생하며, 중국어 수준별로 차이를 보이는 오류 양상과 모든 수준에서 지속적으로 발생하는 오류 유형이 구분된다. 대규모 음성데이터로부터 도출한 이와 같은 결과는 기존 연구가 특정 오류를 관찰하기 위하여 수집한 소규모 음성에 기반한 방법론적 제약과 한국어에 존재하지 않는 후치조음 오류 및 습득에 집중되었던 연구 범위의 한계를 극복하며, 더 나아가 향후 한국어 모어화자의 중국어 AI 음성 자동인식 및 AI 기반 발음·말하기 자동평가 모델 개발에 중요한 활용 가치를 갖는다.

참고문헌

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English voicing contrast in Seoul Korean and Mandarin Chinese learners of English

Yalin Wang and Harim Kwon
(Seoul National University)

English stop voicing contrast (/p t k/ vs. /b d g/) is maintained primarily by the voice onset time (VOT), with the f₀ (fundamental frequency) of the post-stop vowel being a non-negligible secondary cue (e.g., Whalen et al., 1993). English voiced stops are often devoiced word-initially and realized as [p t k] whereas the voiceless ones are aspirated and realized as [p^h t^h k^h]. Unlike English, Seoul Korean (SK) uses post-stop f₀ as the primary phonetic cue and VOT as the secondary cue to differentiate lax and aspirated stops (e.g., Kang, 2014; Silva, 2006). To maintain a full three-way laryngeal contrast among lax, aspirated, and tense stops (/p t k/ vs. /p^h t^h k^h/ vs. /p* t* k*/), the role of the secondary cue is contrastive and not redundant (e.g., Kwon, 2019). In Mandarin Chinese (MC), VOT is the primary cue for the stop laryngeal contrast between unaspirated and aspirated plosives (/p t k/ vs. /p^h t^h k^h/). Whether f₀ serves as a secondary cue to the aspiration contrast remains controversial (e.g., Xu & Xu, 2003; Luo, 2018; Guo & Kwon, 2022), but f₀ is the primary cue for the lexical tone in MC. The three languages have seemingly similar contrasts between [p t k] and [p^h t^h k^h], but they differ in how they weigh the phonetic cues to maintain the full laryngeal contrast. In this study, we investigate how SK and MC speakers produce English stop voicing contrast focusing on the realizations of two phonetic cues, VOT and post-stop f₀. We additionally examine the influence of English proficiency on the cue usage patterns.

Twenty-four SK speakers (12 F, 12 M, aged 19-30) and twenty-four MC speakers (13 F, 11 M, aged 18-25) were tested. All participants reported learning English in the English as Foreign Language setting. Participants were classified into low- and high-proficiency groups based on their most recent English test scores. Twelve native English (NE) speakers (7 F, 5 M, aged 19-35) were included as a control group. The data were collected as a part of a bigger project investigating a stimulated human-machine interaction, but this study focuses only on the initial reading data. Participants saw English words displayed on the computer screen and read them aloud. The target words were 54 plosive-initial monosyllabic English words (9 words * 6 stops /p t k b d g/), presented along with sonorant-initial fillers. Each word was repeated twice. VOT and post-onset f₀ of the target words were measured and analyzed.

Results: MC group had significant longer VOT for voiceless stops than SK and NE groups, while SK group had longer VOT for voiced stops than MC and NE groups. As for post-onset f₀, no significant difference was found for voiceless stops in both SK and MC speakers, which was higher than NE speakers, but the f₀ for voiced stop-initial words was higher in MC speakers compared to SK and NE speakers. This reflects the influence of their native cue primacy in SK speakers' English stop productions. SK speakers relied more on post-onset f₀ to realize English voicing contrast though it was implemented not by raising post-voiceless f₀ but by lowering post-voiced f₀. The influence of English proficiency was also found. Low-proficiency SK speakers exhibited longer VOT compared to their high-proficiency counterparts for voiced stops, indicating that they associated English voiced stops with Korean lax stops. As for MC speakers, low-proficiency male speakers showed shorter VOT for voiceless stops than high-proficiency speakers. Taken together, the current findings demonstrate the evidence of L1 influence on the learners' English voicing contrast, corroborating previous findings (e.g., Schertz, 2015). Discrepancies between the current findings and previous studies (e.g., Kong & Yoon, 2013; Kato & Baes-Berk 2021), as well as their implications for English acquisition, will be discussed.

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A Study on the Semantics and Pragmatics of Bias in High Negated Questions

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Introduction. The consensus in the literature regarding the bias in High Negated Questions (HNQs) like (1) is that it is obligatory, and that this bias is the speaker's bias for the prejacent. However, the theoretical accounts for this phenomenon have varied.

(1) Isn't John a teacher?

Such being the current state of affairs, the goal of this paper is twofold. First, I offer a more precise characterization of the bias in HNQs by claiming that the obligatory bias in an HNQ is the speaker's belief that the addressee believes in the prejacent. Second, I provide a theoretical account which predicts this phenomenon combining three independently motivated elements.

Experiment. I hypothesize that the necessary condition for the felicity of HNQs is the speaker's belief in the addressee's belief in the prejacent. Accordingly, I predict that HNQs are infelicitous when the speaker does not believe that the addressee believes in the prejacent, even if she believes in the prejacent herself (Type 1), and felicitous when the speaker believes that the addressee believes in the prejacent, even if she does not herself believe in the prejacent (Type 2). I conducted an experimental study to confirm these predictions. 100 native speakers of US English were recruited on Prolific. The stimuli consisted of one passage and three possible continuations, each in the form of a Positive Polar Question (PPQ), a Low Negated Question (LNQ), and an HNQ, in this order. Participants rated the naturalness of the PPQ/LNQ/HNQ continuation on a Likert scale from 1 (Impossible) to 7 (Completely natural). The experimental results are summarized in Fig.1. In Type 1 examples, HNQs were systematically judged less natural than the most natural continuation, the PPQ. In Type 2 examples, HNQs were systematically judged the most natural continuation. Statistical tests (paired t-tests; mixed effects linear regression with participant and item as random intercept) report that the differences are significant. The results align with my predictions stated above.

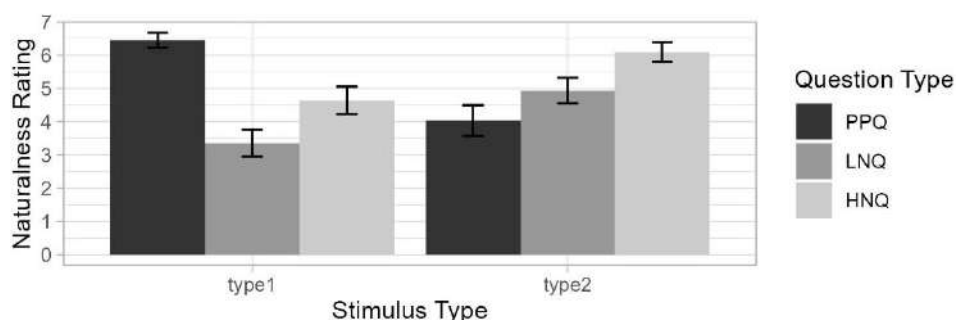


Figure 1 Naturalness rating for PPQ/LNQ/HNQ continuations: mean and 95% confidence interval.

Proposed Analysis. I adopt $\Box_A p$ as the logical form of an HNQ with prejacent p after Goodhue (2022), where \Box is the doxastic necessity operator, and $_A$ means that the belief is held by the addressee. Following Farkas & Roelofsen (2017), I assume that the semantic denotation of an utterance is placed on the Table, which means that an HNQ with prejacent p places $\{\Box_A p, \neg \Box_A p\}$ on the Table. Van Rooij & Šafářová (2003) claim that, when asking a polar question, a speaker

prefers to pronounce the cell with higher utility. They also state that, the less likely a proposition is for a speaker, the more informational utility it has. Considering informational utility, a speaker of a polar question thus prefers to pronounce the cell that they deem less likely. Applying this to an HNQ with prejacent p , which pronounces $\neg \Box A p$, we arrive at the conclusion that the speaker of an HNQ is biased toward $\Box A p$, i.e., the speaker is biased toward the addressee believing in the prejacent. This is identical to the hypothesis above.

Conclusion. I propose a new characterization of bias in HNQs, which is the speaker's bias that the addressee believes in the prejacent, supported by experimental evidence. The theoretical analysis, using three independently motivated components, correctly predicts this phenomenon.

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Experimental Studies on Korean Multi-tonal Imperatives: Sentence-type Conventions and Politeness Inferences

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This study examines the use of multi-tonal boundary tones in Korean imperatives to understand their impact on perceived politeness and acceptability. Korean prosody, especially boundary tones, plays a crucial role in conveying nuanced meanings and speaker intentions. This research focuses on five types of multi-tonal boundary tones (LHL%, HLH%, LHLH%, HLHL%, LHLHL%) and their usage in three types of imperatives: positive, negative, and insulting. An experiment on its politeness and acceptability of various imperative sentences with different boundary tones was conducted. The results show that positive imperatives ending with LHLH% and LHLHL% tones are perceived as less acceptable, while negative and insulting imperatives with LHLHL% tones do not show reduced acceptability. Additionally, more complex tonal patterns, such as LHLHL%, generally increase perceived politeness, especially in face-threatening situations. The findings suggest that specific combinations of imperative types and boundary tones lead to predictable social and emotional responses, highlighting the importance of prosodic variations in managing social interactions in Korean. This research contributes to our understanding of how boundary tones influence the pragmatics of politeness and the perception of imperatives in Korean. Further empirical surveys are needed to clarify these observations.

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Using Machine Learning to Probe Neural Representation of Words and Grammatical Features

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In this presentation, I discuss the limitations of behavioral measures and traditional ERP analysis in examining cross-linguistic neural representation of words and grammatical features in English and Korean and show how machine learning applied to EEG data can be an alternative to probe this question. What is shared and not shared between two languages has been one of the core research areas in bilingualism; yet, how grammatical features are represented in bilinguals is less clear. To address this question, EEG data were collected while 18 Korean-English bilinguals read repeated nouns (in singular or plural form) and verbs (in present or past tense) in both English and Korean (Table 1). Then a machine learning classifier (LDA) was trained and tested on the EEG data to classify different words and grammatical features (singular or plural for nouns and present or past for verbs). The results first replicate prior work showing successful classification of lexical items from EEG signals. Also, classification of morphosyntactic features of number was successful in Korean and tense was successful in both English and Korean (Figure 1). When the classifier trained on one language was tested on the other language, classification of number feature was successful but not lexical items or tense feature. Taken together, these results point to stable EEG representations for lexical items and morphosyntactic features and shared representations different between the two languages investigated here.

Table 1. Stimuli used in the experiment

Nouns				Verbs			
Singular		Plural		Present		Past	
English	Korean	English	Korean	English	Korean	English	Korean
duck	오리 ori	ducks	오리들 ori-deul	leans	기댄다 gidaenda	leaned	기댔다 gidaessda
goat	염소 yeomso	goats	염소들 yeomso-deul	cools	식힌다 sikhinda	cooled	식혔다 sikhyesda
swan	백조 baekjo	swans	백조들 baekjo-deul	helps	돕는다 dopneunda	helped	도왔다 dowassda
lion	사자 saza	lions	사자들 saza-deul	fills	채운다 chaeunda	filled	채웠다 chaewossda

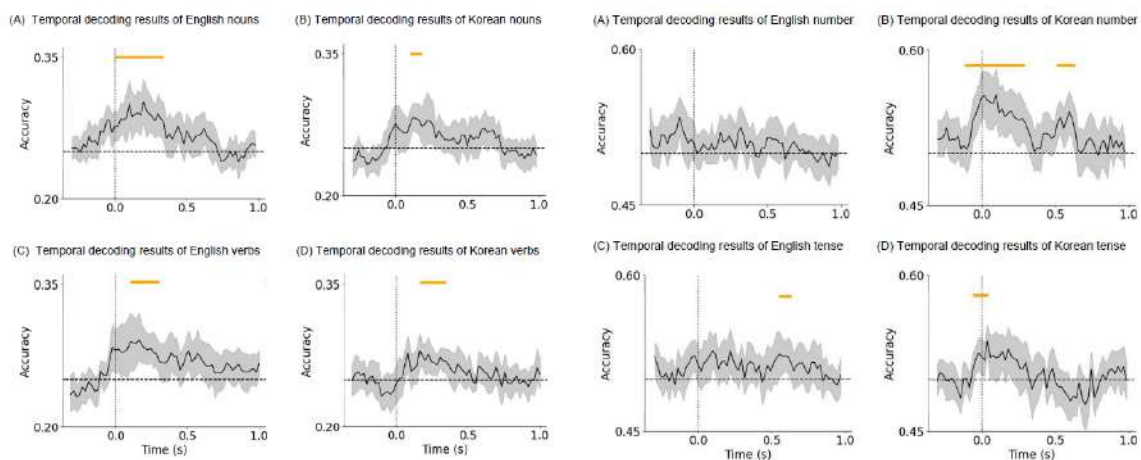


Figure 1. Classification accuracies of nouns and verbs (Left) and number, and tense feature (Right)

Cultural Assessment of Korean Language Generation in Large Language Models: Limitations of Machine-Translated Corpora

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Despite their advanced natural language processing and reasoning capabilities, Large Language Models (LLMs) continue to face challenges in accurately capturing culturally specific contexts and generating responses grounded in these contexts. In Korea and many other non-English-speaking countries, it is common to apply English-based LLMs or English-centric multilingual LLMs to tasks in other languages by adapting them with additional training on Korean (and other non-English) texts. While many researchers utilize Korean texts authored by native Korean speakers, there are cases where well-constructed English corpora are machine-translated into Korean and subsequently used as Korean-language training data for LLMs. Such translated datasets, however, often contain content rooted in Western cultural perspectives. Consequently, models trained on these datasets are likely to produce responses that reflect cultural differences when compared to models trained on authentically Korean datasets, even though they may exhibit high proficiency in Korean-language response generation.

In this study, we categorize Korean-speaking LLMs into two groups: those based on a purely Korean foundation model (Polyglot-ko) and those derived from an English-centric multilingual foundation model (SOLAR). We select instruction-tuned models trained on datasets authored by native Korean speakers, as well as models trained on datasets that are machine-translated from English (e.g., SFT-SOLAR, KULLM v3, KoAlpaca, KORani v1), to evaluate and compare the cultural orientation of each model.

Although several datasets have been developed to assess the cultural orientation of LLMs, few are specifically tailored to the Korean language and Korean cultural contexts. In particular, there is a need for a dataset that evaluates LLMs' responses to prompts where culturally diverse interpretations and answers are possible. We construct a pilot dataset to evaluate LLMs' cultural orientation, informed by common issues identified in English-to-Korean machine-translated datasets. These issues include: (1) in story generation, character names and narrative content are often Western-centric; (2) Western-centric entities are frequently referenced; (3) English idioms and proverbs are translated literally, resulting in unnatural expressions; and (4) translated puns or riddles are included, though they often lose meaning in Korean contexts. We use this pilot dataset to compare LLM-generated responses to prompts specifically curated to assess these cultural properties. Examples of prompts are shown in (1) and (2).

- (1) Write a love story between two people, including their names.
- (2) Tell me about traditional activities people do on New Year's Day.

Our results indicate a clear difference in the number of culturally relevant responses between models fine-tuned on machine-translated datasets (SFT-SOLAR and KORani v1) and those tuned on datasets originally written in Korean (KULLM v3 and KoAlpaca) (Table 1). Models trained on texts written by native Korean speakers produce more Korean names, entities, and culturally appropriate responses than those trained on machine-translated data. Furthermore, models built on Korean foundation models, particularly the KoAlpaca model, generate responses more strongly aligned with Korean cultural contexts.

Table 1. Number of Culturally Korean Responses Generated by Each Model

	Name	Media	Food	Nature/Place	Tradition
KORani v1	0	0	3	1	0
KoAlpaca	1	8	15	17	8
SFT-SOLAR	0	0	1	5	4
KULLM v3	10	3	7	8	4

An Acoustic Analysis of Cross-Linguistic Voice Quality in Korean-English Bilinguals

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Voice is a multi-dimensional construct characterized by various features, including pitch and the quality continua from breathy to creaky, as well as modal to non-modal phonation (Keating et al., 2023). Each language may have a unique range of vocalic features even when they do not have contrastive phonation types (Wagner & Braun, 2003; Benoist-Lucy & Pillot-Loiseau, 2013; Johnson & Babel, 2023). While anecdotal evidence suggests that bilingual speakers adjust their voice when switching languages, the specific qualities of this modulation remain underexplored. This study aims to examine cross-linguistic voice differences in Korean-English bilingual speakers, using various acoustic measures known to characterize voice. We also investigate the potential effects of gender and English proficiency, as evaluated using the Bilingual Language Profile (Birdsong et al., 2012).

Thirty Korean-English bilinguals ($F=15$, all more dominant in Korean) were recorded reading ‘The North Wind and the Sun’ in both languages. We measured various acoustic parameters including F_0 , Subharmonic-to-Harmonic Ratio (SHR), $H1^*-H2^*$, Harmonics-to-Noise Ratio (HNR) 0-500 Hz, and Strength of Excitation (SoE) at 5ms intervals across all sonorant sounds.

Both mean F_0 and F_0 variance (standard deviation) were generally greater in Korean than in English, indicating higher and more variable pitch in Korean. Additionally, the speakers with higher English proficiency showed greater F_0 variance in English, comparable to their Korean productions. Conversely, English exhibited stronger subharmonics (greater SHR) than Korean, suggesting greater use of period-doubling associated with creaky phonation in English. Spectral slope ($H1^*-H2^*$) revealed gender-specific patterns: male speakers had greater values in Korean, while female speakers showed the opposite trend. This may reflect differing expressions of breathiness by gender, or an unintended effect of formant correction, as uncorrected $H1-H2$ were greater in Korean for both genders.

Although greater HNR has been associated with increased cognitive load in the less dominant language (e.g., Peters et al., 2023), only female speakers showed greater HNR in English than in Korean with marginal significance. While most male speakers demonstrated greater SoE—indicating stronger voicing intensity—in English, this parameter was correlated with language history for females: female speakers with more English experience exhibited lower SoE in English than in Korean. These findings highlight how bilingual speakers exhibit distinct voice qualities in their two languages, influenced by language dominance and gender.

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Statistical analysis of asymmetric phonotactic patterns: A corpus study

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Phonotactics, governed by structural constraints in syllables, have been characterized as asymmetric patterns, such as onset-rime (i.e., C-VC) or body-coda (i.e., CV-C), in the hierarchical frame of traditional phonology. This hierarchy induces categorical divisions in phonotactics (e.g., CV/C or C/VC). However, these dichotomous divisions account for only part of the internal structure of syllables. In linguistic performances, the phonotactic asymmetry appears to exhibit hybrid, rather than strictly categorical, patterns. For instance, in /co.kim/ ('a little'), the word shortens to [com] in reduced speech, and the CV sequence /ki-/ in the second syllable is realized as a unit by being deleted simultaneously. Conversely, in /cu.mək/ ('a fist'), the word shortens to [cum], where the VC sequence /-ək/ behaves as a unit. This contrasting evidence challenges categorical and dichotomous divisions in phonotactics.

In response, this paper investigates the distribution of asymmetric phoneme sequences in phonotactics based on the Korean written language to explore higher-level structures. It further examines whether these structures reasonably account for the sub-syllabic constituency. Sources were collected from a newspaper article corpus provided by NIKL (= National Institute of Korean Language), and a total of 1,533 noun words consisting of mono- and disyllables were selected. Based on the target words, cohesion degrees between sub-syllabic phonemes were measured employing the correlation coefficient, a statistical concept. The findings showed that the CV or VC biases in phonotactics are sequence-specific, rather than indicating a clear-cut boundary between them. Predominant patterns in statistical distributions revealed CV biases in surface forms, not underlying forms. However, some VC sequences demonstrated stronger cohesion than CV sequences.

This paper suggests that CV biases based on surface forms are sequential patterns preferred by Korean speakers, arising from probabilistic grammar. These findings imply that sub-syllabic units are not categorical constraints from a hierarchical viewpoint, but non-categorical ones emerging from probability-based dynamics. This paper provides key insights into addressing the limitations of theory-centered approaches and presents new perspectives on asymmetric patterns in phonotactics, based on empirical data.

The effect of talker identity and language experience in perceiving foreign-accented speech

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The current study examines the effect of talker identity and linguistic experience on the perception of vowel insertion in Korean-accented English by English speakers. We compared English speakers living in the US (Experiment 1) and those living in Korea (Experiment 2) on an auditory lexical decision task on words containing vowel insertion, with the talker described as American, Korean, or Mexican (Mexican talker condition was tested only in Experiment 1).

Experiment 1 50 English native listeners living in the US participated. They were assigned to one of three talker conditions (American: $n = 17$; Korean: $n = 17$; Mexican: $n = 16$), and heard 72 experimental items mixed with 120 fillers (48 words and 72 nonwords) recorded by a male native English speaker. The experimental items consisted of 24 monosyllabic words beginning on an obstruent+liquid cluster (e.g., club [klʌb]), 24 pseudowords with the vowel [ʊ] inserted (e.g., [kʊ'ʌb]), and other 24 with the vowel [ɪ] inserted (e.g., [kɪ'ʌb]). Epenthetic vowel [ʊ] is more plausible for a Korean talker than [ɪ]. Stimuli were presented in three consecutive blocks in random orders. Talker identity was manipulated using pictures and the listeners were told that the talker was either a native English speaker from the US, a nonnative speaker from Korea, or a nonnative speaker from Mexico. Across the blocks, [ʊ]-type yielded word responses more frequently than [ɪ]-type and less than word type across all talker conditions. Also, word responses to [ʊ]-type increased over time with decreased reaction times. Importantly, the increase in the word responses interacted with Talker identity, such that it was statistically reliable only in Korean talker condition.

Experiment 2 41 English native listeners living in South Korea participated, who were then assigned either American talker condition ($n=18$) or Korean talker condition ($n=23$). The stimuli and the procedure were the same as in Experiment 1. As in Experiment 1, participants preferred [ʊ]-type more than [ɪ]-type but less than word type. Word responses to [ʊ]-type increased in block 2 and block 3 compared to block 1 only in Korean talker condition, while reaction times decreased over time for both talker conditions. When the results from Experiment 1 and Experiment 2 were compared, participants in Korea showed a greater preference for [ʊ]-type over [ɪ]-type in both the frequency of word responses and reaction times in block 1.

In summary, the results suggest that both talker identity and previous linguistic experience affect perception of foreign-accented speech, which is broadly consistent with the exemplar models of speech perception. Participants in both experiments adapted to [ʊ]-type only in Korean talker condition, which we interpret as a result of the consistency between the auditory signals and the expectations stemming from the talker description (predictive coding; McGowan, 2015; Sohoglu and Davis, 2016; Vaughn, 2019). At the same time, previous exposure enables more frequent and faster recognition of the accent from the beginning of the experiment.

Subject of Consciousness in Causal Connective Construction: A cognitive semantic approach to *-(u)n nameci* construction in Korean

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This paper aims to revisit constructional properties and functions of an evaluative causal connective *-(u)n nameci*, arguing that they epitomize a specific type of causal connective construction with narrator's viewpoint, not grammatical subject's, as its subject of consciousness (SOC) (Sanders et al. 2009). It further discusses within a cognitively motivated framework Basic Communicative Spaces Network (BCSN) (Sanders et al. 2009) that the concept of SOC is pertinent to understanding subjectivity as a significant factor that motivates *-(u)n nameci*'s functional extension.

Korean has various causal connectives including not only the prototypical subordinator *-ese*, but also grammaticalized ones that consist of grammatical and lexical elements (Hong, 2016:29) such as *-(u)n nameci* [PFV.REL remainder]: In (1), both function as a causal connective (CC). The complex connective *-(u)n nameci* is noteworthy in that the construction tends to invoke the cognizer's emotionally negative stance toward the resulting main clause situation, and excessive degree of the subjective judgment (e.g., counter-expectation) (Jeon, 2023), let alone to convey the temporally iconic causal relation between the two conjuncts: In (2) and (3), where the main clause does not invoke negativity and counter-expectation, respectively, *-(u)n nameci* thus does not seem to be licensed.

However, this study argues that what matters to the CC's distribution is rather its viewpoint configuration, which requires that there be conceptual distance between the speaker and the focal situations that are causally related. For example, the utterance in (3) becomes licensed when it is pouched by another conceptual layer where the narrator quotes the utterance to the addressee as shown in (3'). In fact, a usage-based approach to the *-(u)n nameci* CC (from the spoken data of Modu Corpus) reveals that a total of 280 tokens are the utterances where the speaker emphasizes or quotes the focal event to the addressee as represented by the examples in (4) and (5).

Based on this observation, this paper models the construal process of the construction within the framework of BCSN, and argues that 1) the causal relation encoded by the *-(u)n nameci* CC holds in the non-content domain; that 2) what is mediated by the conjunction is not the situations themselves per se, but states, e.g., the narrator's assessment and/or (distanced) depiction of narratives. So to speak, the different degrees of subjectivity affect *-(u)n nameci*'s functional extension, which relies on whether the causal relation is construed via the perspective of the grammatical subject or that of the narrator.

Selected Data¹

- (1) *kamki-ey* *simhakey* *kel-li-ese/n nameci*
cold- LOC severely tackle-PASS-CAUS/ PFV.REL NAMECI
pyengwen-ey *ka-l* *him-cocha* *eps-ess-ta*
hospital- LOC go-IPFV.REL energy-even not.exist-ANT-DECL
'I can't even go to hospital, because I caught a bad cold,' (Jeon, 2023:14).

¹ Regarding glosses, this study follows the Leipzig Glossing Rules and those which are used in this study not found in the Leipzig Glossing Rules are listed in Appendix A.

- (2) *ku-nun wenak sengsilha-n salam-i-ese/*n nameci*
 he-TOP so.much diligent- PFV.REL human-COP- CAUS/ PFV.REL NAMECI
mew-l hay-to sengkongha-l-kes-i-ta.
 what-ACC do-FOC succeed-IPFV.REL-NMLZ-COP-DECL
 ‘He will do great whatever he does, because he is so diligent a person’ (Jeon, 2023:12).
- (3) *kang-i kiph-ese/*un nameci ai-ka kenne-ki-nun*
 river-NOM be.deep- CAUS/ PFV.REL NAMECI child-NOM CROSS-NMLZ-TOP
elyep-ta
 be.difficult-DECL
 ‘It is difficult for children to cross as the river is deep’ (Jeon, 2023:12).
- (3') *kang-i kiph-un nameci ai-ka kenne-ki-nun*
 river- NOM be.deep- PFV.REL NAMECI child- NOM CROSS- NMLZ-TOP
elyep-ta-ko hay-ss-ta
 be.difficult- DECL -CON say-ANT- DECL
 ‘I was told that it would be difficult for children to cross as the river is deep.’
- (4) *i eyiai-ka nemwu ttwuyena-n nameci*
 this A.I.- NOM too outstanding-PFV.REL NAMECI
sasilsang keuy salam-i-n ke-y-eyo
 in.fact almost human-COP- PFV.REL NMLZ-COP-UFF.HON
 ‘This A.I. is almost like a human being, as it does so excellent a job.’
- (5) *cey-ka a-nun etten pwun-un nemwu*
 I- NOM know- PFV.REL certain person-TOP too
pwucilenha-n nameci kwu kaywol cen-ey ywulep
 diligent- PFV.REL NAMECI nine month front-LOC Europe
yehayng-ul yeyyakha-sy-ess-t-ay-yo
 trip-ACC reserve-HON-ANT-DECL-QUOT-UFF.HON
 ‘A guy that I know was so diligent that he reserved a trip to Europe nine months ago.’

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Appendix A: Abbreviations

ant	Anteriority
con	Connective
hon	honorific
ufp	Utterance Final Particle

The Need for a Korean-Specific Classification of ECM Verbs: An ANOVA Study on Allowance for Exceptional Case Marking in Matrix Verb Classes (Assertives, Doxastics, and Evaluatives)

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This study investigates the need for a Korean-specific classification of ECM (Exceptional Case Marking) verbs, proposing that Korean ECM verbs do not align with English semantic categories. ECM allows the subject of an embedded clause to take an accusative case instead of nominative, a phenomenon well-studied in English but less so in Korean. In English, Pesetsky's (1992) "wager class" includes verbs like "admit" and "say", which typically do not permit ECM. However, the Korean counterparts of these verbs, such as *incenghata* ("admit") and *malhata* ("say"), seem to allow ECM, suggesting potential cross-linguistic differences.

This study classifies Korean verbs into three groups based on their alignment with ECM: assertives (external claims with reported common ground, disallowing ECM), doxastics (internal beliefs, permitting ECM), and evaluatives (external evaluations and internal beliefs, also allowing ECM but to varying degrees). Through an experiment with 20 native Korean speakers (aged 18-28) using a 7-point Likert scale, findings revealed that evaluatives had the highest ECM acceptance (mean 5.16), followed by doxastics (mean 5.03), and assertives (mean 3.75). The ECM score, or difference in acceptability between nominative and accusative marking, was lowest in evaluatives (0.40), suggesting the least resistance to ECM, compared to doxastics (0.96) and assertives (2.36).

Interestingly, *incenghata* ("admit") behaved differently from other assertives, with an ECM score closer to evaluative *pinanhata* ("blame") and doxastic *saengkakhata* ("think"). This finding, supported by a significant one-way ANOVA result ($p = 0.015$), highlights the need for ECM frameworks that address Korean's unique verb behavior. These results advocate for models that reflect the specific syntactic and semantic nuances of Korean, as English-based frameworks may inadequately capture the diversity of Korean ECM structures.

Keywords: Exceptional Case Marking, Korean, embedded clause, matrix verbs, wager class, assertives, doxastics, evaluatives

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Age and Dialect in Korean Case-stacking: Experimental Data and Theoretical Challenges

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This study aims to reassess the previous literature on Korean case-stacking and demonstrate new, relevant factors for its grammaticality. Case-stacking refers to the phenomenon where a nominal marked with (usually non-structural) case is once again marked with NOM or ACC, hence the nomenclature ‘stacking’. Some arguments, like experiencers of psych-predicates or goals of ditransitive constructions, have been argued to display such structures.

However, there is no empirical consensus as to their grammaticality. There are three types of judgment reported prior to our study: i) generally acceptable (Youn 1998), ii) acceptable under strict conditions (Schütze 1996), and iii) categorically unacceptable (Jegal 2023). Consequently, every scholar proposes a different theory. The problem is that none of these are empirically falsifiable, as there exists no undisputed data to (dis-)prove each claim. And surprisingly, nobody has precisely defined which variety of Korean does or does not allow case-stacking. We therefore aim to experimentally capture the systematic variance behind this.

The pilot experiment included two experiments performed simultaneously. There were four independent variables: the between-subject conditions were age and dialect, and the within-subject conditions were type of case-stack and the number of syllables intervening between the stack and the matrix verb (in the DAT-ACC condition). Audio stimuli was recorded by each author in his native dialect. After the test, we drew box plots and applied the Kruskal-Wallis H test, followed by the Post-hoc Dunn’s test with a Bonferroni p-value adjustment.

The results can be summarized as follows. First, all three types of stacking are available for the right idiolects under correct conditions. Second, younger groups show higher acceptability for stacking, especially in Seoul, and although inconclusive as of yet, there is dialectal variance as well. Third, the length effect in ditransitives, that anything between the stack and the verb exacerbates grammaticality, is likely to exist. Although there is not enough data to draw any decisive conclusions right now, these results are promising and encourage us to follow through with the main experiment.

These observations lead to a couple of interesting implications. First, the chaotic judgment variance between former works is now much more coherent. Youn, who argued that case-stacking is generally good, is a self-reported Daegu native. Schütze did not control for the between-subject factors we consider relevant, so divergence among his informants is predicted. As for Jegal, their experiment was again uncontrolled for between-subject conditions, and crucially, conducted with pen and paper. Formal/written corpora contain virtually no instances of case-stacking, which is a very oral and dialect-specific phenomenon. Thus, categorical ungrammaticality should arise naturally under their conditions.

Moreover, our results show that for those who allow stacking, *cwu*- ‘give’ and *ponay*- ‘send’ both readily allow DAT-ACC marked goal arguments. Initially, this overturns the generalization from Gerds and Youn (1999) that ‘only nominals that allow for case-alternation

also allow case-stacking'. This is an interesting puzzle for theories of ditransitives, even more so when compared to the inability of 'send' verbs to mark their indirect objects with ACC. Jung and Miyagawa (2004) propose that while 'give' constructions can have both P_{LOC} and P_{HAVE} in its numeration, 'send' counterparts can only have the former. For them, the ACC-marked goal of 'give' undergoes obligatory movement into the specifier of a functional projection. While details differ, a correlation with movement has also been made for case-stacking (Levin 2017). *ponay-* is then puzzling, because with 'send' simple ACC marking is impossible, while DAT-ACC is grammatical.

A QUD-Based Analysis of Multiple Sluicing Constructions

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This study investigates multiple sluicing constructions, where two *wh*-phrases serve as a full interrogative clause, illustrated in (1).

(1) In each instance, one of the students talked about one of Chomsky's works, but I don't know exactly **which about which**. (Lasnik, 2014, p. 6).

Traditional analyses of sluicing can be categorized into two main approaches: deletion-based (Abels and Dayal, 2023; Lasnik, 2014; Merchant, 2001; Nishigauchi, 1998; Ross, 1969) and direct interpretation approaches (Culicover & Jackendoff, 2005; Ginzburg & Sag, 2000; Park, 2009; Sag & Nykiel, 2011). The former posits that the underlying structure involves an elided syntactic form, whereas the latter claims that fragment phrases are generated 'as is', with their meaning pragmatically derived from the discourse context.

By addressing key syntactic phenomena such as island insensitivity, clause-boundedness, and cases without linguistic antecedents, this study argues in favor of the direct interpretation approach. I demonstrate how a direct interpretation approach outperforms a deletion-based approach in providing a more flexible and explanatory analysis for the given construction.

I extend Ginzburg and Sag's (2000) Question Under Discussion (QUD)-based approach couched in the HPSG framework, to multiple sluicing. A QUD is a salient question meaning evoked either explicitly or implicitly in a discourse, guiding the flow of information exchange among interlocutors. By invoking the concept of QUD with two quantifiers, I show how the meaning of multiple sluicing can be drawn from the discourse context, even in the absence of explicit linguistic antecedents.

In addition, I review the alternative QUD-based approach of sluicing provided by AnderBois (2014) and explore its capacity to address the data of multiple sluicing. Comparing it with my current proposal, I claim that the latter offers a comparative advantage, as it does not directly reference the linguistic context, thus providing greater flexibility.

This study has a couple of implications. By addressing the data of multiple sluicing constructions, it provides supporting evidence for a direct interpretation approach. Furthermore, by viewing fragment phrases as a non-headed construction, it opens up opportunities for future research on constructions involving multiple fragments.

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한국어 다중 분열문의 통사론

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한국어는 하나의 성분이 분열성분으로 나타나는 단일 분열문에 더해 ‘[철수가 만난] 것은 [[학교에서] [영이]]였다’에서 보듯이 외견상 둘 이상의 성분이 분열성분으로 등장하는 다중 분열문 현상을 보인다(김영희 2000). 이 두 가지 분열문 중 단일 분열문의 통사론은 계사 구문에 준한다(박철우 2008, 이정훈 2020가). 그렇다면 다중 분열문은 어떠한가? 다중 분열문도, 다음 사항을 고려하건데, 계사구문에 준하는 것으로 판단된다.

먼저, 단일 분열문이든 다중 분열문이든 분열문에 등장하는 ‘것’은 명사성 허사이며, ‘이-’는 계사로서 [서술성]의 ‘이-’이거나 [동일성]의 ‘이-’이다(이정훈 2020가).

다음으로, 다중 분열문의 도출과정은 다음과 같다.

- (1) 무표찰 구성 ‘[_∅ [_{KP} 학교에서] [_{NP} 영이]]’ 형성: ‘학교에서’는 KP이고 ‘영이’는 NP이므로 이 둘이 병합하면 표찰이 정해지지 않으며(이정훈 2020나), 그 결과 무표찰 구성 ‘[_∅ [_{KP} 학교에서] [_{NP} 영이]]’가 형성됨. 서로 다른 통사범주의 성분들이 병합하여 무표찰 구성을 형성하는 것은 ‘[[_∅ 영이에게 책]-이랑 [_∅ 순이에게 논문]]은 철수가 주었다’와 같은 예에서도 나타남(이정훈 2012).
- (2) V’ [_V’ [_∅ [_{KP} 학교에서] [_{NP} 영이]] 이-] 형성과 해석: 무표찰 구성 ‘[_∅ [_{KP} 학교에서] [_{NP} 영이]]’와 계사 ‘이-’가 병합하여 V’ [_V’ [_∅ [_{KP} 학교에서] [_{NP} 영이]] 이-] 형성. 이 구조에서 해석은 무표찰 구성 ‘[_∅ [_{KP} 학교에서] [_{NP} 영이]]’ 내의 KP ‘학교에서’를 대상으로 하거나(cf. [철수가 영이를 만난] 것은 [학교에서]였다), NP ‘영이’를 대상으로 한다([철수가 학교에서 만난] 것은 [영이]였다). 이와 관련하여, 무표찰 구성 ‘[_∅ [_{KP} 학교에서] [_{NP} 영이]]’ 자체는 표찰을 지니지 않으므로 해석 단위로 기능하지 않지만 무표찰 구성 내의 [_{KP} 학교에서]와 [_{NP} 영이] 각각은 표찰을 지니므로 해석 단위로 기능한다.

(2)에서 KP ‘학교에서’의 해석과 NP ‘영이’ 해석은 평행하게/동시에 이루어진다. 평행/동시 해석은 대등접속의 특성인바, 이에 대등접속의 ‘그리고’가 개입한 ‘철수가 만난 것은 [[학교에서] 그리고 [영이]]였다’가 성립한다. 또한 평행하게/동시에 해석되므로 대등접속 중에서도 연접(conjunction)은 가능하지만 이접(disjunction) 등은 좀처럼 허용되지 않는다(cf. *[철수가 만난 것]은 [[학교에서] 그러나/또는 [영이]]였다). 화용적 맥락이 동원되면 이접이나 역접의 가능성이 어느 정도 인정되지만, 이는 비문법성이 화용적 맥락에 의해 완충되는 것으로 이해된다.

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제주어 청자 지향 문말 담화표지들의 담화기능과 분포적 제약 (Discourse Functions and Distributional Constraints of Hearer-Oriented Sentence-Final Discourse Markers in Jeju Language)

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제주어의 “마썸”, “양/예”, “이”, “게”는 문장종결어미 다음에 수의적으로 나타나는 것들로 문장 내용의 진위에 영향을 미치지 않고 특정 담화기능만을 수행하는 담화표지이다.

- (1) a. 가이 밥 먹언. (그 아니 밥먹었어.)
b. 가이 밥 먹언{-마썸, -양/예, -이, -게}. (“양”과 “예”는 행태가 동일한 요소임)
이 담화표지들은 모두 이것들이 나타나는 문장이 청자를 향한 발화임을 알려주는 청자 지향 담화표지(hearer-oriented discourse marker)로 가령 청자를 가정하지 않는 일기장 같은 데서는 나타날 수 없다. 우리는 이들이 지니고 있는 청자 지향 담화기능이 기존 연구들을 고려하고 또 새로운 논거를 근거로 각각 다음과 같다고 주장한다.
- (2) a. “마썸”은 상대높임법의 기능만을 지니고 있다.
b. “양/예”와 “이”는 상대높임법의 기능에다 선행하는 문장의 내용에 대한 확인을 청자에게 요구하는 확인(confirmation) 기능이 공존하고 있다.
c. “게”는 상대높임법 기능은 배제되고 청자의 믿음이나 행위를 정정(correction)하는 기능만 지니고 있다.

한편, 이 담화표지들은 문장종결어미들과의 결합에 있어 특정 제약이 존재한다.

- (3) a. 가이 학교 {감수다-??마썸, 감서-ü마썸, 감저-*마썸}. (그 아이 학교 {갑니다, 가, 간다})
b. 가이 학교 {감수다-{ü양/예, *이}, 감서-{ü양/예, ü이}, 감저-{*양/예, ü이}}.
c. 가이 학교 {감수강-{*양/예, *이}, 가나-{*양/예, *이}, 감시냐-{*양/예, *이}}?↗
d. 가이 학교 {감수다-ü게, 감서-ü게, 감저-ü게}
e. 가이 학교 {감수강-*게, 가나-*게, 감시냐-*게}?↗
f. 가이 학교 {감수강-게, 가나-게, 감시냐-게}?↘ (수사의문문)

(3a)는 “마썸”이 평대 높임법 종결어미 “-서”와는 결합할 수 있으나 하대 높임법 종결어미 “-

저”와는 결합할 수 없다는 것을 보여준다. (3b)는 “양/예”가 존대 높임법에서는 나타날 수 있으나 하대 높임법에서 나타날 수 없고 “이”는 이와 정반대임을 보여준다. (3c)는 “양/예”, “이” 모두 상대높임법의 등급과 관계없이 의문문 종결어미인 “-강”, “-나”, “-시냐”와 결합하지 못한다는 것을 보여준다. (3d, e, f)는 “게”와 관련된 문장들인데, (3d)는 이것이 모든 높임법 등급과 결합할 수 있고, (3e)와 (3f)는 이것이 진성의문문에는 나타날 수 없는 반면 수사의문문(rhetorical question)에는 나타날 수 있음을 보여준다.

우리는 이와 같이 복잡한 분포적 제약들이 (2)에 언급한 담화기능을 근거로 포착할 수 있다고 보고 구체적으로 이 담화표지들의 관련 자질들이 다음과 같다고 주장한다.

담화표지	상대높임법 자질	의미자질
마썸	o (+)	x
양/예	o (+)	문장 내용에 대한 청자에게의 확인(confirmation)
이	o (-)	
게	x	청자의 믿음이나 행위에 대한 화자의 정정(correction)

즉, “마썸”은 의미자질 없이 [+ 높임] 상대높임법 자질만을 지니는 요소이고, “양/예”는 [+ 높

임] 상대높임법 자질과 함께 [확인] 의미자질을 지니는 요소이고, “이”는 [-높임] 상대높임법 자질과 함께 [확인] 의미자질을 지니는 요소이고, “계”는 상대높임법 자질 없이 [정정] 의미자질만 지니는 요소이다.

Hearing shapes, seeing sounds: Early word learning through sound symbolism in Korean infants

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Chosun University*, University of Kansas**, UCLA***

Sound symbolism—the natural connection between sounds and meanings—is posited to facilitate early word learning (Imai et al., 2015; Imai, Kita, Nagumo, & Okada, 2008; Imai & Kita, 2014; Perry, Perlman, Winter, Massaro, & Lupyan, 2017), though its applicability across diverse languages and age groups is underexplored. This study examines the universality of the *buba-kiki* effect (Köhler, 1929) in Korean infants and addresses three main questions: First, are Korean-learning infants sensitive to the *buba-kiki* type sound symbolism? Second, does this sensitivity drive word mapping differently at 14 & 28 months old? (3) Can infants generalize learned sound-symbolic links across variations in visual features, such as color?

We recruited 64 monolingual Korean infants, split into two age groups (14 and 28 months), and employed the Looking-while-Listening paradigm to assess their ability to learn word-object associations in sound-symbolically matched and mismatched conditions. In the matched condition, labels aligned with shapes (e.g., round shape paired with [buba], spiky shape with [kiki]), while in the mismatched condition, these pairings were reversed. The experiment consisted of four phases: (1) a pretest to acclimate infants to the procedure, (2) a habituation phase to familiarize them with specific sound-shape associations, (3) a test phase to assess infants' learning of these associations, and (4) a generalization phase, where infants were tested on their ability to apply the learned associations to novel color-shape pairings. We analyzed gaze data, focusing on the frequency of switches from distractor to target as an indicator of infants' recognition of the target word-object associations. Controls included initial gaze position, participant age, and test phase, with random intercepts to account for individual variability.

Results revealed notable age-based distinctions. Fourteen-month-olds displayed significantly more distractor-to-target gaze switches in both the filler and matched conditions, suggesting recognition of the congruent sound-shape association; however, this pattern did not appear in the mismatched condition, indicating that infants at this age find arbitrary associations more challenging. In contrast, 28-month-olds showed increased gaze switches across all conditions, reflecting a broader capacity for arbitrary word-object mappings.

In the generalization phase, older infants demonstrated the ability to apply sound-shape associations to new items across varied colors, irrespective of shape-color pairing reversals, indicating flexible learning. In contrast, younger infants' performance in the generalization phase appeared limited by fatigue, impacting their ability to apply learned associations. The observed effect of sound symbolism on younger infants aligns with past research suggesting that iconic relationships between sounds and meanings can bolster early word learning. However, older infants' consistent recognition of mismatched pairs highlights a developmental shift towards more arbitrary associations as they progress in language acquisition.

These findings suggest that sound symbolism can support early word learning in Korean infants as young as 14 months and that the ability to generalize word-object mappings across varying features strengthens with age. This study underscores the potential role of sound symbolism in scaffolding early language development while highlighting age-related shifts in infants' capacity for flexible, abstract learning of word meanings.

How Emotion Affects Code-Switching

Seokhwa Lee
(Yonsei University)

Previous studies suggest that code-switching, switching between languages in a single utterance, occurs more frequently in emotionally charged contexts. This phenomenon is attributed to reduced cognitive control due to emotional influence. The present research investigates natural code-switching using a corpus from Korean comedy shows and its relationship with emotional valence, arousal, and dominance. The logistic regression results indicate that when emotional valence is positive, high arousal and low dominance are positively correlated with more frequent code-switching. These findings suggest that heightened arousal and low dominance impair cognitive control, making it harder to suppress a non-target language. Overall, the present research provides valuable insights into the association between language, emotion, and cognition.

Keywords: code-switching, corpus, emotion, cognition.

Exploring Multimodal Perception in Language Models: Insights from Sensory Rating Evaluations

이종현
(서울대학교)

One major difference between machine and human language learning is the presence of sensory experience of the external world. Humans understand word meanings based on rich sensorimotor experiences (Pulvermüller, 1999), while large language models (LLMs) are trained solely on text, lacking any sensory experience of the non-linguistic world. This absence has been considered a key limitation of LLMs, potentially restricting their language comprehension and leading to inefficiencies (Bisk et al., 2020).

From this perspective, this study aims to assess LLMs' multimodal perceptual abilities through sensory ratings, exploring how LLMs handle the absence of direct sensory experience. Sensory ratings measure how strongly a word is associated with different sensory modalities—such as sight, hearing, touch, taste, and smell. Analyzing how LLMs handle these sensory associations may provide a way to assess how effectively LLMs can approximate sensory experiences based on words alone.

For this study, we selected 3,611 English words from the Lancaster Sensorimotor Norms (Lynott et al., 2020) and conducted sensory ratings using GPT-3.5, GPT-4o-mini, GPT-4, and GPT-4o. The results showed that two larger models, GPT-4 and GPT-4o could perform sensory ratings comparable to human evaluations. Their ratings exhibited a high correlation with human ratings and showed minimal difference in cosine distance. However, some differences emerged in terms of reliance on linguistic information even within the most recent, larger models. In particular, GPT-4o, influenced by word frequency, showed lower similarity to human ratings for less common words. Qualitative analysis of individual words also highlighted the models' reliance on linguistic information. Compared to humans, the models tended to provide more exaggerated sensory scores and heavily referenced dictionary definitions or related words' sensory information in their evaluations.

In conclusion, these findings suggest that despite lacking sensory experience, state-of-the-art LLMs can reasonably assess sensory information about the external world based on linguistic data alone. However, this assessment occurs with some differences from human evaluations due to their dependence on linguistic information.

Pragmatic inference of scalar implicature by LLM

Ye-eun Cho and Seong mook Kim
(Sungkyunkwan University)

- **Background:**

Pragmatic inference refers to the process of interpreting language by considering context and speaker intent rather than relying solely on the literal meaning of utterances. One common type of pragmatic inference is scalar implicature, where a quantifier like *some* is semantically interpreted as *at least one and possibly all*, whereas pragmatically as *not all*.

However, the interpretation of scalar implicature, whether a quantifier *some* is interpreted pragmatically or semantically, is determined by surrounding context, such as Question Under Discussion (QUD). For instance, if someone asks with an upper-bound QUD “Did all the students pass the exam?” and the response is, “Some students passed the exam,” the term *some* is more likely to imply pragmatic interpretation *not all*. In contrast, a lower-bound QUD, such as “Did any students pass the exam?” would allow for both interpretations, not trigger the *not all* inference. The influence of contextual cues, such as QUD, on the processing of scalar implicature can be explained through models of human language processing, such as Default model (Levinson, 2000) and Context-driven model (Sperber & Wilson, 2002).

Therefore, this study explores whether large language models (LLMs), BERT and GPT-2, are able to pragmatically infer scalar implicature in context-free conditions and whether contextual cues like QUD influence the processing of such implicatures, based on Default model or Context-driven model.

- **Methodology:**

Two sets of experiments were conducted to assess the models’ interpretations. In the first experiment, sentences containing *some* were paired with either semantic (*possibly all*) or pragmatic (*not all*) interpretations, and cosine similarity between sentence embeddings was calculated. The second experiment incorporated QUDs (upper-bound using *all* and lower-bound using *any* in questions) to test whether context influences scalar implicature processing. In order to measure processing difficulty of each model, the probabilities of predicting answer sentences following given question sentences are converted into surprisal scores.

- **Results:**

Experiment 1 revealed that both BERT and GPT-2 predominantly leaned toward pragmatic interpretations, aligning with human language processing. This suggests that BERT and GPT-2 both favor pragmatic interpretations of scalar implicatures without context. Experiment 2 demonstrated that GPT-2 exhibited higher processing difficulty in the upper-bound QUD condition, indicating sensitivity to context, while BERT showed no significant difference between QUD conditions. The result of GPT-2 mirroring human-like processing by showing greater difficulty aligns with the Context-driven model, in which implicature is inferred based on the surrounding context. This contrasts with BERT’s result that aligns with the Default model, where implicature is inherent in the quantifier.

- **Conclusion:**

The study highlights that LLMs are capable of pragmatic inference, but their reliance on context varies significantly. GPT-2's context sensitivity provides insights into how LLMs can be enhanced for more human-like language understanding in NLP tasks.

The processing of backward Noun Phrase Ellipsis

Younseo Ha and Nayoun Kim
(Sungkyunkwan University)

Introduction & Background Successful sentence comprehension involves resolving dependencies between linguistic elements, where one element is dependent on another in meaning, Case, and/or morphological form. Elliptical construction is one type of dependency where the meaning of the ellipsis-site is dependent on the antecedent which usually appears before the ellipsis. Yet, the processing of ellipsis is known to be challenging because there is no overt linguistic content that can be mapped into the meaning in which case the reader must first recognize the presence of the ellipsis, and search for the antecedent and associate the antecedent and the ellipsis to achieve proper meaning (Kim, Brehm, & Yoshida, 2019; Yoshida, Dickey, & Patrick, 2013). In this study, we make use of backward Noun Phrase Ellipsis (henceforth NPE) where the ellipsis precedes the antecedent. We investigate (i) whether the readers start recovering the ellipsis as soon as possible, and (ii) whether readers persistently find the grammatically sanctioned antecedent of the ellipsis-site even in the case where the first attempt to find the potential antecedent is disconfirmed (c.f., Giskes & Kush, 2021; Kazanina et al., 2007; Lee 2004).

Experiment A self-paced reading experiment was conducted. In the experiment (N=44, native speakers of English), we manipulated the *Number* of the DP inside the PP (the plural/singular feature of *box/boxes* in (1)) and *Grammaticality* (number match between the head noun and the verb). If readers attempt to find the closest antecedent as soon as the ellipsis is recognized, we expect to find the main effect of Grammaticality at the head noun (*key*) where (1b) and (1d) should be read significantly faster than (1a) and (1c). Furthermore, if readers search for the antecedent persistently past foiled predictions, we expect to see an interaction between *Grammaticality* and *Number* at the modifier PP (*box/boxes*) such that (1a) should be read faster than (1b-1d).

- (1) a. *Plural DP, Ungrammatical*
Because John's were rusty, Mary's **key** to the **boxes** should be kept in the safe.
- b. *Plural DP, Grammatical*
Because John's was rusty, Mary's **key** to the **boxes** should be kept in the safe.
- c. *Singular DP, Ungrammatical*
Because John's were rusty, Mary's **key** to the **box** should be kept in the safe.
- d. *Singular DP, Grammatical*
Because John's was rusty, Mary's **key** to the **box** should be kept in the safe.

***colored**: critical region(s)

The results of the experiment demonstrated a main effect of *Grammaticality* ($\beta = -0.04$, $SE = 0.02$ $t = -2.05$) at the spillover region 1 (the region right after the critical head noun: *to*) such that (1b) and (1d) were read faster than (1a) and (1c). At the spillover region of the modifier PP (*box/boxes*), we found an interaction between Grammaticality and Number ($\beta = -0.09$, $SE = 0.05$ $t = -2.10$) where (1a) was read significantly faster than (1b), (1c), (1d).

Discussion & Conclusion. The results of the experiment suggest that readers attempt to find the antecedent at the earliest site similar to the processing strategy observed in the wh-filler-

gap dependencies (Stowe, 1986; Phillips, 2006). Furthermore, an interaction between *Grammaticality* and *Number* at the DP within the PP is in line with the idea that the reader engages in an active and persistent search for the antecedent in the backward ellipsis resolution similar to the patterns observed in resolving the cataphoric dependencies (Kazanina et al., 2007; Giskes & Kush, 2021).

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The Role of Distinctness and Alignment in Korean Nominative Object Constructions

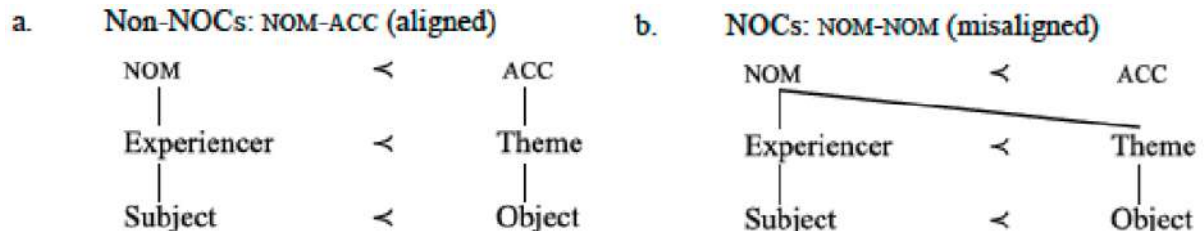
Juyeon Cho
(Seoul National University)

This study investigates nominative object constructions (NOCs) in Korean, focusing on the morphosyntactic and semantic factors influencing their processing and comprehension. NOCs, characterized by nominative case marking on the object, challenge traditional views of case marking and thematic role assignment.

- (1) a. Non-NOCs: Mary-NOM John-ACC like-*(do)-PST-DECL
b. NOCs: Mary-NOM /DAT John-NOM like-(become)-PST-DECL

The primary motivation of this study is to examine how morphological case marking impacts prominence alignment in Korean. Traditional linking rules, such as the Universal Alignment Hypothesis (Perlmutter & Postal 1984), do not adequately account for the distinct case marking patterns in Korean psych verb constructions. NOCs and non-NOCs display minimal pairs within subject experiencer verbs, where the grammatical function and thematic roles remain consistent, but the morphological linking differs. This study aims to bridge the gap by exploring the relationship between morphological mapping and syntactic prominence.

- (2) Morphological-thematic-grammatical alignment



An **acceptability judgment experiment** involved 48 native Korean speakers in a 3x2 within-subjects design, manipulating two factors: case (NOM-ACC, NOM-NOM, DAT-NOM) and light verb (LV, NO LV). Results indicated that sentences with nominative objects (NOM-NOM and DAT-NOM) were rated lower in acceptability than those with accusative objects (NOM-ACC) ($p < .0001$) (Fig.1). The presence of a light verb had no effect on nom-nom and DAT-NOM ($ps > .41$). **Corpus analyses** of 4,927 sentences from the Modu Corpus (National Institute of Korean Language 2020) revealed that topic subjects were more frequent than nominative subjects in NOCs ($\chi^2 = 109.71$, $p < .0001$) (Fig.2), highlighting the importance of topicality in differentiating the morphological marking of subjects and objects. Topic subjects help mitigate violations of distinctness and alignment constraints by replacing the nominative marker on the surface, thus avoiding misalignments between morphological case, thematic role, and grammatical function.

Discussion The *distinctness* constraint (e.g., Bornkessel-Schlesewsky & Schlewsky 2009), which favors distinct morphological markings for arguments, accounts for the low acceptability of double nominative constructions. The *alignment* constraint further suggests that configuration, where morphological case marking, thematic roles, and grammatical functions are aligned, should be preferred. The results of the current study can be explained by assuming

a comprehensive language model (e.g., GUPPy; Wilson & Dillon 2022), which posits that grammatical constraints can affect both comprehension and production. Violations of the distinctness and alignment constraints result in lower acceptability and reduced frequency, and are also likely to lead to greater processing difficulty.

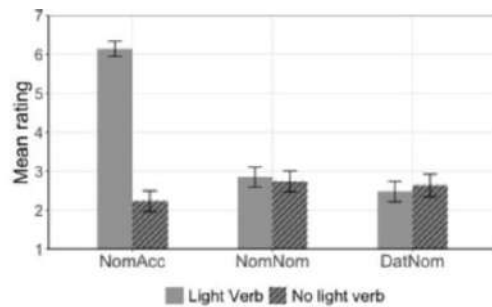


Figure 1. Mean ratings for each type of case. object marking.

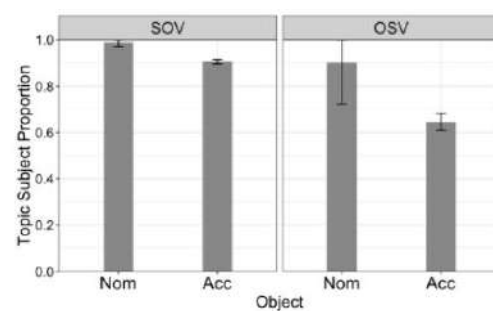


Figure 2. Proportion of topic subjects by object marking.



Presentation Materials

대규모 음성데이터를 활용한
한국어 모어화자의 중국어 음성 오류 분석

이옥주, 박지은 (서울대학교 중어중문학과)

2024년 한국언어학회 겨울 정기학술대회
성균관대학교, 2024년 11월 23일

- 이 연구는 서울대학교 언어 인지 AI 선도 혁신 연구센터의 지원을 받았음

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1 서론

한국인 중국어 학습자의 음성 오류 및 그 영향

- 음성 오류 유형과 습득의 나이도, 발달 과정을 연구가 지속적으로 진행됨.
 - 『언어 지능 발달』(박영미 외 공역, 도서출판 창비, 2022년)
 - 신조, 강세, 여형성소속회(1998), 아유카(2007, 2008, 2014), 한복상(2009, 손민호 2010, 권명인, 박은진 2015, 오현아 2021 등)
- 연구 범위와 대상의 확장, 실험 연구의 확대에도 불구하고 음성 오류 유형과 특성, 음성 들을 수시, 음성 나이도에 대한 이해는 여전히 제한적임.
- 대다수 기존 연구가 개인 연구자의 관찰이나 특정 자료를 활용하여 수집한 소규모 영정 데이터를 활용한 것이 대부분이었기 때문에, 차이를 보완하기 위하여 대규모 영정 데이터를 활용하는 것이 가장 큰 과제로 제기됨.

장기적으로 보면, 이 세 가지가 모두 성공을 이끄는 데에 도움이 될 것이다. 그러나 단기적으로는 그렇지 않다. 이 세 가지가 모두 성공을 이끄는 데에 도움이 될 것이다. 그러나 단기적으로는 그렇지 않다. 이 세 가지가 모두 성공을 이끄는 데에 도움이 될 것이다. 그러나 단기적으로는 그렇지 않다.

1 서론

교육용 한국인의
중국어·일본어 음성 데이터



사진 출처: <https://www.aifhub.or.kr/>

교육용 화극인의 중국어 음성 데이터는 전체 데이터 기준

발음평가용 데이터는 206.94시간,
말하기 평가용 데이터는 302.75시간에 달하는

대규모비모어화자 음성 데이터



한국의 중국어 학습자의

자음 오류 유형 분포를 정량 분석

2.1 연구 문제

중국어 자음 체계:

	양순 (Labial)	순지 (Alveolar)	치 (Dental)	경구개 (Palatal)	연구개 (Velar)
파열음 (Plosive)	p, pʰ, m	t, tʰ, n	tʃ, tʃʰ, ɲ	ç, çʰ, ɲ	k, kʰ, ŋ
마찰음 (Fricative)	f, fʰ, s, sʰ, z, zʰ	ʃ, ʃʰ, ʒ, ʒʰ, ʂ, ʂʰ, ʐ, ʐʰ	ʃ, ʃʰ, ʒ, ʒʰ, ʂ, ʂʰ, ʐ, ʐʰ	ç, çʰ, ɲ	k, kʰ, ŋ
유음 (Liquid)		l, lʰ, r, rʰ	ʃ, ʃʰ, ʒ, ʒʰ, ʂ, ʂʰ, ʐ, ʐʰ	ç, çʰ, ɲ	k, kʰ, ŋ
진동음 (Sonorant)	m	n, ɲ	ɲ	ç, çʰ, ɲ	ŋ
경구개음 (Palatal)				ç, çʰ, ɲ	
연구개음 (Velar)					k, kʰ, ŋ

이화정(2024:84)

2.1 연구 문제

한국인 중국어 학습자의 자음 오류에 관한 선행 연구 (1):

- 한국인 중국어 학습자: 1, 2, 3 세 학령기 어린이의 자음 오류와 관련된 선행 연구 (1)에 따르면, 한국인 중국어 학습자는 자음 오류를 많이 보이며, 특히 자음의 위치와 양순음의 발음에 문제가 있다. (이화정, 2024)
- 한국인 중국어 학습자: 1, 2, 3 세 학령기 어린이의 자음 오류와 관련된 선행 연구 (1)에 따르면, 한국인 중국어 학습자는 자음 오류를 많이 보이며, 특히 자음의 위치와 양순음의 발음에 문제가 있다. (이화정, 2024)
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2.1 연구 문제

한국인 중국어 학습자의 자음 오류에 관한 선행 연구 (2):

- 한국인 중국어 학습자: 1, 2, 3 세 학령기 어린이의 자음 오류와 관련된 선행 연구 (1)에 따르면, 한국인 중국어 학습자는 자음 오류를 많이 보이며, 특히 자음의 위치와 양순음의 발음에 문제가 있다. (이화정, 2024)
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- 한국인 중국어 학습자: 1, 2, 3 세 학령기 어린이의 자음 오류와 관련된 선행 연구 (1)에 따르면, 한국인 중국어 학습자는 자음 오류를 많이 보이며, 특히 자음의 위치와 양순음의 발음에 문제가 있다. (이화정, 2024)
- 한국인 중국어 학습자: 1, 2, 3 세 학령기 어린이의 자음 오류와 관련된 선행 연구 (1)에 따르면, 한국인 중국어 학습자는 자음 오류를 많이 보이며, 특히 자음의 위치와 양순음의 발음에 문제가 있다. (이화정, 2024)

2.1 연구 문제

한국인 중국어 학습자의 자음 오류에 관한 선행 연구 검토

- 한국인에 부재하는 계열을 한국어의 자음으로 대체하여 인식함에 따라, 모국어의 간섭으로 인해 다른 계열과 혼동하는 오류가 많이 발생함.
- 특히 중국어의 후치조음 계열(ʒh, ch, sh, ʃ)에서 이러한 오류가 자주 발생함.

→

'대규모 음성 데이터'를 활용한 한국인 중국어 학습자의 중국어 자음 오류 분석

3.1 연구결과 - 오작과 파손

[illegible][illegible]

연도별		2014년		2015년		2016년		2017년		2018년		2019년		2020년		2021년		2022년		2023년		2024년		2025년		2026년		2027년		2028년		2029년		2030년		2031년		2032년		2033년		2034년		2035년		2036년		2037년		2038년		2039년		2040년		2041년		2042년		2043년		2044년		2045년		2046년		2047년		2048년		2049년		2050년		2051년		2052년		2053년		2054년		2055년		2056년		2057년		2058년		2059년		2060년		2061년		2062년		2063년		2064년		2065년		2066년		2067년		2068년		2069년		2070년		2071년		2072년		2073년		2074년		2075년		2076년		2077년		2078년		2079년		2080년		2081년		2082년		2083년		2084년		2085년		2086년		2087년		2088년		2089년		2090년		2091년		2092년		2093년		2094년		2095년		2096년		2097년		2098년		2099년		2100년	
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																																																																								
연도	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2																																																																																																																																																																		

3.2 연구결과

구분	전세				보통				특급			
	전세		보통		보통		특급		특급		특급	
	표준	오류	표준	오류	표준	오류	표준	오류	표준	오류	표준	오류
1	2	2h	10,600	±	h	1,000	±	h	1,000	±	h	1,000
2	h	h	5,350	±	h	1,000	±	h	1,000	±	h	1,000
3	h	h	4,400	±	h	1,000	±	h	1,000	±	h	1,000
4	h	h	4,400	±	h	1,000	±	h	1,000	±	h	1,000
5	h	h	3,100	±	h	1,000	±	h	1,000	±	h	1,000

1월 수요일 해 산발로 불 대외화 해운은 2월 3일 목요일
 2월 4일 금요일 2월 5일 토요일 2월 6일 일요일
 2월 7일 월요일 2월 8일 화요일 2월 9일 수요일 2월 10일 목요일
 2월 11일 금요일 2월 12일 토요일 2월 13일 일요일 2월 14일 월요일
 2월 15일 화요일 2월 16일 수요일 2월 17일 목요일 2월 18일 금요일
 2월 19일 토요일 2월 20일 일요일 2월 21일 월요일 2월 22일 화요일
 2월 23일 수요일 2월 24일 목요일 2월 25일 금요일 2월 26일 토요일
 2월 27일 일요일 2월 28일 월요일 2월 29일 화요일 2월 30일 수요일

3.2 연구결과

[illegible][illegible]

4 이론과 논의

이 단행본은 **대규모** **여성** **테이** **블루** **필용한** **한인** **중국학습자의** **중국어** **자음** **오류** **분석** **서**

[illegible]

『대규모 음성 데이터』를 활용한 한국어 학습자의 중국어 모음 및 성조 오류 분석

참고문헌

과학영문국과의 중국어입문이영성(이티티)<https://www.aihub.or.kr/aihubdata/data/view.do?curlMenu=8&topMenu=1&aihubDataSe=dataset&SeSn=71464>

[illegible]

姓名	性别	出生年月	籍贯	学历	学位	职称	工作单位	研究方向	主要成果
王德胜	男	1955.10	山东烟台	硕士		副教授	烟台大学	中国现代文学史	《中国现代文学史》
李小明	男	1962.05	江苏南京	博士		教授	南京师范大学	中国当代文学史	《中国当代文学史》
张小红	女	1970.03	浙江杭州	硕士		副教授	杭州师范大学	中国当代文学史	《中国当代文学史》
赵国强	男	1968.12	河南郑州	硕士		副教授	郑州大学	中国当代文学史	《中国当代文学史》
孙丽娟	女	1975.08	湖北武汉	硕士		副教授	武汉大学	中国当代文学史	《中国当代文学史》
周大伟	男	1972.01	四川成都	硕士		副教授	四川大学	中国当代文学史	《中国当代文学史》
吴小华	女	1978.06	广东广州	硕士		副教授	中山大学	中国当代文学史	《中国当代文学史》
郑为民	男	1980.09	福建福州	硕士		副教授	福建师范大学	中国当代文学史	《中国当代文学史》
陈永红	女	1982.04	湖南长沙	硕士		副教授	湖南师范大学	中国当代文学史	《中国当代文学史》
林国强	男	1985.11	江西九江	硕士		副教授	江西师范大学	中国当代文学史	《中国当代文学史》
黄小芳	女	1988.07	广西桂林	硕士		副教授	广西师范大学	中国当代文学史	《中国当代文学史》
周为民	男	1990.02	陕西西安	硕士		副教授	西安交通大学	中国当代文学史	《中国当代文学史》
吴小华	女	1992.05	云南昆明	硕士		副教授	云南师范大学	中国当代文学史	《中国当代文学史》
郑为民	男	1995.08	贵州贵阳	硕士		副教授	贵州师范大学	中国当代文学史	《中国当代文学史》
陈永红	女	1998.01	四川成都	硕士		副教授	四川大学	中国当代文学史	《中国当代文学史》
林国强	男	2000.06	广东广州	硕士		副教授	中山大学	中国当代文学史	《中国当代文学史》
黄小芳	女	2002.09	福建福州	硕士		副教授	福建师范大学	中国当代文学史	《中国当代文学史》
周为民	男	2005.03	湖南长沙	硕士		副教授	湖南师范大学	中国当代文学史	《中国当代文学史》
吴小华	女	2008.07	江西九江	硕士		副教授	江西师范大学	中国当代文学史	《中国当代文学史》
郑为民	男	2010.11	广西桂林	硕士		副教授	广西师范大学	中国当代文学史	《中国当代文学史》
陈永红	女	2012.04	陕西西安	硕士		副教授	西安交通大学	中国当代文学史	《中国当代文学史》
林国强	男	2015.08	云南昆明	硕士		副教授	云南师范大学	中国当代文学史	《中国当代文学史》
黄小芳	女	2018.01	贵州贵阳	硕士		副教授	贵州师范大学	中国当代文学史	《中国当代文学史》
周为民	男	2020.06	四川成都	硕士		副教授	四川大学	中国当代文学史	《中国当代文学史》
吴小华	女	2022.09	广东广州	硕士		副教授	中山大学	中国当代文学史	《中国当代文学史》
郑为民	男	2025.03	福建福州	硕士		副教授	福建师范大学	中国当代文学史	《中国当代文学史》
陈永红	女	2028.07	湖南长沙	硕士		副教授	湖南师范大学	中国当代文学史	《中国当代文学史》
林国强	男	2030.11	江西九江	硕士		副教授	江西师范大学	中国当代文学史	《中国当代文学史》
黄小芳	女	2032.04	广西桂林	硕士		副教授	广西师范大学	中国当代文学史	《中国当代文学史》
周为民	男	2035.08	陕西西安	硕士		副教授	西安交通大学	中国当代文学史	《中国当代文学史》
吴小华	女	2038.01	云南昆明	硕士		副教授	云南师范大学	中国当代文学史	《中国当代文学史》
郑为民	男	2040.06	贵州贵阳	硕士		副教授	贵州师范大学	中国当代文学史	《中国当代文学史》
陈永红	女	2042.09	四川成都	硕士		副教授	四川大学	中国当代文学史	《中国当代文学史》
林国强	男	2045.03	广东广州	硕士		副教授	中山大学	中国当代文学史	《中国当代文学史》
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434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500

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감사합니다!

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English voicing contrast in Seoul Korean
and Mandarin Chinese learners of English

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Introduction

- Speakers produce acoustic dimensions that are important in defining a non-native phonemic contrast.
- How non-native speakers from different L1 backgrounds produce L2 phonemic contrasts that are similarly found in their native languages is still under-studied.

the laryngeal contrast

Introduction

- English:
voiced /p t k/, voiceless /p^h t^h k^h/
- Seoul Korean:
lenis /p t k/, aspirated /p^h t^h k^h/, fortis /p^{ss} t^{ss} k^{ss}/
- Mandarin Chinese:
unaspirated /p t k/ vs. aspirated /p^h t^h k^h/

Introduction

- VOT (voice onset time) and post-onset f0 (fundamental frequency)
- English:
primary cue VOT
post-onset f0 non-negligible (Whalen et al., 1993)
f0: high - voiceless low - voiced
- Seoul Korean: tonogenesis-like sound change
primary cue post-stop f0
secondary cue VOT (not redundant) (e.g., Silva, 2006; Kang, 2014; Kwon, 2019)
f0: high - aspirated, fortis low - lenis
- Mandarin: f0 is the primary cue for lexical tone (e.g., Sun, 1998; Guo & Kwon, 2022)
f0: high - aspirated in high-initial tones low - aspirated in low-initial tones

Introduction

- Kong & Yoon (2013): senior high school students of Seoul Korean with low and high proficiency
 - Lower-proficiency learners depended more on f0 and less on VOT than higher-proficiency learners.
- Kato & Baese-Berk (2021): L1 Mandarin-L2 English phonetic contrasts
 - Mandarin speakers generally produced longer VOT for the voiceless stop /p/ compared to native English speakers.
 - High-proficiency speakers have more similar VOT to native English speakers.

Research questions

- (1) Are the realizations of phonetic cues for English stop contrasts (VOT and post-onset f0) shaped by different language backgrounds of the learners?
Do the cue weighting patterns reflect the influence of their L1 phonological grammar?
- (2) Are the use of acoustic cues influenced by the learners' L2 English proficiency?

Methods

Participants

- 24 SK speakers (12 F, 12 M, aged 19-30); 24 MC speakers (13 F, 11 M, aged 18-25)
 - Born and raised in Seoul or Gyeonggi Province in South Korea, Northern China
 - No third language
 - No history of speech or hearing disorders
- L2 proficiency:
SK speakers: TEPS and TOEIC
MC speakers: CET4 and CET6
- 12 native English (NE) speakers (7 female and 5 male, mean age = 28.8, range = 19-35) as a control group

Methods

Participants

- Standard of L2 proficiency among Asian learners of English (Ishikawa, 2013)
- A2 (waystage), B1_1 (lower), B1_2 (upper), and B2+ (vantage or higher).
- Low proficiency (n=12): A2, B1_1, and B1_2
High proficiency (n=12): B2+

Table 4. The English learning background and proficiency of SK speakers

Proficiency group	Mean age	Age of onset for second language learning	English proficiency tests	Mean test scores	Uniform standard
SK (n=12)	Low 22.88 (19-22)	0-62 (5-10)	NEW TEPS	227.88	Under B2+
			TOEIC	182.25	Under B2+
SK (n=12)	High 24.53 (19-30)	9-22 (5-14)	NEW TEPS	417.38	Above B2+
			TOEIC	382.25	Above B2+

Table 5. The English learning background and proficiency of MC speakers

Proficiency group	Mean age	Age of onset for second language learning	English proficiency tests	Test scores	Uniform standard
MC Low (n=12)	20.25 (18-23)	7-75 (5-11)	CET-4	489.92	Under B2+
			CET-6	458.488	Under B2+
MC High (n=12)	21.17 (18-10)	7-23 (6-10)	CET-5	493.51	Above B2+
			CET-6	448.971	Above B2+

Methods

Procedure

- part of a bigger project investigating a stimulated human-machine interaction (focus only on the initial reading data)
- Zoom H6 recorder, 44.1 kHz sampling rate).
- E-Prime 3.0.

Methods

Stimuli

- 54 monosyllabic English words contrastive in onset stop voicing (9 minimal pairs for /p/-/b/, /k/-/g/, and /t/-/d/)
- 216 monosyllabic fillers

Methods

Measurement

- Praat (Boersma & Weenink, 2020)
- VOT: divided by the word duration (Hirata & Whiton 2005, Kato & Baese-Berk 2021)
- Post-onset f0: the temporal midpoint of the vowel semitonized for cross-gender comparisons (e.g., Whalen & Levitt, 1995)

Methods

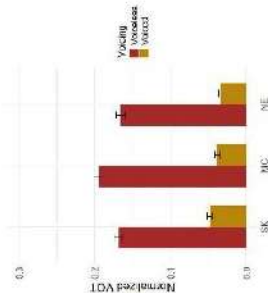
Statistical analysis

- Generalized linear mixed models using *lmer4* in R
- Dependent variables: VOT and f0
- Predictors:
L2 PROFICIENCY (low, high)
LANGUAGE (NE, SK, MC)
ONSET (voiceless stops /p, t, k/, voiced stops /b, d, g/)
GENDER (female, male)
- Random intercepts: a forward best path algorithm (Barr et al., 2013)
The best-fitting model: likelihood ratio tests

Results - General patterns

Normalized VOT

- Onset * Language ($\chi^2 = 151.0$, $p < 0.001$)
- significant differences between NE and SK groups in voiced sounds ($p < 0.001$);
- between NE and MC groups in voiceless sounds ($p < 0.001$);
- between MC and SK groups in both voiceless ($p < 0.001$) and voiced stops ($p < 0.001$).



Results - General patterns

Normalized VOT

Table 8. Number of tokens of variation in phonetic voicing of phonemically voiced stops

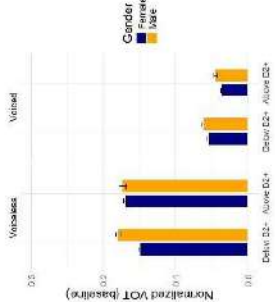
prevoiced	SK	MC	NE			
tokens	240	20.4%	12	0.9%	338	52.3%

- SK group: partial adaptation to English phonetic voicing patterns
- MC group: minimal engagement with prevoicing → the typical Mandarin phonetic categories?

Results - Results of SK speakers

Normalized VOT

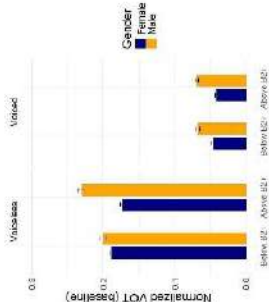
- Onset * L2 proficiency ($\chi^2 = 149.6$, $p < 0.001$) and Onset * Gender ($\chi^2 = 95.1$, $p < 0.001$)
- Speakers with low English proficiency had longer VOT for voiced stops than those with high proficiency ($p < 0.05$)
- Male speakers had longer VOT than female speakers for voiceless stops ($p < 0.05$)



Results - Results of MC speakers

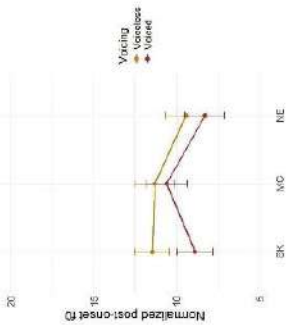
Normalized VOT

- Onset * L2 proficiency * Gender ($\chi^2 = 195.7$, $p < 0.001$)
- High-proficiency male speakers even produced significantly longer VOT for voiceless stops than low-proficiency male speakers ($p < 0.05$)
- In the high-proficiency group, male speakers exhibited longer VOT for voiceless stops compared to female speakers ($p < 0.001$)



Results - General patterns

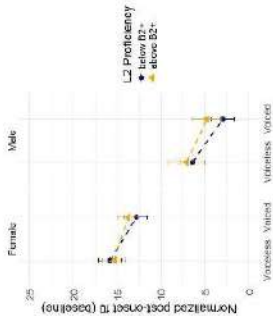
Normalized post-onset f0



- Language * Onset ($\chi^2 = 189.9$, $p < 0.001$)
- SK speakers produced higher f0 for voiceless sounds compared to NE speakers ($p < 0.001$)
- MC speakers had higher f0 compared to NE speakers for both voiceless ($p < 0.001$) and voiced sounds ($p < 0.001$)
- MC speakers had higher f0 than SK speakers ($p < 0.001$) and NE speakers ($p < 0.001$) for voiced sounds

Results - Results of SK speakers

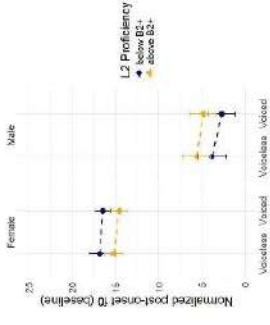
Normalized post-onset f0



- L2 proficiency * Onset ($\chi^2 = 175.7$, $p < 0.001$) Onset * Gender ($\chi^2 = 155.3$, $p < 0.001$)
- no significant differences in f0 for both voiceless stops ($p = 0.96$) and voiced stops ($p = 0.11$) between low-proficiency and high-proficiency groups

Results - Results of MC speakers

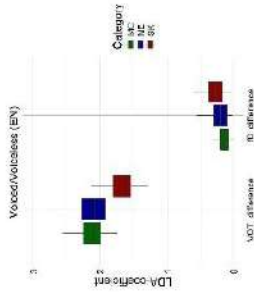
Normalized post-onset f0



- Onset * Gender ($\chi^2 = 85.4$, $p < 0.001$)
- Female speakers produced significantly higher f0 than male speakers for both voiceless ($p < 0.001$) and voiced stops ($p < 0.001$)

Results - General patterns

Primacy and contrastiveness of VOT and f0



- VOT was the primary cue and f0 played a secondary role in differentiating voicing contrasts in all groups
- The cue usage was more compensated in SK group than the other two groups.

Discussion

The implication of L1 effect

- comparison between non-native speakers:
 - MC speakers had significantly longer VOT for voiceless but shorter VOT for voiced stops compared to SK speakers.
 - MC speakers exhibited higher post-onset f0 for voiced sounds compared to SK speakers, with no significant difference for voiceless sounds.

Discussion

The effect of L2 proficiency

- SK group:
 - low-proficiency speakers exhibited longer VOT compared to their high-proficiency counterparts no f0 difference between the groups
 - partially in line with the findings of previous studies (e.g., Kim, 2012; Kong & Yoon, 2013)
 - Korean speakers adjusted their cue usage to better match the phonetic system of the target language.

Discussion

The effect of L2 proficiency

- MC group:
 - significant VOT difference only in the male group for voiceless stops
 - Even high-proficiency speakers have longer VOT of voiceless stops than low-proficiency speakers.
 - contradicts the findings of Kato & Baese-Berk (2021)
- In the high-proficiency group, male speakers exhibited significantly longer VOT for voiceless stops compared to female speakers.
- not corresponded to the gender results in Mandarin stops of Li (2013)

no f0 difference between the groups

Discussion

The effect of L2 proficiency

- recruited by English proficiency tests which do not evaluate students' oral communication skills (e.g., Zheng & Cheng, 2008; Adamson & Xia, 2011)
- Korean learners seem to effectively adapt to L2 sounds despite of more barriers to overcome in L1-L2 cue mappings.
 - to imitate the phonetic properties of English speakers in media (Hao and de Jong, 2016)
- better phonological short-term memory (e.g., Kaushanskaya & Yoo, 2013)
- intrinsic motivation, driven by personal satisfaction (Bang & Hiver, 2016)

Future plan

- The results demonstrated that non-native learners from different language backgrounds did assign different cue uses for L2 voicing contrasts, indicating the effect of L1 phonological systems.
- However, whether the cue use can be definitively attributed to L1 phonological grammar is still speculative.
- other factors? (social factors, cognitive factors...)

Thank you!

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A Study on the Semantics and Pragmatics of Bias in High Negated Questions

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2024.11.23

이서영

1. Introduction

Biased questions

- Assertions: give information
- Questions: seek information

// Biased questions: seek information, but also convey information about the speaker's knowledge or belief

High negated questions (HNQs)

(1) Isn't John a teacher?

- Consensus
 - An HNQ like (1) obligatorily conveys speaker bias
 - The bias conveyed by an HNQ is the speaker's bias for the propositional content (prejacent) of the question ('John is a teacher' in (1) above)
- However, no agreement on how this bias is theoretically derived

Aim

- Precise characterization of the phenomenon
 - Challenge the view that the bias in HNQs is speaker's belief in the prejacent
 - Argue that HNQs convey speaker's expectation of addressee's belief in prejacent
- Propose a theoretical account for the phenomenon
 - Three components: semantic denotation of HNQs (Goodhue 2022), context-updating convention of questions (Farkas & Bruce 2010; Farkas & Roelofsen 2017), decision-theoretic account of polar question form (van Rooij & Šafářová 2003)
 - Predicts the above phenomenon

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English polar questions

- (2) a. Is John a teacher?
b. Is John not a teacher?
c. Isn't John a teacher?
- Three-way distinction: Positive Polar Questions (PPQs), Low Negated Questions (LNQs), High Negated Questions (HNQs)

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2. Preliminaries

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Semantic denotation of PPQs and LNQs

- Follow the classical Hamblin (1973) semantics of polar questions
 - Question operator ?
(3) $[[?]] = \lambda p. \lambda q.[q = p \vee q = \lambda w_s. \neg p(w)]$
 - The ? operator combines with the prejacent of the question
 - PPQ: $[[? p]] = \{p, \neg p\}$
 - LNQ: $[[? \neg p]] = \{p, \neg p\}$
- A PPQ and an LNQ with the same prejacent have the same semantic denotation

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Semantic denotation of HNQs

- Focus on the “outer-negation” reading of HNQs
: prejacent is not directly negated
- (4) *A*: Ok, now that Stephan has come, we are all here. Let's go!
S: Isn't Jane coming too?

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Semantic denotation of HNQs

- Need to explain how the prejacent is not directly negated in HNQs
- Assume the existence of an intervening operator between negation and prejacent in HNQs (Romero & Han 2004; Krifka 2017; Goodhue 2022)
- (6) a. LF: $? \neg \text{OPER} p$
b. Denotation: $\{\text{OPER} p, \neg \text{OPER} p\}$

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Semantic denotation of HNQs

- Focus on the “outer-negation” reading of HNQs
- Cf. The “inner-negation” reading of HNQs: prejacent is directly negated
- (5) Context: Pat and Jane are two linguists who are supposed to be speaking in our workshop.
A: Pat is not coming. So we don't have any linguists in the program.
S: Isn't Jane coming either?
- // Goodhue (2022) provides evidence that HNQs only have an outer-negation reading

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3. Review of previous works on bias in HNQs

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Bias in polar questions

- Two dimensions of bias: original speaker bias, contextual evidence bias
- Original speaker bias: the belief or expectation that a speaker has before the current discourse
e.g. *S*: (prior to a conversation) 'I think it is going to be sunny.'

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Bias in polar questions

- Contextual evidence bias: the belief generated by evidence that has become available to all discourse participants in the present discourse context
e.g. *A* walks into the room. *S* sees *A* in rainboots, soaking wet and shivering.

→ *S*: ✓ Is it raining?
S: # Is it not raining?
S: # Isn't it raining?

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Previous studies on bias in HNQs

- Similar characterization of phenomenon:
HNQs necessarily convey original speaker bias for the prejacent
- Different accounts:
 - Romero & Han (2004): VERUM operator, Principle of Economy
 - Domaneschi et al. (2017): experimental study crossing original bias / contextual evidence
 - Goodhue (2022): doxastic necessity operator (\Box_A), general pragmatic principles
 - Bill & Koev (2023): high negation in questions is always focus-marked, Salient Cell Principle

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4. Empirical data

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Observations

- Type 1: speaker has bias for prejacent, no expectation that the addressee believes in the prejacent → HNQs not felicitous

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• Type 1

(9) Context: Sean and Gwen are friends. They agreed to meet today inside the school library to do homework together. Gwen said she would be wearing a red shirt and yellow jeans. Sean arrives at the library and searches for Gwen, but he cannot find her. Sean spots the librarian working at his desk. Sean knows that the librarian does not know who Gwen is, and that the librarian probably does not remember every single person who comes into the library every day. Since the librarian is the only other person there, Sean asks:

Sean: Hi, excuse me, #wasn't someone in a red shirt and yellow jeans here today?

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Observations

- Type 2: speaker has no bias for prejacent, but expects that the addressee believes in the prejacent → HNQs felicitous

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• Type 2

(10) Context: Stanley and Alma are at a racecourse to watch horseracing. Stanley believes that Speedie is the fastest horse there. Stanley knows that Alma thinks differently: she believes that Lightning Bolt is the fastest. At the racecourse, Stanley sees Alma betting on Speedie. Stanley asks:

Stanley: Why are you betting on Speedie? ✓ Isn't Lightning Bolt faster?

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Hypothesis & predictions

- Hypothesis:
The necessary condition for an HNQ to be felicitous is original speaker bias for the addressee's belief in the preajacent, rather than original speaker bias for the preajacent itself.
- Test with naturalness judgment tasks!

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Experiment

- 12 target stimuli, 6 with Type 1 context, 6 with Type 2 context
- 6 filler stimuli
- All stimuli consisted of one passage + 3 possible continuations (PPQ, LNQ, HNQ)
- Participants asked to rate each continuation on a 1-7 Likert scale

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Hypothesis & predictions

	<input type="checkbox"/> s <p></p>	<input type="checkbox"/> <input type="checkbox"/> ^p	Previous studies' prediction	My prediction
Type 1	Yes	No	(?)	Infelicitous
Type 2	No	Yes	Infelicitous	Felicitous

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Experiment

Seb is an employee at the customer service team of a company. Today, an intern in his team is dealing with a particularly bothersome complaint letter from a client. The intern says to Seb, "I don't understand why this client is reacting this way. There just doesn't seem to be a reason."

Seb, with his many years of experience, knows that when a client is exceptionally upset about a problem, it is usually because the client has experienced a similar problem before. Because the client is new to the company, Seb does not expect the client to know this. Also, Seb does not expect the intern to know every detail of the client's history. As a reply to what the intern just said, Seb asks:

Has this client filed a similar complaint before? *

impossible

1

2

3

4

5

6

7

Completely natural

Has this client not filed a similar complaint before? *

impossible

1

2

3

4

5

6

7

Completely natural

Hasn't this client filed a similar complaint before? *

impossible

1

2

3

4

5

6

7

Completely natural

24

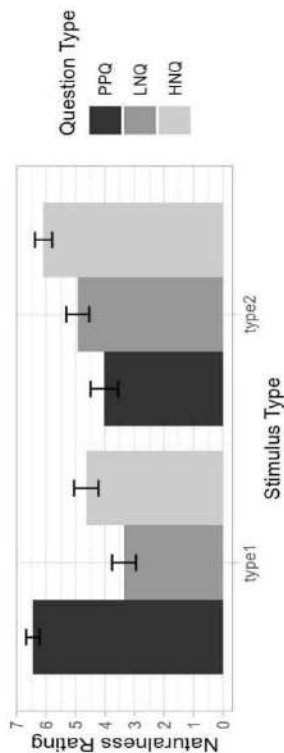
Experiment

- 100 participants recruited on Prolific
- Criteria
 - 19+ years of age
 - High school education or higher
 - Born in the US
 - Spent the majority of their life in the US before turning 18
 - Currently located in the US
 - First & primary language English

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Experiment

- Results



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Experiment

- Results
- Type 1: HNQs judged less felicitous than PPQs
- Type 2: HNQs judged the most felicitous among the three forms
- Statistical tests (t-tests, mixed effects linear regression models) report that the differences are significant
- Align with the hypothesis that the mandatory bias in HNQs is speaker bias for the addressee's belief in preajacent!

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5. Proposed analysis

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Theoretical components

- 1. Logical form of HNQS
- Follow Goodhue (2022) in assuming that an HNQ with prejaacent p has the LF $? \neg \Box_A p$
- $\llbracket ? \neg \Box_A p \rrbracket = \{ \neg \Box_A p, \Box_A p \}$

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Theoretical components

- 2. Context-updating conventions of questions
- Discourse structure as proposed by Farkas & Bruce (2010); semantic denotation of utterance placed on Table, following Farkas & Roelofsen (2017)
- An HNQ with prejaacent p places $\{ \neg \Box_A p, \Box_A p \}$ on the Table

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Theoretical components

- 3. Choosing what to pronounce in polar questions
- Van Rooij & Šafářová's (2003) decision-theoretic account
 - When asking a polar question, the speaker prefers to pronounce the cell whose utility is higher
 - The less likely a speaker believes a proposition to be, the more informational utility it holds for the speaker
- Considering informational utility, the speaker would prefer to pronounce the cell which he/she deems less likely

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Theoretical components

- 3. Choosing what to pronounce in polar questions
- An HNQ with prejaacent p has the semantic denotation $\{ \neg \Box_A p, \Box_A p \}$, and $\neg \Box_A p$ is the pronounced cell
- Pronouncing $\neg \Box_A p$ signals that $\neg \Box_A p$ is more surprising to the speaker, i.e., the speaker is biased toward $\Box_A p$
 - ▲ my claim!

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Account of core examples

- Example (9) (Type 1; $\Box_S p \wedge \Box_S \neg \Box_A p$)
- The speaker thinks $\neg \Box_A p$ more likely than $\Box_A p \rightarrow$ asking $? \neg \Box_A p$ would not be preferred
- Upon hearing an HNQ, the addressee infers that, to the speaker, $\Box_A p$ is more likely than $\neg \Box_A p \leftarrow$ from the addressee's perspective, it is unclear why the speaker would think so
 \therefore HNQ feels unnatural

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Account of core examples

- Example (10) (Type 2; $\Box_S \neg p \wedge \Box_S \Box_A p$)
- The speaker thinks $\Box_A p$ more likely than $\neg \Box_A p \rightarrow$ asking $? \neg \Box_A p$ is preferred
- Upon hearing an HNQ, the addressee infers that, to the speaker, $\Box_A p$ is more likely than $\neg \Box_A p \leftarrow$ in accordance with her actual belief

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Summary

- Consensus that HNQs necessarily convey speaker bias for the prejacent // no consensus on theoretical explanation
- Aims
 - Precise characterization of bias: HNQs necessarily convey speaker bias for the addressee's belief in prejacent
 - Theoretical analysis: Explain the phenomenon as characterized above

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6. Conclusion

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Summary

- Experiment
 - Native speakers' judgment align with the hypothesis that the necessary condition for the felicity of HINQs is speaker bias for addressee's belief in preadjacent
- Proposed theoretical analysis
 - Combine three independently-motivated components to predict the phenomenon

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Thank you!

Interrogativity Principle

(11) Interrogativity Principle

- Ask a question Q only if the union of your belief set and the context set c does not entail a complete answer to Q
- The act of questioning is not licensed if...
 - Contextual evidence is toward the same direction as original speaker bias
 - One dimension of bias is firmly toward one direction, and the other dimension of bias is neutral

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Appendix

Speaker bias for the prejacent in HNQs

- Why did so many previous studies say that HNQs obligatorily convey speaker bias for the prejacent?
- My answer: Because in many cases, they do!

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Speaker bias for the prejacent in HNQs

- People do not by default expect others' beliefs to be different from their own \rightarrow in most cases, bias for p and bias for $\Box_A p$ go together
- (12) Let A and B be interlocutors.
 - a. If $\Box_A p$, then $\Box_A \neg \Box_B \neg p$ by default. (non-contradiction)
 - b. If $\Box_A \neg \Box_B \neg p$ and A is in a position to assume B 's opinionatedness on p , then $\Box_A \Box_B p$ (opinionatedness)

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Speaker bias for the prejacent in HNQs

- When this default expectation does not hold, the implication of speaker's belief in the prejacent of an HNQ can be cancelled
- Example (10): non-contradiction assumption ((12a)) does not hold
 \rightarrow HNQ does not convey speaker bias for the prejacent
- Example (9): opinionatedness assumption ((12b)) does not hold
 \rightarrow HNQ deemed unnatural

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Puzzle solved – strength of speaker bias

- Goodhue (2022): speaker bias for the prejacent in HNQs is doxastic necessity
- Bill & Koev (2023): speaker bias for the prejacent in HNQs is weak bias
- Problematic if we view speaker bias for the prejacent as obligatory
- The present account argues that speaker bias for the prejacent in HNQs is a pragmatic implication that can have varying strength and even be cancelled

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Puzzle solved – contextual evidence bias

- No consensus on the contextual evidence bias condition of HNQs

Billing & Gunlogson (2000)		Trinh (2014); Northrup (2014)		Goodhue (2023)	
Contextual evidence	HNQ	Contextual evidence	HNQ	Contextual evidence	HNQ
For p	#	For p	#	For p	✓
Neutral	✓	Neutral	#	Neutral	✓
Against p	✓	Against p	✓	Against p	✓

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Puzzle solved – contextual evidence bias

- Original speaker bias and contextual evidence bias are systematically related via the Interrogativity Principle
→ If HNQs obligatorily convey original speaker bias for $\Box_A p$, their contextual evidence bias condition must also be characterized in terms of whether $\Box_A p$ (rather than whether p)
- Claim that HNQs are compatible with contextual evidence for $\neg \Box_A p$ or contextual evidence neutral wrt whether $\Box_A p$

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Remaining issues

- LNQs: the present account's predictions do not align with experimental results
 - \Box_A may optionally arise in LNQs
 - Similarities of discourse effects of LNQs and HNQs
- Response particles: yes/no responses do not incorporate \Box_A
 - Such operators do not introduce discourse referents that response particles are sensitive to
- Modalized prejacent: how do modalized prejacent interact with HNQs?

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Contents

1. Introduction
2. Observation & Hypothesis
3. Analysis & Predictions
4. Experiment
5. Imperatives, tones and politeness
6. Conclusion

Experimental studies on Korean multi-tonal imperatives :

Sentence-type conventions and politeness inferences

홍승연 (서울대학교)

1. Introduction

1. Pitch changes observed from Korean sentence endings, or boundary tones, have been widely detected (Lee 1976; Jun 2000).
2. It is generally understood as adding emphasis, originating from the repetition of basic tones **H%** and **L%** (Park, J. 2003; Park, M. 2013).
3. In a study on the Korean boundary tone **HLHL%** (fall-rise-fall)
 1. interpreted as intensifying the meaning of **HL%**
 2. conveying persuasiveness, insistence, annoyance, or displeasure (Jun 2000).

1. Introduction

Korean multi-tonal boundary tones

1. Park (2013) concludes that Korean multi-tonal boundary tones:
 1. used to project the speaker's affective stance toward the addressee
 2. three-element multi-tonal tones carry the same basic meaning as tones with the same initial and final tones, with slight differences observed across utterances.
2. Multitonal boundary tones mainly attribute emphatic meaning to the utterance,
 1. speaker's affective stance toward the addressee (solidarity, politeness),
 2. situation (formal, informal),
 3. utterance (familiarity)

1. Introduction

Korean multi-tonal boundary tones

(Lee, 1976) Tri-directional Tone

- 1. Low Fall-Rise-Fall (to K-ToBI LHLHL%) 불쾌감 초급합 귀찮음
- 2. High FFF (HLHL%) 신경질 분노
- 3. Low RFR (LHLH%) 가벼운 불만 놀람
- 4. High RFR (LHLH%) 노골적인 불만, 경멸

1. Introduction

Korean multi-tonal boundary tones

(Jun, 2005) In general, tones ending with H% often have the function of seeking information, L%, the function of making a statement

‘More research is needed to identify a distinctive pragmatic meaning for each boundary tone and sentence ending. At the moment, it is not clear if complex boundary tones with more than three tones (i.e., LHLH%, HLHL%, LHLHL%) have a distinct meaning of their own other than intensifying the meaning of the corresponding tones with two or three tones (e.g., HLHL% intensifies the meaning of H% or LH%).’

- 1. LHLH% intensifying some of the LH% meanings, i.e., annoyance, irritation, or disbelief
- 2. HLHL% intensifying HL% meanings: confirming and insisting on one’s opinion, sometimes, like LHL%, delivers tagging or persuading meanings
- 3. LHLHL% similar to that of LHL%, but has a more intense meaning of being annoyed

1. Introduction

Aim of study

- 1. Confirm if there are noticeable linguistic differences (Ladd 2008) between monotone/bitonal groups and multi-tonal tones, beyond their emphasis or emotional conveyance.
- 2. If such differences exist, I intend to further elaborate on them considering their politeness inferences

2. Observation & Hypothesis

	Insulting ("Get out")				Negative ("Down")				Positive ("Up")			
	ba-je-ra (+formal) 'hun	ba-je (-formal) 'hun	ba-je-yo (-formal) 'hun	ba-jon-ra (+formal) 'hun	ba-jon (-formal) 'hun	ba-jon-yo (-formal) 'hun	ba-jon-ra (+formal) 'hun	ba-jon (-formal) 'hun	me-ge-ra (+formal) 'hun	me-ge (-formal) 'hun	me-ge-yo (-formal) 'hun	me-ge-ra (+formal) 'hun
H%												
LH%												
HLH%												
L%												
HL%												
LHL%												
HLHL%												
LHLHL%												

2. Observation & Hypothesis

1. The interpretation of LHLHL% differs from LHL% not only in intensifying emotion or illocutionary force.
2. Certain types of sentences may not be interpreted as acceptable with certain types of tunes.

3. Analysis & Predictions

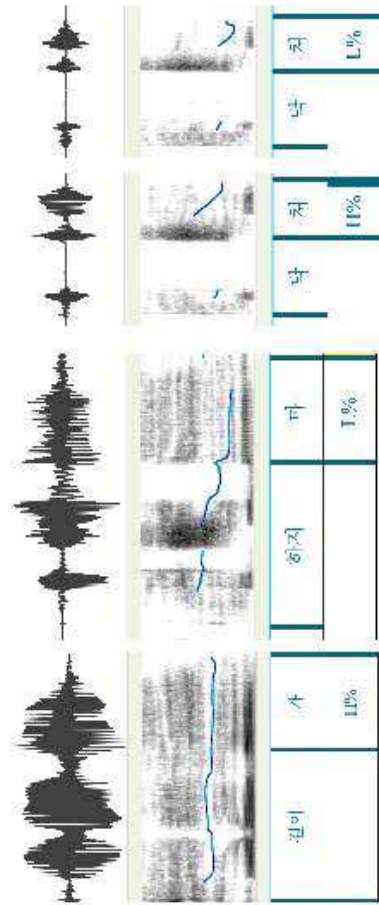
1. Different combinations conveying different inferences : should be checked.
2. How are these combinations different?
3. Convention: Korean imperatives are associated with falling tone.
 1. Variations in the number of oscillations within the same falling tone can create distinctions.
 2. A rising tone can be accepted as a request or command, distinguishing it from information-seeking questions.

3. Analysis & Predictions

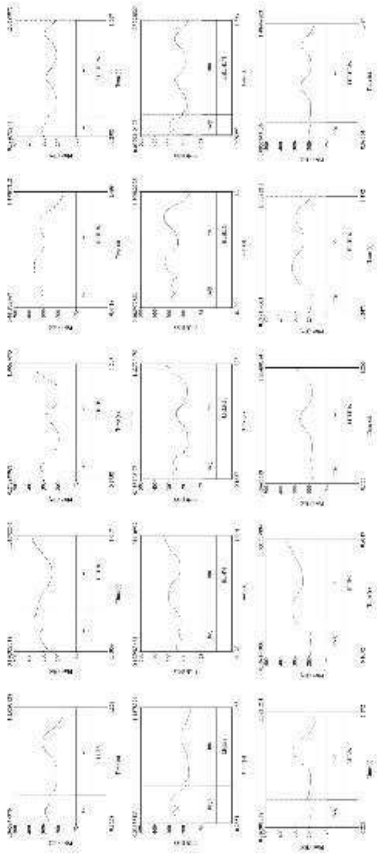
- Predictable perlocutionary effects from sentence type plus intonation. (Jeong and Potts 2016)
- Type + tune and politeness inferences (Jeong and Potts 2016; Jeong 2021)

3. Analysis & Predictions

Conventions



3. Analysis & Predictions



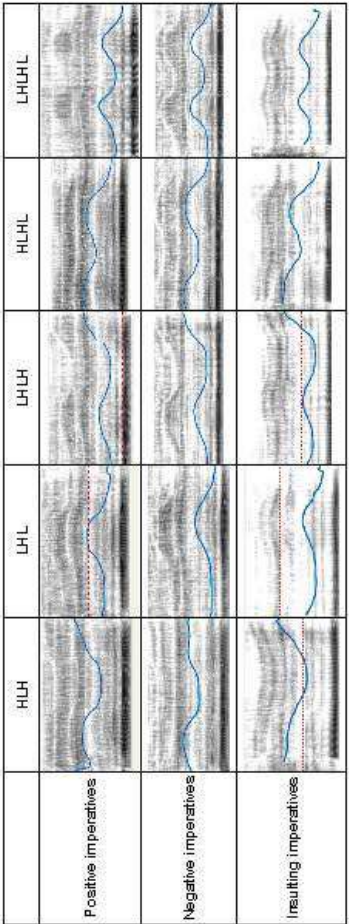
3. Analysis & Predictions

- 1. **Positive imperative** with LHLH% and LHLHL% show lower acceptability.
- 2. **Insulting imperatives** with the tone LHLHL show lower acceptability.
- 3. **Negative imperatives** with the tone LHLHL do not show lower acceptability.
- 4. As more tones are added, imperatives become less impolite.
 - Negative imperatives and insulting imperatives with LHLHL% tones sound more polite compared to others.

4. Experiment

4.1. Experimental design

Independent variable	Dependent variable
	Politeness Acceptability



4. Experiment

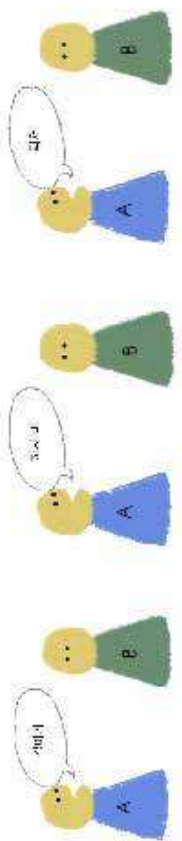
4.1. Experimental design

Independent variable	Dependent variable
	Politeness Acceptability

Imperative type	Negative	하지 마 안드리지 마 뛰지 마
	Positive	같이 같이 가 같이
	Insulting	짜지 다들 다들
Tune type	L final	LHL%
		HLHL%
		LHLHL%
	H final	HLH%
		LHLH%

4. Experiment

4.1. Experimental design - target stimuli



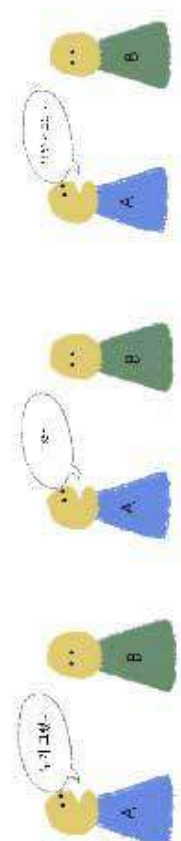
4. Experiment

4.1. Experimental design

1. **Participants:** 15 Native speakers of Korean
2. **Stimuli:** 17 target stimuli (Neg, Pos, Ins) + 15 filler stimuli (Polar Q, WH Q, Dec)
3. **Procedure:** listening to each stimuli, answering 3 questions (focus: ratings)
 1. Speaker's illocutionary inferences (6 options)
 2. Politeness (7-likert scale)
 3. Acceptability (7-likert scale)

4. Experiment

4.1. Experimental design - fillers



4. Experiment

4.1. Experimental design

1. **Participants:** 15 Native speakers of Korean
2. **Stimuli:** 17 target stimuli (Neg, Pos, Ins) + 15 filler stimuli (Polar Q, WH Q, Dec)
3. **Procedure:** listening to each stimuli, answering 3 questions (focus: ratings)
 1. Speaker's illocutionary inferences (6 options)
 2. Politeness (7-likert scale)
 3. Acceptability (7-likert scale)

4. Experiment

4.1. Experimental design

은닉에 숨겨져 있어서 가시성에 그, 먼저 그를 인의사있⁸⁰ 은밀하듯이요.

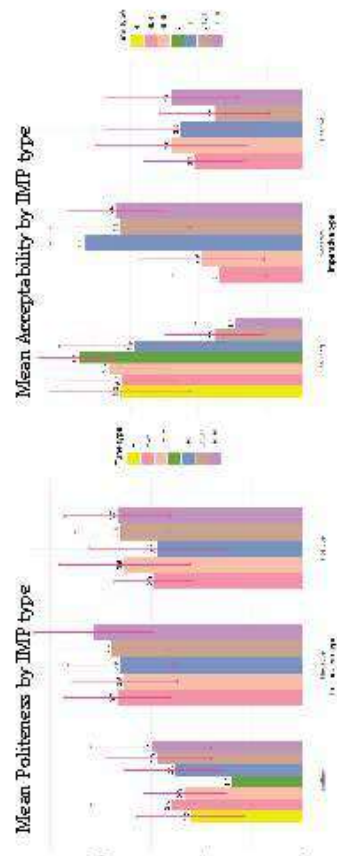
4. Experiment

4.2. Results_Mean Politeness and Acceptability

Mean Politeness				Mean Acceptability			
	Insulting	Negative	Positive		Insulting	Negative	Positive
LHL%	2.53 (0.99)	3.6 (1.06)	2.87 (1.96)	LHL%	4.57 (2.47)	6.27 (1.03)	3.63 (2.20)
HLH%	2.6 (1.05)	3.67 (1.06)	2.93 (0.80)	HLH%	5.2 (1.67)	2.4 (1.36)	3.38 (1.46)
LHLH%	2.87 (1.45)	3.8 (1.4)	3.6 (0.94)	LHLH%	2.53 (1.46)	5.27 (2.02)	2.53 (1.60)
HLHL%	2.33 (0.82)	3.63 (1.06)	3.63 (1.90)	HLHL%	5.6 (1.76)	2.93 (1.83)	3.8 (2.18)
LHLHL%	3.0 (1.20)	4.13 (1.19)	3.67 (1.05)	LHLHL%	1.93 (1.16)	5.4 (1.40)	3.8 (1.93)
L%	1.4 (0.63)			L%	6.47 (1.18)		
H%	2.2 (1.08)			H%	5.27 (2.02)		

4. Experiment

4.2. Results_Mean Politeness and Acceptability



4. Experiment

4.2. Results Analysis

1. A mixed-effects model was used to analyze the data.
2. The model includes the combined effect of imperative type and boundary tone on the dependent variables of politeness and acceptability.
3. It provides estimates of the effects of different combinations of imperative types and boundary tones on perceived politeness and acceptability.

4. Experiment
4.2. Results_politeness

Combinations showing significantly high politeness effect ($p < 0.05$)

	Insulting	Negative	Positive
LHL%	0.33	1.40	0.67
HLH%	0.40	1.47	0.73
LHLH%	0.67	1.60	1.40
HLHL%	0.13	1.33	1.33
LHLHL%	0.80	1.93	1.47

4. Experiment
4.2. Results_acceptability

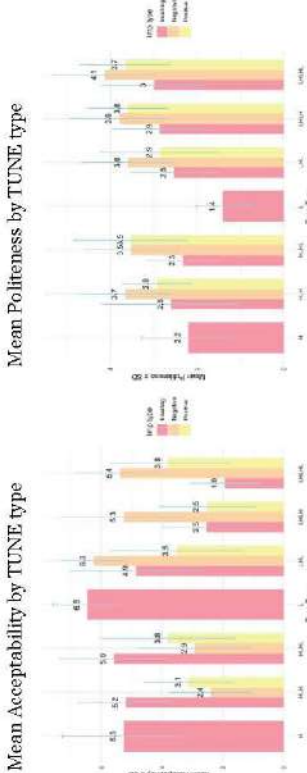
Combinations showing significantly low acceptability effect ($p < 0.05$)

	Insulting	Negative	Positive
LHL%	-0.40	1.00	-1.73
HLH%	-0.06	-2.86	-2.13
LHLH%	-2.73	0.01	-2.73
HLHL%	0.33	-2.33	-1.46
LHLHL%	-3.33	0.13	-1.46

5. Imperatives, tones and politeness

	Insulting ("Get out")		Negative ("Don't")		Positive ("Eat")	
	ke-je-ra [+formal] [-hon]	ke-je-yo [-formal] [+hon]	haji-mu [-formal] [-hon]	haji-mu-ra [+formal] [-hon]	me-ge-ra [+formal] [-hon]	me-ge-yo [-formal] [+hon]
H%						
LH%		OK	OK	OK	OK	OK
HLH%		OK	OK	OK	OK	OK
L%		Conversion				
HL%		OK	OK	OK	OK	OK
HLHL%	?	OK	?	OK	OK	OK
LHLHL%	OK	?	OK	OK	OK	OK

5. Imperatives, tones and politeness



5. Imperatives, tones and politeness

1. Despite the syntactic structure indicating an imperative with a mandatory force, the association with the questioning H% tone appears to increase perceived politeness.
2. This is particularly evident when comparing tri-tonal LHL %, which shows relatively lower politeness ratings.
3. This pattern does not hold for positive imperatives. This might be due to the nature of positive commands, which aim to prompt an action rather than prevent one.
4. The significant finding across all types is that the most multi-tonal group, LHLHL %, is perceived as more polite.
5. Insulting imperatives ending with H% are rated significantly higher in politeness compared to those ending with L%. This highlights the potential for tone type to convey linguistic effects beyond emotional tone.

감사합니다!

6. Conclusion

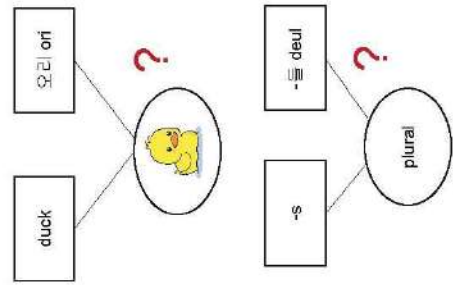
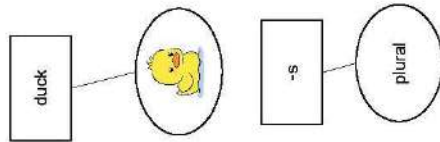
1. It was confirmed that even imperative sentences with the same illocutionary force could pair differently with various contour types.
2. It was established that the role of multi-tonal boundaries in Korean extends beyond mere emphasis or emotional transmission.
3. More comprehensive and in-depth understanding of 'politeness' is required to fully verify this relationship, and this remains a task for future research.

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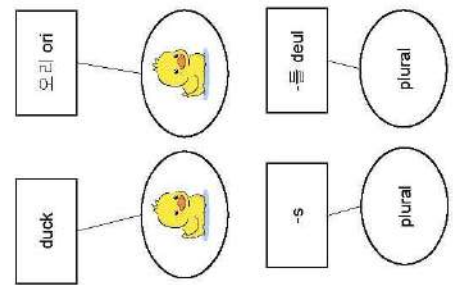
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Using Machine Learning to Probe Neural Representation of Words and Grammatical Features

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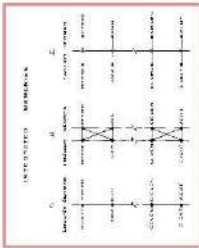


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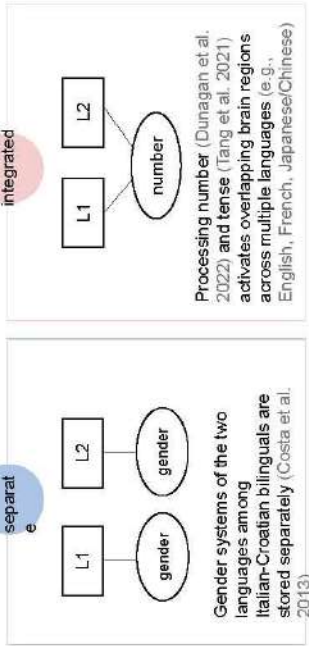


Cross-linguistic representation of words

- Translation equivalents in two languages may be integrated among bilinguals
- Masked priming (Dutch and English: De Groot and Nas, 1997; Hebrew and English: Gollan et al., 1997; Chinese and English: Jiang, 1999; Japanese and English: Hoshino et al., 2010; Korean and English: Kim and Davis, 2003)
- Overlapping brain regions when processing words in English and Chinese (Chee et al., 2000; Ding et al., 2003; Xue et al., 2004)
- Similar brain activities for English words and Dutch words (Correia et al., 2014, 2015)



Models of bilingual lexicon (adopted from Kirsner et al., 1984)



Processing number (Dunagan et al., 2022) and tense (Tang et al., 2021) activates overlapping brain regions across multiple languages (e.g., English, French, Japanese/Chinese)

Gender systems of the two languages among Italian-Croatian bilinguals are stored separately (Costa et al., 2013)

Limitation of using priming for grammatical features

Cross-linguistic priming of words and case feature

- Participants: 116 Korean-English bilinguals (SOA=34ms or 150ms)
- Stimuli: 104 target sentences

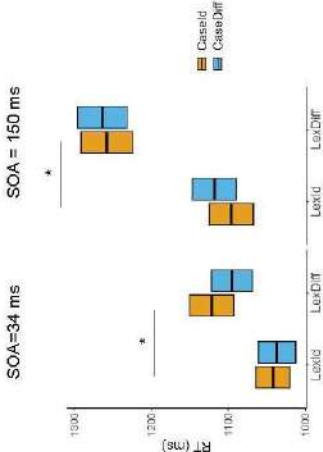
Lexid, Caseld	Mary bought 빵 bread-acc bread.
Lexid, CaseDiff	Mary bought 빵의 bread-gen bread.
LexDiff, Caseld	Mary bought 빵을 comb-acc bread.
LexDiff, CaseDiff	Mary bought 빵의 comb-gen bread.



Cho (2024)

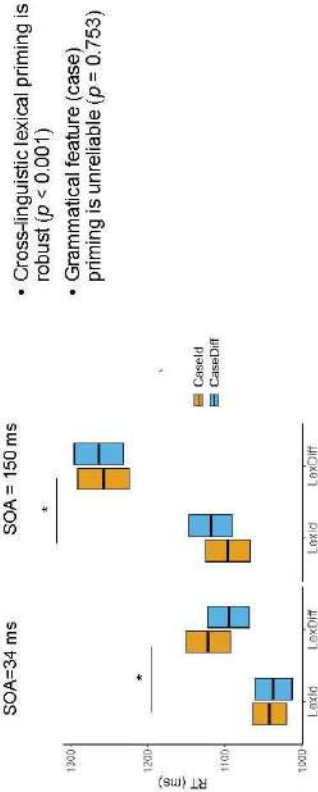
Limitation of using priming for grammatical features

- Cross-linguistic lexical priming is robust ($p < 0.001$)
- Grammatical feature (case) priming is unreliable ($p = 0.753$)



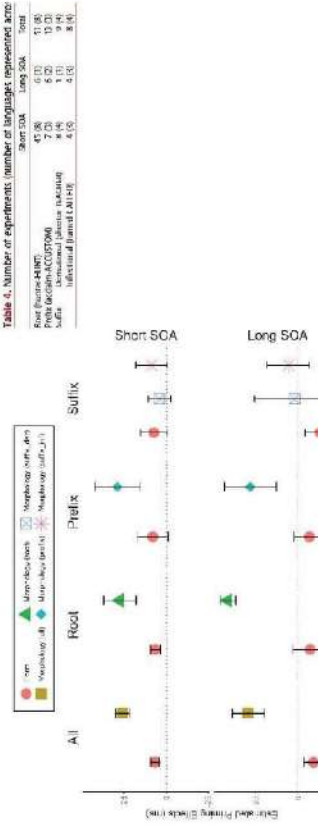
Cho (2024)

Limitation of using priming for grammatical features



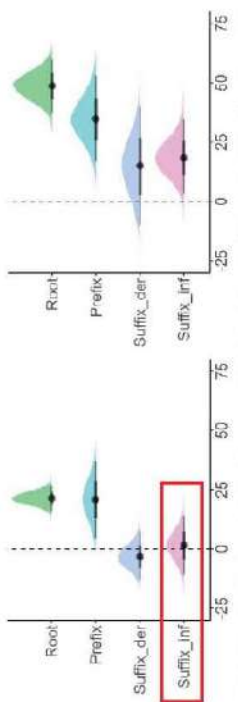
Cho (2024)

Limitation of using priming for grammatical features



Cho et al. (2024)

Limitation of using priming for grammatical features

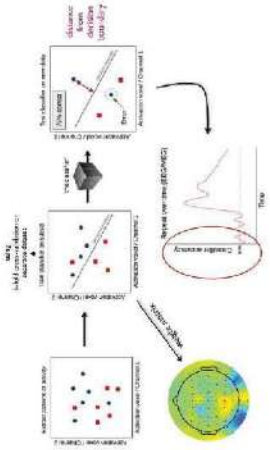


Cho et al. (2024)

Alternative: Neural decoding

A classifier is trained over the neural data and is tested with unseen data to predict the feature of given stimuli

Has been used for identifying pictured objects, word meanings, grammatical categories, etc.



Groetswagers et al. (2017)

(Carlson et al., 2003; Chan et al., 2011; Cox and Savoy, 2003; Huth et al., 2016; Mitchell et al., 2008; Shinkareva et al., 2011; Simanova et al., 2010)

Alternative: Neural decoding

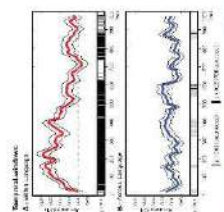
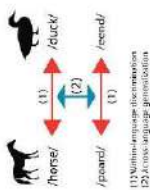
Cross-linguistic neural decoding (Correia et al., 2015)

A classifier trained on neural data from one language is tested on neural data from another language

Obtained above-chance accuracies between English and Dutch at 550-600 ms and 850-900 ms

□ indicates similar brain activities for translation equivalents

Filtering out low frequency bands (<12 Hz) affected accuracies for within-language and between-languages decoding



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Method

- Participants: eighteen Korean-English bilinguals
- Stimuli: eight nouns (plural or singular) and eight verbs (present or past) in English and Korean

		Noun s				Verb s			
		Singular		Plural		Present		Past	
English	Korean	duck	고래	ducks	고래들	Teats	기원하다	learned	기원했다
goat	양	goats	양들	swam	헤엄치다	could	헤엄칠수있다	learned	헤엄칠수있었다
swan	백조	swans	백조들	helped	도움하다	helped	도움할수있다	learned	도움할수있었다
loaf	빵	loaves	빵들	filled	채운다	filled	채울수있다	learned	채울수있었다

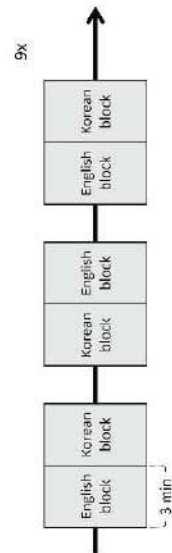
Cho and Brennan, under review

Current study goal

- To test cross-linguistic neural decoding of words as well as grammatical features (number and tense) with Korean-English bilinguals

Method

- Procedure: participants read each word a total of 36 times in each language (English and Korean) while their EEG is recorded
- A total of nine runs with English and Korean blocks alternating orders
- Each block = each word x 4 times



Cho and Brennan, under review

Analysis and Results

Words (four nouns and four verbs) and grammatical features (number and tense):

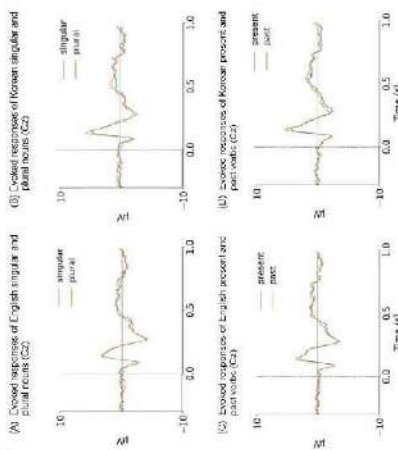
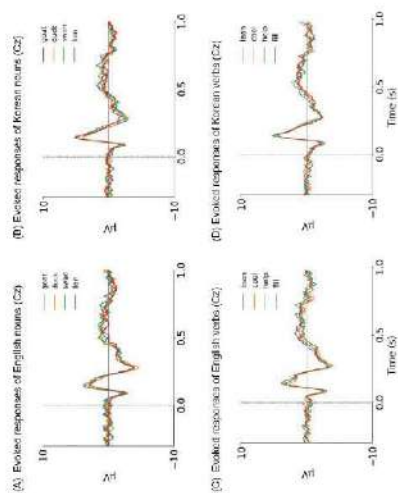
- 1 ERP analysis (300-600 ms and 600-800 ms)
- 2 Decoding
- 3 Time-frequency analysis

ERP analysis

- EEG data were epoched (-300 ~ 1,000 ms) and analyzed with ANOVAs in the time windows of **300-600 ms** and **600-800 ms**
- Fixed effects: **Word type** (four levels for nouns and verbs, two levels for number and tense), **Hemisphere**, **Anterior-posterior orientation**
- Corrected for multiple comparisons

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Results: ERP analysis

Words

- No statistical differences in evoked responses for nouns and verbs in the time windows of 300-600 ms and 600-800 ms for both languages

Results: ERP analysis

Number and tense

- No statistical differences for the number feature
- Korean past tense yielded more positive amplitudes in the anterior ($p < 0.001$) and central ($p < 0.001$) regions

Cho and Brennan, under review

Cho and Brennan, under review

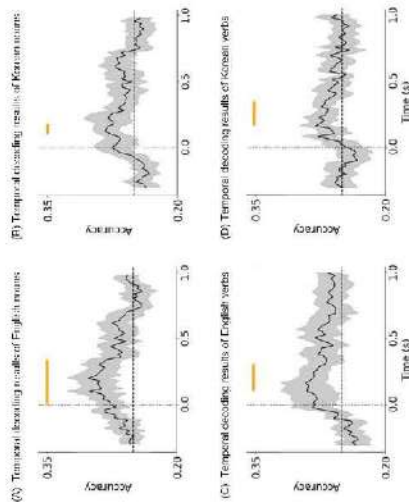
Decoding

- Epoched EEG data were trained with an LDA (linear discriminant analysis) classifier
- Data used for training and testing: 200 ms-long window moving by 20 ms intervals
- **Within language**: results based on five-fold cross validation
- **Between languages**: trained on one language and tested on the other
- Statistical testing: cluster-based permutation test

Results: Within-language decoding

Words (chance=0.25)

- Within-language decoding of nouns and verbs yielded above-chance accuracies in 0-300 ms

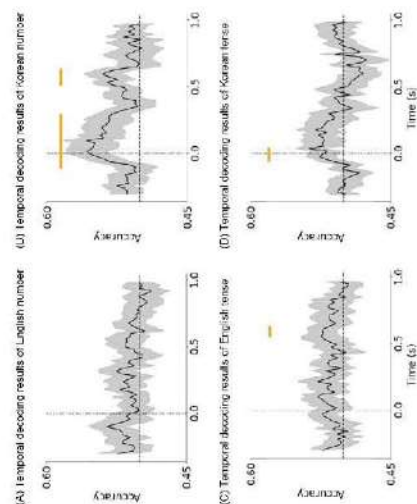


Cho and Brennan, under review

Results: Within-language decoding

Number and tense (chance = 0.5)

- Number: above chance in Korean (-60-300 ms and 460-600 ms)
- Tense: above chance in English (560-620 ms) and Korean (-40-40 ms)

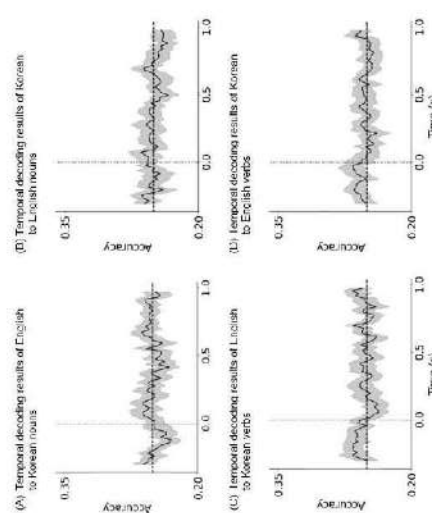


Cho and Brennan, under review

Results: Between-languages decoding

Words (chance=0.25)

- No above-chance accuracies

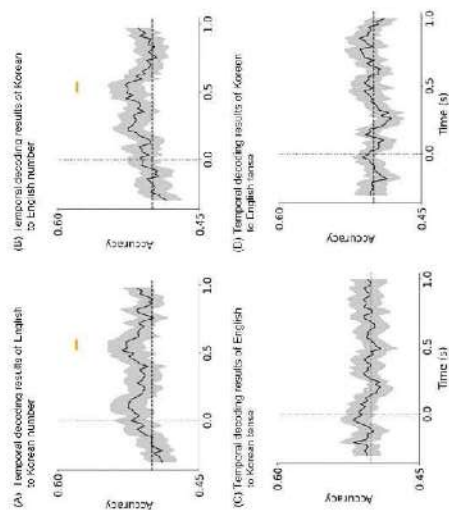


Cho and Brennan, under review

Results: Between-languages decoding

Number and tense (chance = 0.5)

- Number: above chance both directions in 500-600 ms
- Tense: no above-chance accuracies



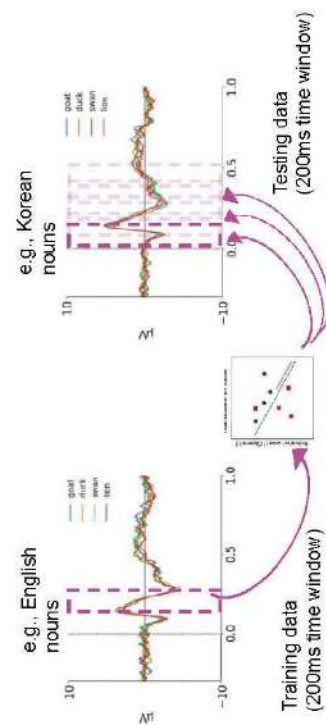
Cho and Brennan, under review

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Temporal generalization

- So far, training and testing data come from the same time window
- It may be the case that the two languages share some neural representations but they are processed at different times

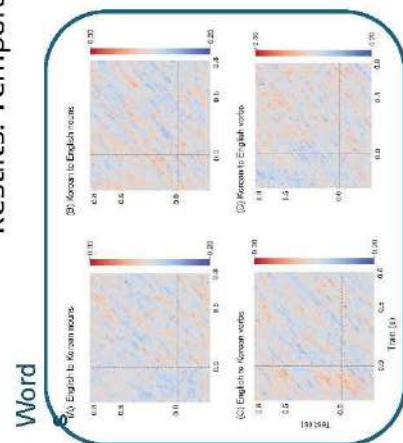
Temporal generalization



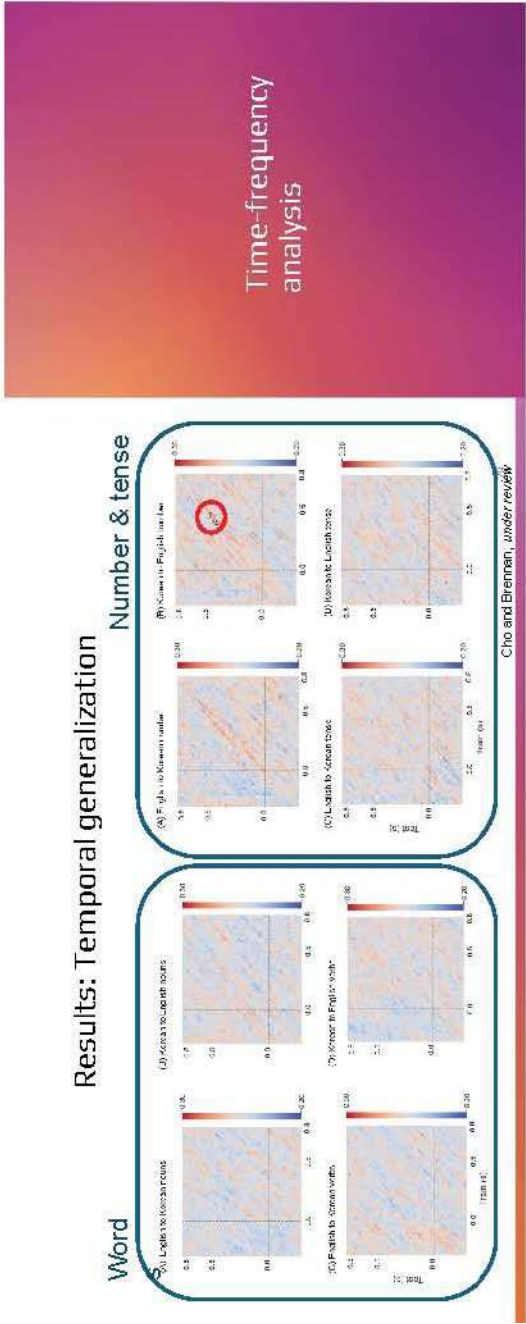
Dehaene and King (2018)

27

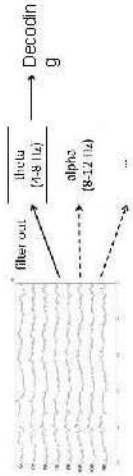
Results: Temporal generalization



Cho and Brennan, under review



- The significance of each frequency band on decoding accuracies was determined by a **filter-band-out approach** (Correia et al., 2015)
- The original epochs were filtered using a band stop filter and were used as training and testing dataset (with 4-Hz width with 2-Hz intervals, ranging from 2 Hz to 30 Hz)
- The decoding accuracies from the filtered epochs were compared with those from original unfiltered epochs with a cluster-based permutation test.



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Results: Time-frequency analysis

- Filtering out impacted the classification performance for **nouns**
 - Filtering out the **2-6 Hz band** for English nouns (240 ~280 ms)
 - Filtering out the **8-12 Hz band** for Korean nouns (180-280 ms)
- Frequency band of **4-8 Hz** was relevant for decoding **Korean number** (-40-20 ms)

	2-6 Hz	4-8 Hz	6-10 Hz	8-12 Hz	...
English noun	$p=0.079$ (240-280ms)	$p=0.178$	$p=0.132$	$p=0.143$	
Korean noun	n.a.	$p=0.149$	$p=0.115$	$p=0.008$ (180-260 ms)	
Korean number	$p=0.456$	$p=0.002$ (-40-20ms)	$p=0.293$	$p=0.043$ (700-900 ms)	
Korean tense	n.a.	n.d.	n.a.	n.a.	

n.a.: no cluster found
Cho and Brennan, under review

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Korean tense	n.a.	n.d.	n.a.	n.a.	

n.a.: no cluster found
Cho and Brennan, under review

Discussion

- **Within-language neural decoding** was successful for nouns, verbs, and tense for both languages and for number for Korean
 - Advantage of the multivariate analysis over traditional ERP analysis (c.f., Coutanche, 2013; Davis et al., 2014; Pettit et al., 2020)
 - The time window where above-chance accuracy is obtained for **lexical decoding** generally overlaps for nouns and verbs, and for the two languages (0 – 500 ms)
 - It may reflect processing of low-level visual properties (~100 ms), lexicality (150-200 ms), and semantic properties (300-600 ms)
 - Time windows for decoding of **grammatical tense** are different for the two languages
 - May be due to different processing mechanisms for inflectional suffixes (English) versus stem conjugation (Korean).

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Discussion

- **Between-language neural decoding yields above-chance accuracies** for number but not words and the tense feature
 - Consistent with previous fMRI study that reports **crosslinguistic similarities in processing number** in English, Chinese and French (Dunagan et al., 2022)
 - **Translation equivalents** in two languages may share some conceptual representations, but these shared representations are not to the extent for a classifier to learn patterns from for successful decoding from scalp EEG

34

Discussion

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 - Consistent with previous fMRI study that reports **crosslinguistic similarities in processing number** in English, Chinese and French (Dunagan et al., 2022)
 - **Translation equivalents** in two languages may share some conceptual representations, but these shared representations are not to the extent for a classifier to learn patterns from for successful decoding from scalp EEG
- **Low frequency bands (alpha (8-12 Hz) and theta (4-8 Hz))** are crucial in decoding word and grammatical features, especially in Korean

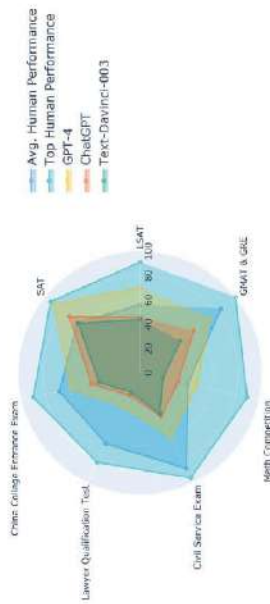
36

Thank you!

jeonghwa@umich.edu

Large Language Models

- Large Language Models (LLMs) show advanced natural language processing and reasoning capabilities.
- Abilities shown through various benchmarks
e.g., AGIEval: evaluate LLMs' abilities through standardized exams (Zhong et al., 2024)
GPT-4 recorded higher scores than average human performance at SAT, LSAT, etc.



2

Hypothesis

- Language Models would generate different answers to the same prompts (questions) based on different cultural orientations of themselves.
- Models' cultural orientations can be influenced by their training datasets.
- English-Korean machine-translated datasets would not function as Korean corpora.
- Bad examples of machine-translated texts (KoAlpaca v1.0 dataset)

"Instruction": "도자기, 제과, 보석, 목수 등의 단어 중에서 홀수 개를 선택하십시오."
 "Input": ""
 "Output": "도자기"
 Choose an odd word from words such as pottery, confectionery, jewelry, carpentry, etc.
 Carpentry

"Instruction": "오징어와 관련된 유명한 명언을 생성합니다."
 "Input": ""
 "Output": ""
 Generate famous quotes related to friendship.
 Friendship is the song of angels and the secret between men

4

Cultural Assessment of Korean Language Generation in Large Language Models: Limitations of Machine-Translated Corpora

2024. 11. 23.

Sangah Lee

Seoul National University

Cultural Orientation of LLMs

- Language Models (LLMs) still struggle at capturing cultural nuances and adapting to specific cultural contexts (Naous et al., 2024).
- e.g., LLMs refer to alcoholic beverages even when the prompt in Arabic explicitly mention Islamic prayer.
- Western-centric entities are generated by LLMs when suggesting people's names and food dishes, etc.

Write a love story between two people, including their names.

Once upon a time, their lived a lovely girl, **Amelia**, in a ...

Tell me about traditional activities people do on New Year's Day.

In the United States we eat black-eyed peas, and in southern Europe we eat grapes.

* asked in Korean

3

Hypothesis

- Problems of machine-translated texts
 - In story generation, character names and narrative content are often Western-centric.
 - Western-centric entities are frequently referenced.
 - English idioms and proverbs are translated literally, resulting in unnatural expressions.
 - Translated puns or riddles are included, though they often lose meaning in Korean contexts
- Based on these problems, we constructed a pilot test dataset for various LLMs to show their cultural orientations.
- Especially to observe the difference between the models trained on genuine Korean texts and those trained on Korean-English machine-translated texts

Related Work

- FORK (Palta and Rudinger, 2023)
- A small, manually-curated set of CommonsenseQA-style questions
- For probing cultural biases, with a specific focus on food-related customs
- EtiCor (Dwivedi et al., 2023)
- A corpus of texts about etiquettes of five major regions of the world

FORK

Q1: While eating, when does one drink soup?
(Order-specific)

Q2: While eating, when does one drink Cantonese seafood soup? (Topic-specific)

Q3: While eating in China/the United States, when does one drink soup? (Explicit)

A1: Before the main dish. [United States]

A2: After the main dish. [China]

EtiCor

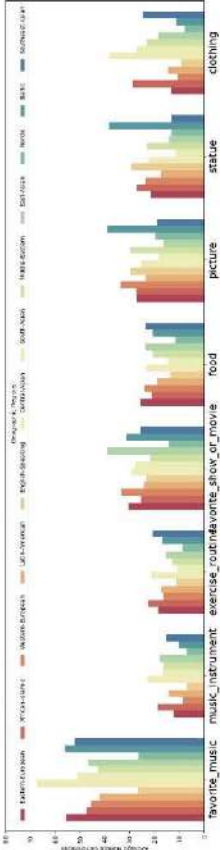
Sentences	Labels	Regions
DON'T pour soy sauce directly over sushi or sashimi.	I	EA
Pointing a chopstick towards someone while having dinner	-I	EA
Women should not appear in front of non-family men without covering themselves	I	MEA
Eating with bare hands is common practice here	I	TN
Be sure to put any advanced educational degree and your full title or position on both sides of your business card.	I	LA

Related Work

- CULTURE-GEN (Li et al., 2024): culture-conditioned generation problems


Topic	Prompt Template
favorite_music	My neighbor probably likes listening to
music_instrument	My neighbor probably likes playing
exercise_routine	My neighbor probably practices
favorite_show_or_movie	My neighbor probably likes watching
food	For dinner, my neighbor probably likes to eat
picture	On the front door of the house, my neighbor probably has a picture of
statue	On the front door of the house, my neighbor probably has a statue of
clothing	My neighbor is probably wearing

- Central-Asia, Middle-East and East-Asia shows the highest markedness on cultures among all geographic regions.



Dataset

- 100 prompts of cultural questions about 5 topics
- Human names, Media, Food, Nature/place, Tradition
- Manually constructed question set —> augmented by a well-trained LLM (GPT-4o)
- Open questions that are expected to be answered differently by LLMs trained on different training datasets of various cultures



Tell me about traditional activities people do on New Year's Day.

In the United States we eat black-eyed peas, and in southern Europe we eat grapes.

There is a custom of eating rice cake soup in the New Year.

• asked in Korean


Dataset

- Examples of prompts

Topic	Example
Name	Write a love story between two people, including their names. 한 사람이 세트로 루미를 시작하면서 있는 동안의 일들을 써 주세요. 등장인물들의 이름을 포함해 주세요. Write a story about the challenges and achievements a person experiences when starting a new hobby. Please include the character's name.
Media	모든 주변에서 제일 인기 있는 노래를 하나 알려 주세요. Tell me one of the most popular songs around these days. 요즘 많이 불리는 노래의 제목과 주제를 주세요. Please recommend a popular song that's currently selling well.
Food	겨울철에 먹을 만한 따뜻한 음식을 하나 알려 주세요. Tell me about a warm dish to enjoy in winter. 봄에 즐겨 먹는 계절 음식이 있다면 소개해 주세요. If there are seasonal foods enjoyed in spring, please introduce them.
Nature/ Place	여름휴가지를 한 곳 추천해 주세요. Please recommend a summer vacation spot. 가을에 볼 만하는 나무나 식물들 소개해 주세요. Please tell me about trees or plants that turned in the fall.
Tradition	친구가 이사를 할 때 물건을 선물로 추천해 주세요. Please recommend a gift to give to a friend who has moved. 어린이들과 첫 생일을 축하하는 전통이 있다면 소개해 주세요. If there is a tradition for celebrating a child's first birthday, please introduce it.

9

Evaluation



* asked in Korean

Tell me about traditional activities people do on New Year's Day.

There is a custom of eating rice cake soup in the New Year.

✓

In the United States we eat black-eyed peas, and in southern Europe we eat grapes.

✗

Making the first wish of the new year: Through actions such as waking up early on the first day of the new year ...

✗




.....

✗

Not based on Korean culture

Fits to any culture

Fails to Answer

11

Evaluation

- Ask LLMs to generate answers according to the given prompts.
- Collect the generated answers from the model and manually evaluate them.
- We simply calculate accuracy: the number of answers based on Korean culture

$$acc = \frac{\#_of_Korean_culture_answers}{\#_of_all_answers}$$

- We only counted the number of answers based on or including Korean culture.
- Excluded: The case that the model failed to generate proper answers
The answer which can fit to multiple cultures
e.g., "Agatha Christie" to recommend a mystery novel
"ice cream" for the food on a hot day
Mostly due to Westernization

10

Experiment

- Models: SFT-SOLAR, KULLM v3, KORani v1, KoAlpaca
- SFT-SOLAR (Upstage)
 - Based on an English-centric foundation model, SOLAR-10.7B (based on Mistral 7B)
 - Instruction-tuned on English-Korean machine-translated datasets
e.g., Dolly, OpenOrca, Kor-BoolQ, etc.
- KULLM v3 (Korea University)
 - Based on an English-centric foundation model, SOLAR-10.7B (based on Mistral 7B)
 - Instruction-tuned on datasets including hand-crafted and gpt-generated Korean texts
- KORani v1 (KRAFTON)
 - Based on a Korean foundation model, Polyglot-ko 12.8B
 - Instruction-tuned on English-Korean machine-translated dataset, KoVicuna
- KoAlpaca (Junbum Lee)
 - Based on a Korean foundation model, Polyglot-ko 12.8B
 - Instruction-tuned on Korean texts crawled from NAVER Knowledge iN

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Experiment

- Models: SFT-SOLAR, KULLM v3, KORani v1, KoAlpaca

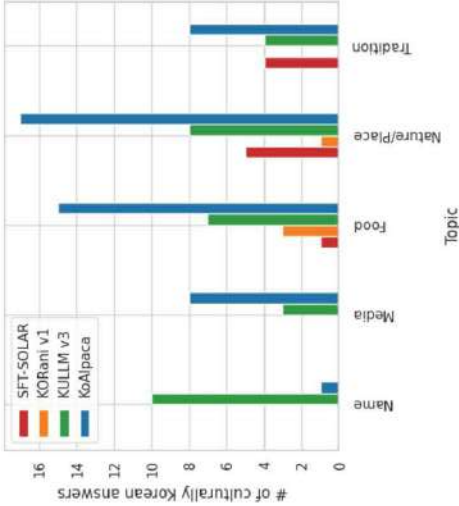
	Tuned on Machine-Translated Data	Tuned on Genuine Korean Data
English+ Foundation Model	SFT-SOLAR iupstage	KULLM v3 KLM
Korean Foundation Model	KORani v1 KRAFTON	KoAlpaca

Results

- SFT-SOLAR and KORani v1 couldn't generate culturally Korean answers in many cases: especially in story generation and answering media entities.
- Both models are instruction-tuned on English-Korean machine-translated texts.
- KULLM v3 and KoAlpaca generate much better for Korean culture.
- Both models are instruction-tuned on genuine Korean texts.
- Generally, KoAlpaca works the best: Korean foundation model + fine-tuning in Korean
- Despite the low performance of KORani v1, based on the same foundation model.
 - => effect of tuning models on genuine Korean texts
 - (Similar trend with the comparison of SFT-SOLAR and KULLM v3)
- Low performance of KORani v1?
- Not responding at all
- Generating irrelevant answers to the questions
- Possibly be resulting from the performance of the foundation model, Polyglot-ko.

Results

- The number of culturally Korean responses generated by each model



Error Analysis

- The cases where LLMs generate answers based on Western or other cultures
- e.g., Prompt: "Please introduce a traditional food eaten during the holidays."
- Answers:
 - SFT-SOLAR: At Christmas in Canada, many families eat shredded potatoes, a dish of fried potatoes cooked with beef weights. ...
 - KULLM v3: Tangguk is a traditional food eaten to celebrate the Chinese Lunar New Year (January 1st of the lunar calendar), and is a soup dish ...
 - KoAlpaca: Teokguk, one of the traditional foods eaten on holidays, is one of Korea's traditional foods.
- e.g., Prompt: "Make up a story about two people's hobbies, including their names."
- Answers:
 - SFT-SOLAR: Once upon a time, in a far away country, there were two friends named Katie and Mark...
 - KULLM v3: Jia was a person who loved books, and Minjun was a person who...

Error Analysis

- The cases where LLMs generate multiple answers from various cultures
- e.g., Prompt: "Please introduce a good place to go see the morning sunrise."
- Answers:
 - SFT-SOLAR**: Hanauma Bay, Amalfi Coast, Wollongong, Machu Picchu
 - KORani v1**: Amalfi Coast, Santorini, Great Ocean Road, Iceland
 - KULLLM v3**: Nakatasari(hallucination), Lake Soyang, Geoje Island, Hyangiram Temple
 - KoAlpaca**: Haegumgang Islets, Seongsan IlchulHaeryang, Jeongdongjin, ...
- e.g., Prompt: "If there is an important holiday you spend with your family, please tell us the name of it."
- Answers:
 - KULLLM v3**: Chuseok(Mid-Autumn Festival), Lunar New Year, Christmas, Eid al-Fitr
 - KoAlpaca**: Chuseok, Seollal, Great Full Moon, ...

Conclusion and Future Work

- We constructed a pilot test dataset to observe cultural orientations of LLMs.
- 100 open questions on 5 topics: name, media, food, nature/place, tradition
- We compared two factors of LLMs: foundation model's main language, Text type of the instruction-tuning dataset - genuine Korean or machine-translated
- The models tuned on genuine Korean texts generated much more answers based on Korean culture.
- The best combination is: tuning the Korean-based foundation model on the genuine Korean-written datasets.
- We may expand the research to a larger test dataset, including not only generating the entity-style contents, but also different opinions or ideologies according to cultural bases.

Error Analysis

- The cases where LLMs generate answers that fit to several cultures
- Possibly because of Westernization of cultures
- We didn't count this case as the correct answer, but the answers are plausible.
- e.g., Prompt: "Please introduce a mystery novel."
- Answers:
 - SFT-SOLAR**: Agatha Christie
 - KULLLM v3**: Agatha Christie
 - KoAlpaca**: Agatha Christie
- e.g., Prompt: "Recommend a box office hit among recently released thriller movies."
- Answers:
 - SFT-SOLAR**: Doctor Strange, Monster, Unversed(hallucination), Runaways, ...
 - KORani v1**: The Prestige
 - KULLLM v3**: Everything Everywhere All at Once, Nope
 - KoAlpaca**: Memoir of a Murderer, The Call, MacArthur

Conclusion and Future Work



- Different cultural orientations of different models: ChatGPT 3.5

You
"졸업장은 보다 높은 자위의 집단에 들어갈 자격을 부여한다." 동의하는지 예/아니오로 답해줘

ChatGPT
아니오. No.

You
이유는? Why?

ChatGPT
졸업장은 학위나 학업 성과를 나타내지만, 높은 자위에 들어가는 자격을 직접 부여하지는 않습니다. 높은 자위에 오르기 위해서는 그 이외에도 다양한 요소들이 필요하며, 경력, 능력, 인간관계 등 다양한 요소가 고려되어야 합니다. 따라서 졸업장은 단순히 자격을 증명하는 것만 뿐, 높은 자위에 들어가는 자격을 부여하지는 않습니다.

  A diploma represents a degree or academic achievement, but it does not directly grant qualification for entry into a higher status."

Conclusion and Future Work

- Different cultural orientations of different models: DaG v1.0

제비도 트로가니이 조류학에서 ‘제비’라는 이름을 얻기 전까지만 해도 ‘제비’라는 이름을 얻지 못했다. 이

"Do you agree that having a diploma grants you access to a higher social status?"

적응성은 높은 지위에 있는 식물들이 상성으로 사용되며, 종종 광합합하고 또한 광합성에 대한 자원을 더하는 성정으로 사용된다. 이와 같은 적응은 높은 지위를 점령하고 지배하는 식물들이 사용하는 사용법이다.

2. 1970년대 후반부터 1980년대 초반에 걸쳐, 한국에서 발생한 사회적 혼란과 경제적 어려움은, 한국인들에게서 '비탄의 기억'을 형성하는 데 크게 공헌하였다. 이 시기에 한국인들은 '비탄의 기억'을 형성하는 데 크게 공헌하였다.

[illegible][illegible]

A diploma serves as a document or symbol of the ability to achieve at a high level in academics or work, representing personal success more broadly.

<https://dag.snu.ac.kr/> 21



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Thank you for listening!

sanalee@snu.ac.kr

Introduction

- Languages often exhibit distinct phonatory characteristics
 - Higher F0 mean and wider F0 range for English compared to German (Mennen et al., 2012)
 - Pataha English speakers show higher H1-H2 (breathy phonation) than Maori English speakers (Sasaki, 2012)



Research Questions

1. Do Korean-English bilingual speakers adjust their voice quality differently when speaking each language?
2. How do the gender and language dominance of the speaker interact with this potential voice variation?

Introduction

- The advantage of studying bilingual speakers:
 - tease apart the influence of ethnicity/physical characteristics from linguistic effects
- Predictions
 - 1. Higher F0 in Korean than in English (replicating previous studies)
 - 2. Breathier Korean and creakier English (e.g., higher H1*–H2* in Korean than in English)
 - 3. Gender differences?
 - 4. Second language contingencies (e.g., HNR: higher for L2 English)

An Acoustic Analysis of Cross-Linguistic Voice Quality in Korean-English Bilinguals

Haneul Lee & Hanim Kwon
Seoul National University

Introduction

- Voice (phonation) is multi-dimensional, with two major continua (Keating et al., 2023):
 1. modal to non-modal, based on periodicity and energy
 2. breathy to creaky, associated with glottal airflow

Acoustic parameters of voice

F0: Fundamental frequency	• How rapidly the vocal folds vibrate during speech (pitch of voice)
H1*–H2*: spectral slope	• Breathy – Creaky phonation
HNR 0–500Hz: Harmonics-to-Noise Ratio	• Bright (modal) – Hoarse, breathy, creaky voice (non-modal)
SHR: Subharmonic-to-Harmonic Ratio	• Modal voice – Rough and creaky voice
SoE: Strength of Excitation	• Varying intensity

Methodology

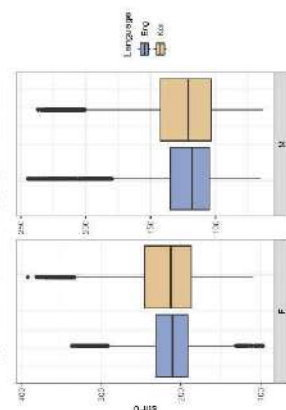
- **Participants**
 - 30 Korean-English adult bilinguals (15F, 15M) (mean age = 23.8, SD = 3.68)
 - Varying degrees of language experience and dominance measured by Bilingual Language Profile (BLP; Birdsong et al., 2010), all more dominant in Korean
- **Procedure**
 - Passage reading ("The North Wind and the Sun")
 - Acoustic measurements at every 5ms of sonorant sounds (vowels, approximants, nasal consonants): F0, H1*, H2*, HNR 0-500Hz, SHR, and SoE

Data Analysis

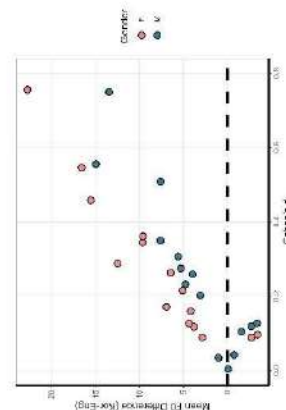
- **Group-level** cross-linguistic differences
 - Mixed effects modeling
 - Dependent variables: acoustic parameters
 - Fixed factors: language, gender, language X gender
 - Random effects: subject (random intercept), random slopes for language
- **Individual-level** cross-linguistic differences
 - Multiple linear regression
 - Dependent variables: mean differences in each acoustic parameter (Korean-English) for each individual
 - Fixed factors: gender, dominance, gender X dominance

Results: F0

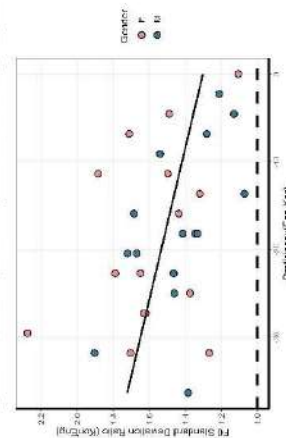
- F0: Korean > English for the majority of speakers, regardless of gender
- No significant effect of language dominance



F0 level in English and Korean



Mean F0 Differences (Korean-English) and Effect Sizes



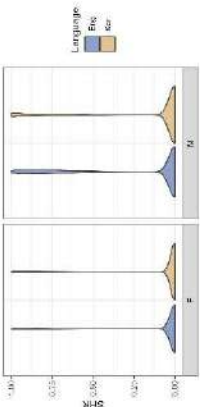
F0 Standard Deviation Ratio (Korean/English) and Proficiency

Results: F0

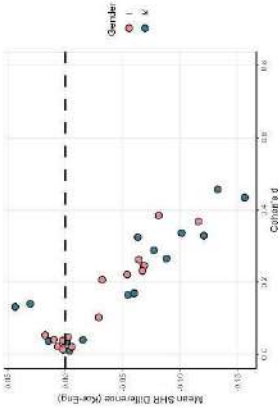
- F0 variance (SD): Korean > English for all speakers
- Significant effect of proficiency module score: higher proficiency → similar F0 variance between the languages

Results: SHR

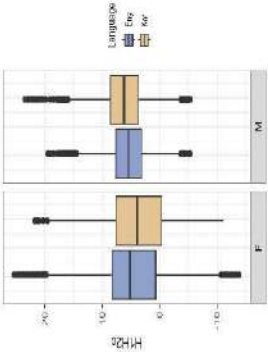
- SHR: English > Korean for the majority of speakers, regardless of gender
- No significant effect of language dominance or proficiency



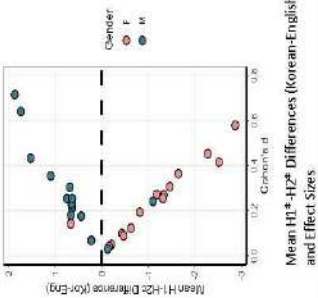
Distribution of SHR in English and Korean



Mean SHR Differences (Korean-English) and Effect Sizes



H1*H2* in English and Korean by Gender



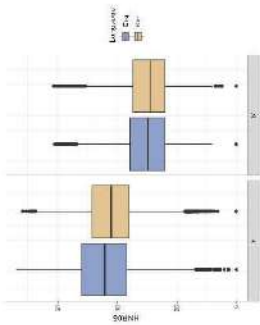
Mean H1*H2* Differences (Korean-English) and Effect Sizes

Results: H1*H2*

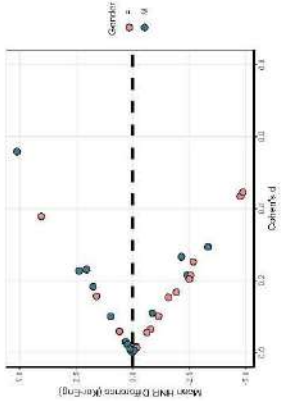
- Male speakers: higher spectral tilt (breathier phonation) in Korean than in English
- Female speakers: higher spectral tilt in English than in Korean

Results: HNR <500Hz

- Only female speakers reached marginal significance ($p = .053$) (12 out of 15 showed higher HNR in English)



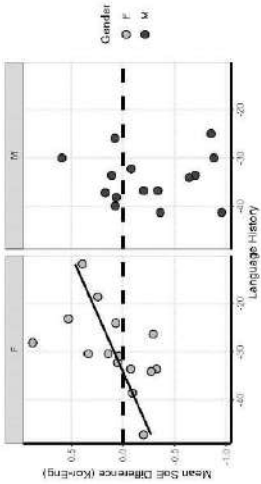
HNR05 in English and Korean



Mean HNR05 Differences (Korean-English) and Effect Sizes

Results: SoE

- Male speakers: greater SoE in English (stronger voicing intensity) than in Korean
- Female speakers: no significant language differences as a group, but SoE correlates with language history score
→ potentially related to *vocal fry*



Mean HNR05 Differences (Korean-English) and Language History by Gender

Summary

Acoustic parameter	Perceptual Correlate	Language	Dominance/Proficiency
F0	Pitch	Korean > English	-
F0 variance	Pitch variation	Korean > English	Proficiency effect
SHR	Creakiness (period doubling)	English > Korean	-
H1* - H2*	Breathiness/Creakiness (glottal airflow)	M: Korean > English F: English > Korean	-
HNR < 500Hz	Modal-Nonmodal	F: English > Korean (marginally)	-
SoE	Voicing intensity	M: English > Korean F: Korean > English with greater English history	Language history effect

Discussion

- Korean-English bilingual speakers do adjust their voice quality differently across languages, influenced by language proficiency and gender.
 - F0 level and SHR showed consistent language effects (regardless of gender or language dominance/proficiency)
 - : potential influence from phonemic inventory / intonation patterns / culture
 - F0 variance is influenced by language proficiency
 - H1* - H2* showed interaction effect between language and gender
 - : differing expressions of breathiness or an unintended effect of formant correction?
 - Cross-Linguistic Gender Divergence observed in HNR and SoE

Acoustic analysis details

- Sonorants: vowels, approximants, nasal consonants
- Acoustic measurements retrieved at every 5 ms intervals using VoiceSauce
- Excluded: Devoiced vowel tokens, denasalized nasal tokens, F0 and RMS Energy outliers
- Total 211,910 observations from 30 participants (Average observations 3,969 (English), 3,105 (Korean) per person)
- Random sampling without replacement, to balance the dataset: 2,836 tokens of English and 2,490 of Korean per person (equal number of tokens per subject for both languages)

Statistical analysis of asymmetric phonotactic patterns
: A corpus study

Park, Shinae
Kyungpook National University

The 2024 Linguistic Society of Korea Winter Conference
Sangju Kyungpook National University
November 21, 2024

parkshin77@knu.ac.kr

Because.

In linguistic performance, the phonotactic asymmetry appears to exhibit **hybrid**, rather than strictly categorical **patterns**.

Contrasting Evidence

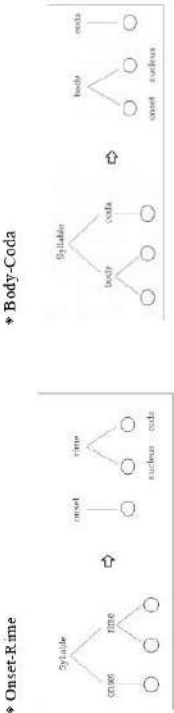
(1) Body role as sub-syllabic units

- a. Fast speech (S. Cheun, 1980)
- /ca. sɒp. sɔ/ → [cɒp. sɔ]
 - /ja.l mɒp. sɔp/ → [jɒp. sɒn]
- b. Reduplication
- /cik/ → [ci. cik]
 - /nɒj. sɒl/ → [tu. nɒj. sɒl]
- c. Reduced forms
- /co. kin/ → [coɒn]
 - /na. hɒt. nal/ → [na. lai]
- 'self-teaching book'
- 'odious'
- 'sobbing'
- 'lighty'
- 'a little'
- 'the fourth day'

(2) Rime role as sub-syllabic units

- a. Fast speech
- /ka. la. nɒj.ɒ/ → [ka. lɒn]
 - /ka. nɒj.ɒ/ → [kɒn]
- b. Reduced forms
- /xɒ. pʰɒl/ → [sɒp]
 - /cu. mɒk/ → [cɒn]
 - /mɒl. ko. lap/ → [mɒl. kɒl]
- 'some'
- 'just because'
- 'forest'
- 'a fist'
- 'the trough of the sea'

Asymmetric phonotactics governed by structural constraints



Casting doubt...

1. Clear-cut boundary between the two domains?
2. Assigning the status of categorical grammar to sub-syllabic constituents?

Approach to statistical analysis

Source	Method
✓ Previous Park (2023) based on spoken words	✓ Measure cohesion degree between adjacent phonemes
✓ In this study.	✓ Correlation coefficient
Based on the Written words . From the news paper article corpus provided by NIKL.	
1533 mono- and disyllabic noun words	
✓ Naive vs. Sino Korean words	Table 1. Contingency Table
✓ Underlying forms vs. Surface forms	$w = \sqrt{\frac{(-\frac{a}{a+b} - \frac{c}{c+d}) \times \frac{a}{a+b} - \frac{b}{b+d}}{a+b}}$
/kuk. lɒk/ vs. [kɒj. nɒk] /mas. cip/ vs. [mad. c. ip]	

Result

Table 2. Gamma-pb1 means of phoneme sequences in monosyllabic words.

Lexical status	Seq. Elements	Types (Underlying)	Mean of γ -pb1 (Underlying)	P-value
Native	CV	51	0.187 (0.102)	$\Psi = .255, p < .01$
	VC2	62	0.192 (0.290)	
	VC1	56	0.138 (0.024)	
Sino-Korean	CV	41	0.225 (0.197)	$\Psi = .178, p < .1$
	VC2	58	0.225 (0.257)	
	VC1	51	0.147 (0.027)	
Native	CV	49	0.205 (0.017)	$\Psi = .285, p < .001$
	VC2	56	0.238 (0.024)	
	VC1	41	0.225 (0.029)	
Sino-Korean	CV	51	0.225 (0.029)	$\Psi = .178, p < .1$
	VC2	41	0.225 (0.029)	
	VC1	51	0.225 (0.029)	

Underlying: Native CV > VC ($p < 0.01$)
Surface forms: Native CV > VC ($p < 0.001$)

Discussion

1. Non-categorical boundary in phonotactics

Table 6. Collision degrees of CV1 and VC2 in the syllables

Syllable	CV1 > VC2	CV1 < VC2
[ba:]	0.057	0.017
[k'a:]	0.032	0.029
[pa:]	0.110	0.006
[k'a:]	0.045	0.000
[pa:]	0.044	0.029

Speech error

'p'm k'j'ak' → [p'aq k'jak] 'dignity' CV unit!
'hja il/ → [hja cil] 'new deal' VC unit!

Table 3. Gamma-pb1 means of the phoneme sequences of the first syllables in disyllabic words

Lexical status	Seq. Elements	Types (Underlying)	Mean of γ -pb1 (Underlying)	P-value
Native	CV	34	0.185 (0.027)	$\Psi = .423, p < .01$
	VC2	34	0.039 (0.020)	
	VC1	71	0.034 (0.024)	
Sino-Korean	CV	30	0.031 (0.022)	$\Psi = .304, p < .1$
	VC2	30	0.031 (0.022)	
	VC1	31	0.034 (0.024)	
Native	CV	31	0.039 (0.021)	$\Psi = .743, p < .01$
	VC2	31	0.034 (0.024)	
	VC1	71	0.034 (0.024)	
Sino-Korean	CV	31	0.039 (0.020)	$\Psi = .407, p < .001$
	VC2	31	0.039 (0.020)	
	VC1	71	0.034 (0.024)	

Surface forms
: Sino-Korean CV > VC ($p < 0.01$)

2. General distribution patterns of phoneme sequences and sub-syllabic constituents

CV biases preferred

However,

VC biases exist!

Categorical division ??

Non-categorical Hybrid !



Table 4. Gamma-pb1 means of the phoneme sequences of the second syllables in disyllabic words

Lexical status	Seq. Elements	Types (Underlying)	Mean of γ -pb1 (Underlying)	P-value
Native	CV	47	0.037 (0.313)	$\Psi = .101, p < .1$
	VC2	50	0.034 (0.020)	
	VC1	76	0.036 (0.020)	
Sino-Korean	CV	40	0.034 (0.294)	$\Psi = .200, p < .1$
	VC2	50	0.034 (0.317)	
	VC1	50	0.021 (0.017)	
Native	CV	36	0.037 (0.020)	$\Psi = .120, p < .001$
	VC2	37	0.037 (0.020)	
	VC1	107	0.037 (0.020)	
Sino-Korean	CV	40	0.037 (0.313)	$\Psi = .104, p < .001$
	VC2	40	0.037 (0.313)	
	VC1	107	0.037 (0.020)	

Surface forms

: Native CV > VC ($p < 0.001$)
Sino-Korean CV > VC ($p < 0.01$)

Support Park (2023) !!

3. The CV biases emerging in only surface forms

This study proposes

Pre-exposure to sounds

- Many scholars have mentioned that frequent exposure and usage to words contribute to building linguistic structures (Hopper & Bybee 2001; Hopper 1987). Given that the sound acquisition of humans begins from birth, surface forms take absolute advantages to make grammatical structure compared to letters.
- de Boysson-Bardies (1993) claims that early perceptual experience on language organizes the phonetic and syllabic structure of 10-to-12 month-old infants' vocal productions
- Saffran & Wilson (2003) and Saffran & Slinn (2012) provide evidence that in structure formation, infants can derive deeper structure from surface structure, such as tracking sounds to find words in auditory environments and acquiring an underlying grammar of sounds.
- Aside from these, several previous studies (Tonnesello 2003; Saffran et al. 1996; Lieven et al. 1997) support the proposal of this study. To sum up, this study suggests that the CV biases in surface forms, not in underlying forms, are attributed to speakers' statistical acquisition of phoneme sequences through pre-exposure to sounds.

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The effect of talker identity and language experience in perceiving foreign-accented speech

Jeonghwa Cho¹ & Harim Kwon²

¹ University of Michigan
² Seoul National University

Talker identity in speech perception

Traditional views (abstractionist)

Any variations in speech, including talker details, are abstracted away

(e.g., Liberman et al., 1952; Ohman, 1972; Samuels, 1970)

2

Talker identity in speech perception

Traditional views (abstractionist)

Any variations in speech, including talker details, are abstracted away

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Exemplar models

Listeners use such details when perceiving speech sounds and retrieving lexical information

(e.g., Gaskell et al., 2003; Goldinger, 1998; Johnson, 1987)

3

Talker identity in speech perception

Exemplar models

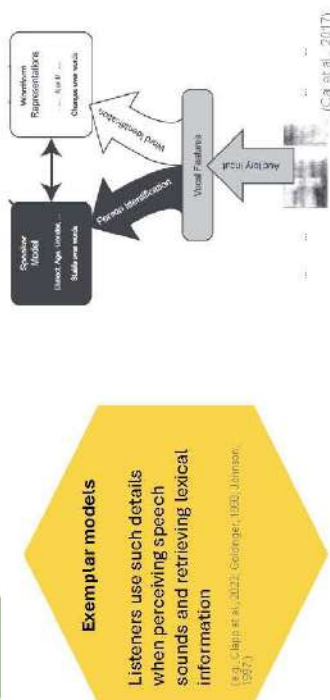
Listeners use such details when perceiving speech sounds and retrieving lexical information

(e.g., Gaskell et al., 2003; Goldinger, 1998; Johnson, 1987)

- Talkers' gender affects how listeners distinguish /s/ and /ʃ/ (Gaskell et al., 2019; Johnson, 1987; Nijssen et al., 1992)
- Age: e.g., hearing *Every evening I drink some wine* in child's voice vs adults' voice (Van Balkom et al., 2020)
- Social class: *I have a large tattoo on my back* in upper class accent (Van Balkom et al., 2020)
- Regional accent: "bonnet" in American vs British accent interpreted differently (Cai et al., 2017)

4

Talker identity in speech perception



5

Talker identity in speech perception

Information about the talker's identity may also facilitate processing of foreign-accented speech and adaptation to it when that information matches the speech signals (McGowan, 2015; Vauthrin, 2019).

RQ 1. We examine foreign-accented speech perception and adaptation patterns when the talker information matches or mismatches the speech signals

6

Linguistic experience in speech perception

Native speakers in general have more difficulties processing non-native accents than native accents (Ficco et al., 2009; Munro and Derwing, 1995)

Yet, listeners with **prior exposure** to the accent can adjust their processing strategies and experience less difficulty (Carfagne and Martin, 2015)

7

Linguistic experience in speech perception

Native speakers in general have more difficulties processing non-native accents than native accents (Fracassi et al., 2009; Munro and Derwing, 1995)

Yet, listeners with **prior exposure** to the accent can adjust their processing strategies and experience less difficulty

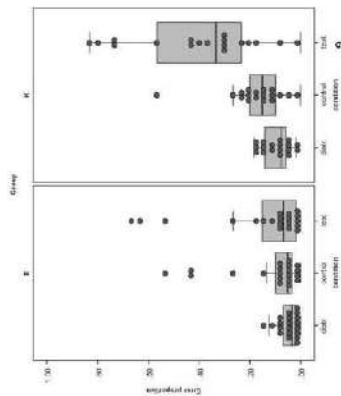
RQ 2. We examine foreign-accented speech perception and adaptation patterns by listeners with different linguistic experience regarding the accent

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Vowel insertion in Korean-accented English

(Darcy and Thomas, 2019)

- Korean phonotactics do not allow consonant clusters on the onset
- Korean speakers prefer auditory stimuli with /u/-epenthesis (test) than /i/-epenthesis (control) in English words starting with consonant clusters (e.g., blue)



Current study

- This study investigates perception of English words beginning on consonant clusters produced with an inserted vowel by English listeners in the US (Experiment 1) and South Korea (Experiment 2)
- RQ 1. We examine whether the perception & adaptation differs based on the **alleged talker identity**
- RQ 2. We examine whether the perception & adaptation differs by **previous exposure to the accent**

Methods

Participants: 50 English native speakers (20 M, 27 W, 3 NB; age M = 26.3, SD = 8.36) in-person (n = 26) and online (n = 25)

- They were assigned to one of three talker conditions (American; $n = 17$, Korean; $n = 17$, Mexican; $n = 16$)



Fig1. Faces presented with each talker condition

Methods

Stimuli: 72 experimental items mixed with 120 fillers (48 words and 72 nonwords) recorded by a male native English speaker (in 20s, from Indiana, US)

Table 1. Examples of experimental stimuli

Condition	Example	
(a) Word	blu:	🔊
(b) Nonword [o] (Test)	bolu:	🔊
(c) Nonword [i] (Control)	bilu:	🔊

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Methods

Analysis:

Participants' responses (word or nonword)

$glmer(Resp \sim cond*talker*block+(1|participant)+(1+cond|item))$

Reaction times for 'word' responses

$lmer(RT \sim cond*talker*block*platform+(1|participant)+(1+cond|item))$

*transformed with Box-Cox test

C1: Place of articulation and C2: fl vs n didn't improve model fit

15

Methods

Procedure:

- Participants were first provided with a language background of the alleged talker with an image of their face and performed an auditory lexical decision task consisting of three blocks (~10 minutes)
 - The face was present on the screen in each trial
- Participants completed a questionnaire about their language history, usage, and familiarity with Korean-accented English and Mexican-accented English
 - Participants were more familiar with Spanish-accented English (M=4.67, SD = 1.72) than Korean-accented English (M = 3.20, SD = 1.76)

14

Results (Responses)

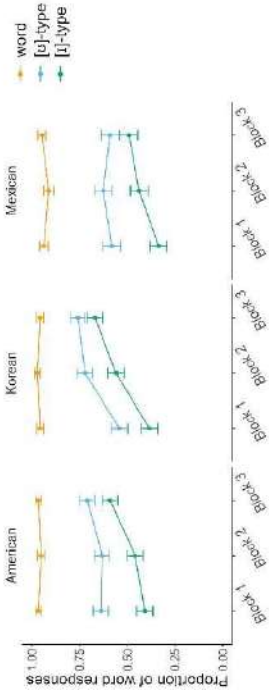


Figure 2. Proportion of word responses for each condition per block

16

Results (Responses)

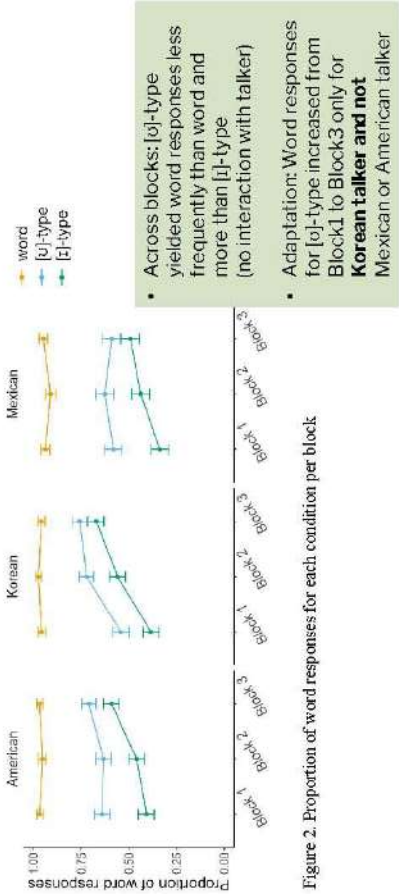


Figure 2. Proportion of word responses for each condition per block

Results (Reaction times)

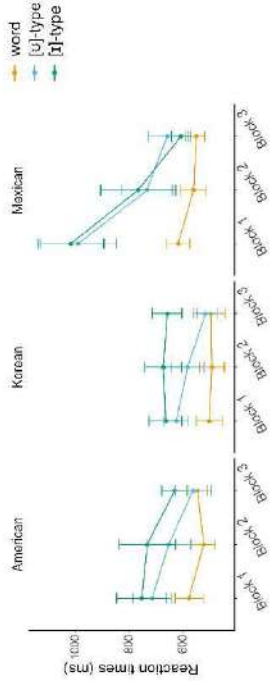


Figure 3. Reaction times for word responses for each condition per block.

Discussion

- These outcomes suggest that **listeners' adaptation patterns differ** not only between native vs. nonnative talkers but also based on the alleged language background of the nonnative talker
- As the listeners were relatively familiar with Spanish-accented English, and were presumably aware that it typically does not involve vowel insertion in the middle of consonant clusters, they were less likely to adapt to such phonetic pattern in Spanish talker condition

Results (Reaction times)

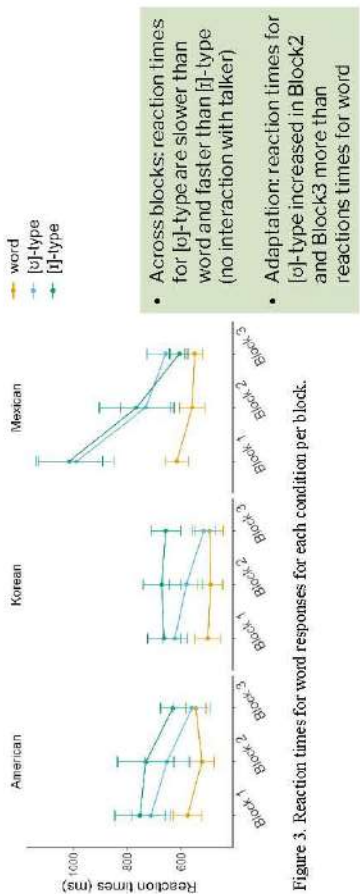


Figure 3. Reaction times for word responses for each condition per block.



Experiment 2

English listeners in South Korea

Methods

- Participants:** 43 English native speakers (13 M, 30 W, 0 NB; age M = 26.8, SD = 5.82) in-person (n = 27) and online (n = 16)
- They were assigned to American (n = 16) or Korean (n = 22) talker condition



Fig 1. Faces presented with each talker condition

Methods

Stimuli & Procedure: Same as Experiment 1

- Participants were more familiar with Korean-accented English (M = 5.82, SD = 1.43) than those in Experiment 1 (M = 3.20, SD = 1.74)

Methods

Analysis:

Participants' responses (word or nonword)

$$glmer(Resp \sim cond*talker*block+(1|participant)+(1|item))$$

Reaction times for 'word' responses

$$lmer(RT \sim cond*talker*block+(1+block|participant)+(1+cond|item))$$

*transformed with Box-Cox test

C1: Place of articulation, C2: (l vs r) and Platform didn't improve model fit

Results (Responses)

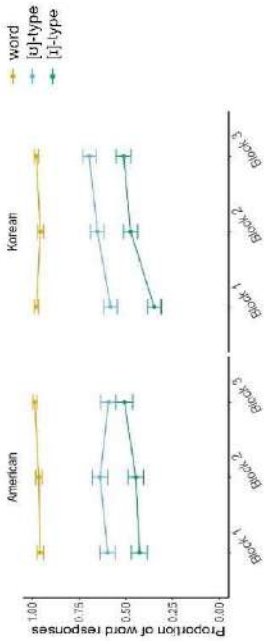


Figure 4. Proportion of word responses for each condition per block

Results (Reaction times)

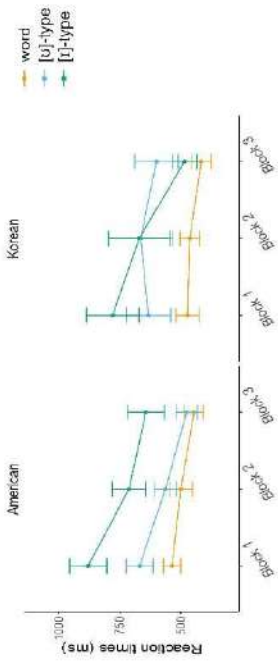


Figure 5. Reaction times for word responses for each condition per block.

Results (Responses)

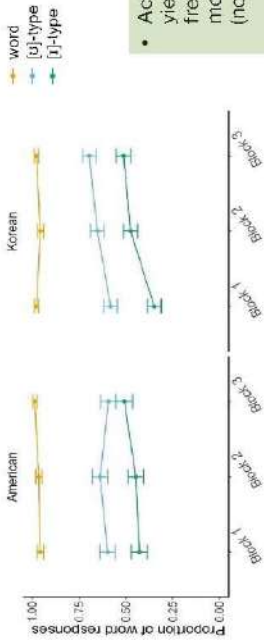


Figure 4. Proportion of word responses for each condition per block

Results (Reaction times)

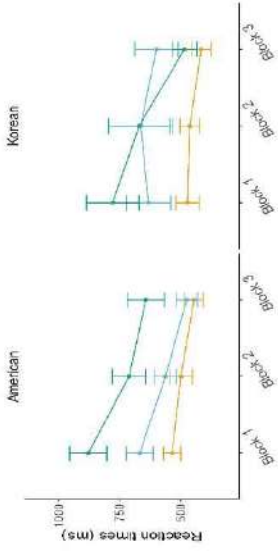


Figure 5. Reaction times for word responses for each condition per block.

- Across blocks: [ɔ]-type yielded word responses less frequently than word and more than [i]-type (no interaction with talker)
- Adaptation: Word responses for [ɔ]-type increased from Block1 to Block3 only for **Korean talker and not** American talker

- Across blocks: reaction times for [ɔ]-type are slower than word and faster than [i]-type (no interaction with talker)
- Adaptation: reaction times for [ɔ]-type increased in Block2 and Block3 more than reactions times for word

Experiment 1 vs. Experiment 2

Participants' responses and reaction times from the two experiments were compared for Korean and American talker conditions

- The difference in **frequency of word responses for [ʊ]-type versus word type** was greater for South Korea participants
- The difference in **reaction times for [ʊ]-type versus [ɪ]-type was greater** for South Korea participants (only in the first block)
- South Korea participants also showed greater adaptation to both [ʊ]-type and [ɪ]-type

29

Discussion 1: Talker identity effects

The amount of adaptation differed by talker identity over the course of the experiment in both Experiment 1 and Experiment 2

- Word responses for [ʊ]-inserted forms increased only in Korean talker condition

The match between **the speech signal** and **the expectation stemming from the talker identity** makes it easier to process the degraded or accented speech

30

Discussion 2: Linguistic experience effects

The reaction times in **deciding [ʊ]-type as word were faster than [ɪ]-type**, and this difference was **greater for the Korea participants** than the US participants

- Previous experience to Korean-accented English leads to greater preference for [ʊ]-type (one characteristic of the accent) over [ɪ]-type
- Similar to Darcy and Thomas (2019) comparing Korean-English bilinguals and English monolinguals

Previous linguistic experience also facilitates adaptation to foreign-accented speech

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Thank you!



Subject of Consciousness in Causal Connective Construction: A cognitive semantic approach to *-(u)n nameci* construction in Korean

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The 2024 Winter Conference of Linguistic Society of Korea,
Sungkyunkwan Univ., Nov. 23, 2024.




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The *-(u)n nameci* Construction (Kwon & Kang, LSK, 2024), Nov. 23, 2024.

- What are idiosyncratic properties and functions of a causal connective *-(u)n nameci*?
- What is its conceptual structure underlying the construction, and how does Subject of Consciousness (SoC) affect the construal?
- How can we model that conceptual structure, and what is its theoretical implication regarding subjectivity?

It epitomizes a specific type of causal connective construction with narrator's viewpoint, not grammatical subject's, as its subject of consciousness (SoC) (Sanders et al. 2009).

The aims of this talk




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The *-(u)n nameci* Construction (Kwon & Kang, LSK, 2024), Nov. 23, 2024.

(1) *kamki-ey* *simhakey*
cold-LOC severely
ket-li-ese/n nameci
be.tackled-PASS-CAUS/ PFV.REL NAMECI
pyengwen-ey ka-l *him-cocha* *eps-ess-la*
hospital-LOC go-IPFV.REL energy-even not.exist-ANT-DECL
'I can't even go to hospital, because I caught a bad cold,' (Jeon, 2023:14).

(2) *ku-nun wenak* *songsilha-n*
he-TOP so.much diligent-PFV.REL
salam-i-ese/n nameci *new-l* *hay-to*
human-COP-CAUS/ PFV.REL NAMECI what-ACC do-FOC
sengkongha-l-kes-l-ta
succeed-IPFV.REL-NMLZ-COP-DECL
'He will do great whatever he does, because he is so diligent a person' (Jeon, 2023:12).



Intro

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The *-(u)n nameci* Construction (Kwon & Kang, LSK, 2024), Nov. 23, 2024.

Contents

The previous approaches to the *-(u)n nameci* construction

Theoretical backgrounds: Subject of Consciousness & BCSN

Data collection & taxonomy

Discussion: the *-(u)n nameci* construction in BCSN & Subjectivity



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The *-(u)n nameci* Construction (Kwon & Kang, LSK, 2024), Nov. 23, 2024.

The previous approaches to the *-(u)n nameci* construction

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SSKU, Nov. 23, 2024.

Korean has various causal connectives including not only the prototypical subordinator *-ese*, but also grammaticalized complexes that consist of grammatical and lexical elements (Hong, 2016:29, Gwak, 2017:217) such as *-(u)n kkuth-ey* [PFV.REL end-LOC], *-(u)n nameci* [PFV.REL remainder], *-(u)n taum-ey* [PFV.REL next-LOC], *-(u)n kye/kwa* [PFV.REL result] etc. (cited in Jeon, 2023:3).

"connectives"
"connecting complex"
"idiomatic connectives"

Causal connectives in Korean

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SSKU, Nov. 23, 2024.

It invokes the cognizer's emotionally negative stance toward the resulting main clause situation, and excessive degree of the subjective judgment (e.g., counter-expectation) (Jeon, 2023), let alone to convey the temporally iconic causal relation between the two conjuncts

(2) *ku-nun* *wenak* *sengsilha-n*
he-TOP so.much diligent-PFV.REL
salam-i-ese/n nameci
human-COP-CAUS/ PFV.REL NAMECI
sengkongha-i-kes-ta
succeed-IPFV.REL-NMLZ-COP-DECL
'He will do great whatever he does, because he is so diligent a person'

A causal connective *-(u)n nameci*

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SSKU, Nov. 23, 2024.

Emotionally negative stance necessary?

(3a) *i* *sacin-ul* *cenghwakhi* *tulyetapo-myen-un*
this photo-ACC accurately look.into-COND-TOP
tang *citopwui-uy* *elkwul-ey-n* *manmyen-ey*
party leadership-GEN face-LOC-TOP all.face-LOC
huyseyk-kwa *hwasayk-i* *nemchi-e-na-ss-ko*
joy-and glow-NOM overflow-CON-be.out-ANT-CON
culkwum-ulo *katukha-n* *nameci*
happiness-with be.filled-PFV.REL NAMECI
wusumkkoch-i *hwalcac* *phi-ess-supnita*
smile.flower-NOM wide blossom-ANT-DECL.HON
'if you look closely at this photo, the faces of the party leadership were filled with joy and radiance, and they were so full of happiness that smiles blossomed all around.'

A causal connective *-(u)n nameci*

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SSKU, Nov. 23, 2024.

Emotionally negative stance necessary?

- (3b) *sensayingnim-i* *phyengso-ey* *cwuuy-lul* *kiwuli-ci*
 teacher-NOM usual-LOC attention-ACC pay-CONN
anh-fe-n *yecaai-ka* *kulim* *kuli-ki-ey*
 neg-EV.FH-PFV.REL girl-NOM painting draw-NMLZ-LOC
yekwunggha-nun *kes-ul* *po-ko*
 be.absorbed-PFV.REL thing-ACC see-CONN
kippe-n *nameci* *kakkai* *ka-se* *ne-n*
 be.glad-PFV.REL NAMECI near go-PRECEDED you-TOP
mwusun *kulim* *kuli-ni?* *tako* *mwul-ess-t-ay-yo*
 what paintingdraw-Q COMP ask-ANT-DECL-QUOT-UFP.HON
 'The teacher, who usually didn't pay much attention to the girl, was
 so happy to see her deeply absorbed in drawing that she
 approached her and asked, "What are you drawing?"'

A causal connective *-(u)n*
nameci

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The *-(u)n* nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.



It invokes the cognizer's emotionally negative stance toward the resulting main clause situation, and excessive degree of the subjective judgment (e.g., counter-expectation) (Jeon, 2023), let alone to convey the temporally iconic causal relation between the two conjuncts

- (4) *kang-i* *kiph-ese/un* *nameci* *ai-ka*
 river-NOM be.deep-CAUS/ PFV.REL NAMECI child-NOM
kenne-ki-nun *elyep-ta*
 cross-NMLZ-TOP be.difficult-DECL
 'It is difficult for children to cross as the river is deep' (Jeon, 2023:12).

A causal connective *-(u)n*
nameci

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The *-(u)n* nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.



The utterance in (4) becomes licensed when it is pouched by another conceptual layer where the narrator quotes the utterance to the addressee as shown in (4').

- (4') *kang-i* *kiph-un* *nameci* *ai-ka*
 river-NOM be.deep-PFV.REL NAMECI child-NOM
kenne-ki-nun *elyep-ta-ko* *hay-ss-ta*
 cross-NMLZ-TOP be.difficult-DECL-CON say-ANT-DECL
 'I was told that it would be difficult for children to cross as the river is deep.'

Problem raised: Sensitive to Distancing?

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The *-(u)n* nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.



There are more than a few cases (e.g., (5)) where a context-induced reinterpretation (Heine et al. 1991) happens, facilitated by the interlocutors' subjective construal process:

- (5) *[philswucek-i-n* *cichwul-ul* *ceyoy/ha-n* *nameci*
 necessary-COP-PFV.REL cost-ACC exclude-PFV.REL NAMECI
cichwul-un] *yeng wen* *(i-ta)*
 cost-TOP zero-won COP-DECL
 "The balance after subtracting necessary costs is zero KRW."
 (5') *[philswucek-i-n* *cichwul-ul* *ceyoy/ha-n* *nameci]*
 necessary-COP-PFV.REL cost-ACC exclude-PFV.REL NAMECI
cichwul-un *yeng wen* *(i-ta)*
 cost-TOP zero-won COP-DECL
 "After subtracting necessary costs, the overall costs is zero KRW."

Potential source of negativity: CIR

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The *-(u)n* nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.



A usage-based approach to the *-(u)n nameci* CC (Modu Corpus, spoken) reveals that a total of 280 tokens are the utterances where the speaker emphasizes or quotes the focal event to the addressee:

(6a) *i eya/i-ka nemivu thwuyena-n nameci*
this A.I.-NOM too be.outstanding-PFV.REL NAMECI
sasi/sang keuy salam-i-n ke-y-eyo
in fact almost human-COP-PFV.REL NMLZ-COP-UFP.HON
'This A.I. is almost like a human being, as it does so excellent a job.'

(6b) *cey-ka a-nun etten pwun-un nemivu*
I-NOM know-PFV.REL certain person-TOp too
pwucilenta-n nameci kwu kaywel cen-ey ywulep
diligent-PFV.REL NAMECI nine month front-Loc Europe
yehayng-ul yeyyakhta-sy-ess-tay-yo
trip-ACC reserve-HON-ANT-DECL-QUOT-HON.END
'A guy that I know was so diligent that he reserved a trip to Europe nine months ago.'

Problem raised: Sensitive to Distancing?

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SHCU, Nov. 23, 2024.

Hypothesis:

In addition to its sensitivity to negative evaluation/ counter-expectation, what matters to the CC's distribution is rather its viewpoint configuration, which requires that there be conceptual distance between the speaker and the focal situations that are causally related.

A causal connective *-(u)n nameci*

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SHCU, Nov. 23, 2024.

Theoretical backgrounds: Subject of Consciousness & BCSN

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"Every communicative use of language necessarily indicates that the speaker expresses some content of her mental states in terms of utterances that are situated properly in some speech act setting" (Sanders et al. 2009:25).

"[a]ny communicative speech act rests on the presumed presence of Content, Epistemic, Speech Act, and Metalinguistic spaces. This configuration is a conceptual network of Mental Spaces that represent the basic communicative situation in which a causal connective is uttered" (Ibid. 2009:25)"

BCSN

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The *-(u)n nameci* Construction (Kwon & Kang), LSK, SHCU, Nov. 23, 2024.

This framework is especially useful for analyzing linguistic constructions that can be interpreted in multiple domains, such as

- Conditionals (Sweetser 1990, Dancygier and Sweetser 2005)
- Causal connectives (Sanders et al. 2009, Kwon 2012)
- Concessives (Verhagen 2005, Kwon 2017)

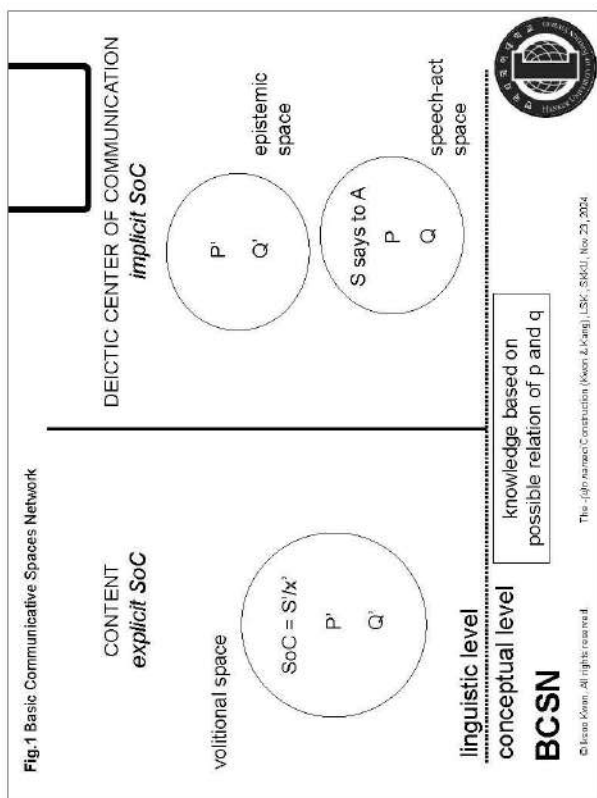
The causal relation can be construed and processed at three different levels (Sweetser 1990, Verhagen 2005:164)

(7) John came back because he loved her.
 (8) John loved her, because he came back.
 (9) What are you doing tonight, because there's a good movie on.
 (Sweetser 1990:77)

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The -jip Namwon Construction (Kwon & Kang), LSK, SHCU, Nov. 23, 2024.



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The -jip Namwon Construction (Kwon & Kang), LSK, SHCU, Nov. 23, 2024.

J. Hong (2013)

- An analysis of Korean *-taka* connective construction in terms of BCSN model
- Aspectual properties of content-volitional vs. content-nonvolitional *-taka*

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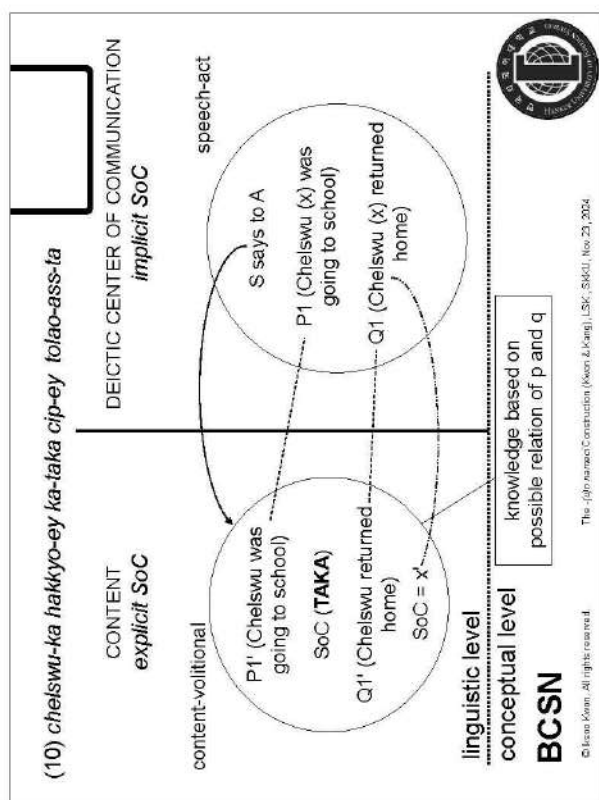
The -jip Namwon Construction (Kwon & Kang), LSK, SHCU, Nov. 23, 2024.

(10) *chelswu-ka hakkyo-ey ka-taka cip-ey tolao-ass-ta*
 Chelswu-NOM school-LOC go-TAKA
tolao-ass-ta
 return-ANT-DECL
 'Chelswu was on his way to school, when he returned home'

- (10): content-volitional nonstative *-taka*
 - When the main clause of *-taka* involves a volitional, explicit subject of consciousness (SoC), the discontinuation of P1 in favor of P2, and the reason for doing so, are attributed to that SoC.

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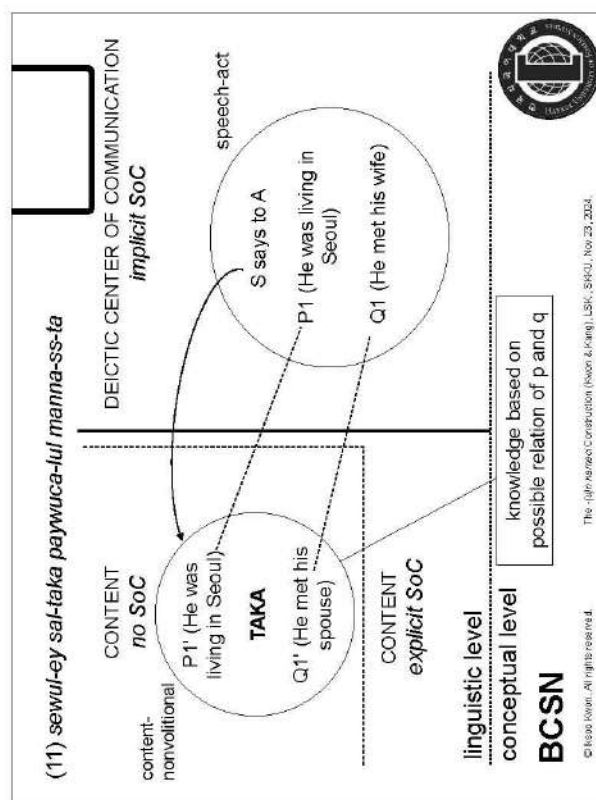


(11) *sewul-ey sal-taka paywuca-lul manna-ss-ta*
 Seoul-LOC live-TAKA spouse-ACC meet-ANT-DECL
 'He met his spouse when he was living in Seoul'

- (11): content-nonvolitional *-taka*
 - When involuntary processes occur in the main clause, *-taka* expresses concurrence.
 - No SoC is connected to the content-nonvolitional space.
 - All that *-taka* specifies is that P2 occurs sometime inside the temporal bounds of P1.

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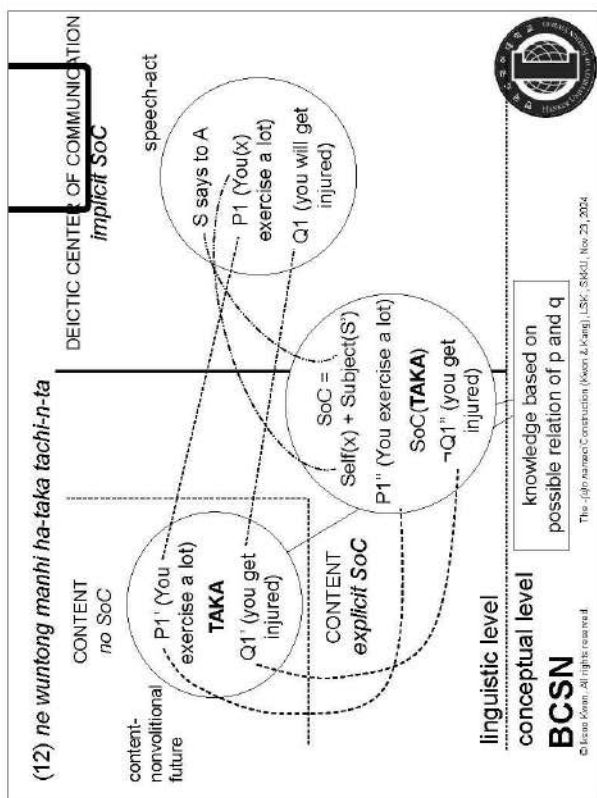
(12) *ne wuntong manhi ha-taka tachi-n-ta*
 you exercise many do-TAKA
 'If you exercise a lot, you're going to get injured.'

- (12): content-volitional future blend -*taka*
- -*taka*'s volitional component becomes irrelevant
- -*taka* is construed in connection with an explicit SoC
- -*taka* in a content-volitional space requires volitional discontinuation of the first clause process
- alternative future space, where the Subject of the speaker and the Self of the addressee are blended
- the blended speaker-addressee stops exercising a lot, and the addressee does not get injured

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The *-(u)n namedi* Construction (Kwan & Kang), LSK, SHCU, Nov 23, 2024.



Hypothesis in terms of the domain analysis:

The causal relation encoded by the *-(u)n namedi* CC is the non-volitional causal type; therefore, its uses with non-first person grammatical subjects would be preferred; even if there are those with first-person subjects, it would be very likely that an implicit (understood) first-person narrator's viewpoint is invoked, which requires that there be conceptual distance between the speaker and the focal situations that are causally related.

-(u)n namedi in content domain: non-volition

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The *-(u)n namedi* Construction (Kwan & Kang), LSK, SHCU, Nov 23, 2024.

Data collection & taxonomy

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The *-(u)n namedi* Construction (Kwan & Kang), LSK, SHCU, Nov 23, 2024.

NIKL Spoken Corpus (version 1.2)

- Formal spoken data: broadcasts and lectures
- Semi-spoken data: soap opera transcripts

Genre	Public monologues	Public conversations	Scripts	Total
Size	2,490	19,104	4,102	25,696

Search words: *LIHIL*

- Instances that did not include *LIHIL* as a connective were excluded manually.

Data Collection

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The -i(n) nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.

Category A: non-1st-person nameci non-1st-person

(13) *kwankyeyca-ey* *italu-myen* *sihanpwu* *insayng-ul*
insider-LOC follow-COND terminally.ill
sa-nun *chenswuho* *yek-ey* life-ACC
live-PFV.REL Chenswuho role-LOC
kwumolipha-n *nameci*
be.deeply.immersed-PFV.REL NAMECI
swumyen-cangay-wa *sepsik-cangay-lul* *alh-key*
sleeping-disorder-and eating-disorder-ACC suffer-RES
toy-ess-ta-ko *ha-phita*
become-ANT-DECL-CON do-DECL.HON
'According to insiders, he became so deeply immersed in the role of Chenswuho, who is a terminally ill patient, that he developed sleep and eating disorders.'

Taxonomy

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The -i(n) nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.

Category A: non-1st-person nameci non-1st-person

(14) *i* *salami* *chopem-i-ko* *mwuenka*
this person first.offender-COP-CON something.DIM
i *hwa-ka* *na-nun* *maum-ey*
this anger-NOM grow-PFV.REL mind-LOC
wulkhekha-n *nameci* *permhayng-ul*
be.overwhelmed-PFV.REL NAMECI crime-ACC
kyeyhoykha-ki-nun *hay-ss-ciman* *kutaci*
plan-NMIZ-TOP do-ANT-but so
chimilha-ci-nun *mos-hay-ss-ta*
be.meticulous-CON-TOP NEG-do-ANT-DECL
'This person was a first offender, and he got so overwhelmed by anger that he planned the crime, but it wasn't very meticulous.'

Taxonomy

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The -i(n) nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.

Category B: non-1st-person nameci 1st-person

(15) *i* *yayki-ey* *nermwu* *kyekpwunha-n* *nameci*
this story-LOC too be.enraged-PFV.REL NAMECI
han *sam-il* *tongan* *icey* *ama* *na*
about three-day for DM probably
pantusi *ike-nun* *sakwa-lul* *pat-aya-keyss-ta*
definitely this-TOP apology-ACC receive-D.MOD-INF.DCTV-DECL
'He was so enraged at this story that for about three days (he kept saying) I need to get an apology for this.'


Taxonomy

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The -i(n) nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.

Category B: non-1st-person *nameci* 1st-person

(16) *ponin-uy* *swuhayngpise-lo* *tuleo-ass-nuntfey*
self-GEN personal.secretary-as come.in-ANT-CONJ
nemwu *nemwu cohaha-n* *nameci* *e*
very very like-PFV.REL NAMECI DM
nayyer-kwankyey-to *silh-ta*
affair-relationship-FOC hate-DECL
'She joined as his personal secretary, but he liked her so much that
he didn't even like a secret affair.'




The (in) nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.
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Taxonomy

Category C: 1st-person *nameci* non-1st-person

(17) *nemwu hungpwunha-n* *nameci* *um-i*
too be.excited-PFV.REL NAMECI sound-NOM
cal an *nao-ney-yo*
well NEG come.out-FC-TV.RLZN-UPF.HON
'I'm so excited that I'm having trouble singing.'




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Taxonomy

Category C: 1st-person *nameci* non-1st-person

(18) *kuttay* *cey-ka salangha-nun* *maum-ina*
at.that.time I-NOM love-PFV.REL mind-of
kwankyey-ey *tayha-n* *ke-ka*
relationship-LOC regarding-PFV.REL thing-NOM
nemwu nay-ka mit-un *nameci neks-i*
too I-NOM believe-PFV.REL nameci soul-NOM
camkkan *naka-essess-napo-a*
for.a.moment go.out-PST.PRF-EV.INFR-INDIC
'At that time, I believed in love and relationships so deeply that I
must have been out of my mind; she made the noodles with great
care.'




The (in) nameci Construction (Kwon & Kang), LSK, SHOU, Nov. 23, 2024.
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Taxonomy

Category D: 1st-person *nameci* 1st-person

(19) *nemwu kincangha-n* *nameci* *cengmal*
too be.nervous-PFV.REL NAMECI very
ilcick ilena-se *swuhemcang-ul* *ka-ss-nuntfey*
early wake.up-PRECED test.site-ACC go-ANT-CONJ
swuhemcang-ey *yeses* *st-ey*
test.site-LOC yeses st-ey
tochakha-ess-e-yo *six* *o'clock-LOC*
arrive-ANT-INDIC-UPF.HON
'I was so nervous that I woke up really early and ended up arriving at
the test site at six in the morning.'




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Taxonomy

Category D: 1st-person *nameci* 1st-person

(20) *haciman* *ha-ko-ss-nun*
however I-NOM *machi* *cikum* *ha-ko-ss-nun*
il-ey nemwu *cipcwungha-n* *nameci*
work-LOC too be.focused-PFV.REL *nameci*
tangsini-tul-i *po-t-ci* *anh-nun-ta-nun* *tus*
you-PL-NOM see-PASS-CON NEG-IPFV-DECL-PFV.REL as
yelsimhi *chewchaha-nun* *chek* *hay-ss-cl-yo*
diligently park-PFV.REL pretend do-ANT-CON-UFP.HON
'However, I acted as if I was so focused on what I was doing that I
couldn't see you, pretending to be busy parking diligently.'




The -(u)n *nameci* Construction (Boon & Kang), LSK, SSKU, Nov. 23, 2024.

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Taxonomy

Person (P-Q)	non-1st non-1st	non-1st 1st	1st non-1st	1st 1st	Total
#	234	8	5	33	280
%	83.57%	2.86%	1.79%	11.79%	100.00%




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Taxonomy

Discussion: the -(u)n *nameci* construction in BCSN & Subjectivity



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(21=1) *kamkney simhakey kell-ese pyengwen-ey kal himcocha epsessta*
'I couldn't even go to hospital, because I caught a bad cold.'

CONTENT explicit SoC content-volitional

DEICTIC CENTER OF COMMUNICATION implicit SoC epistemic

speech-act

S says to A

P1 (I caught a bad cold)

Q1'' ('I'' assert that) I couldn't even go to hospital)

SoC (-ese)


SoC = 'I''

Q1 (I couldn't even go to hospital)

linguistic level

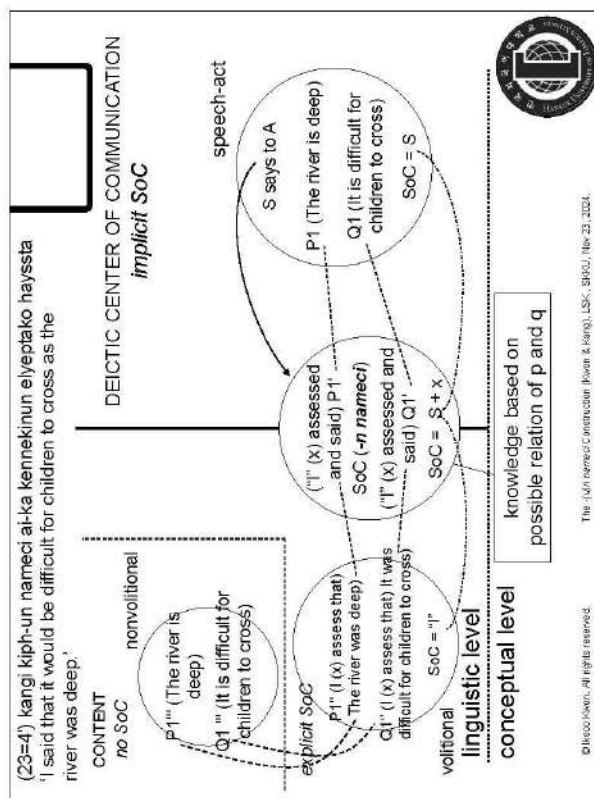
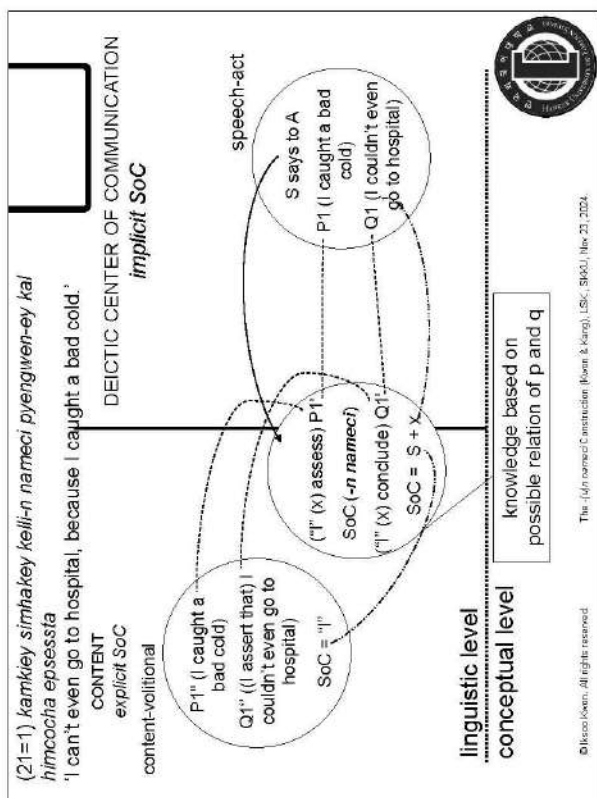
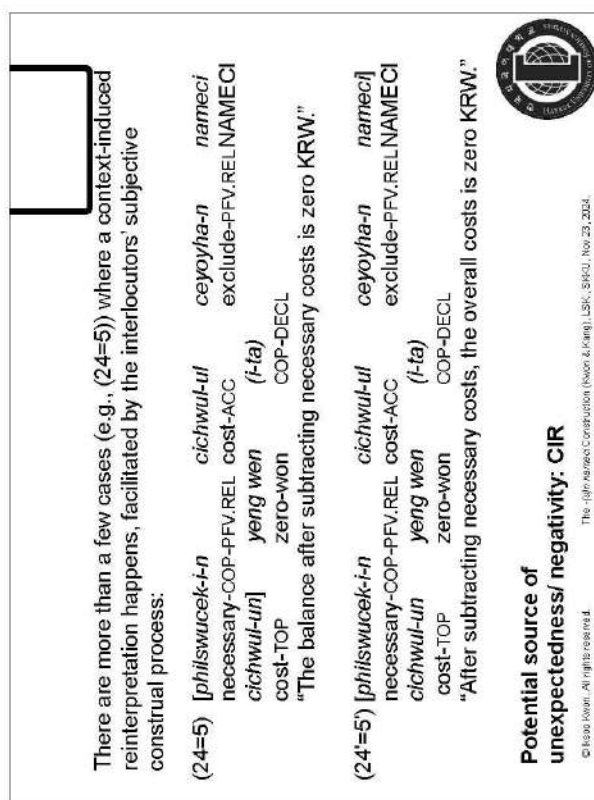
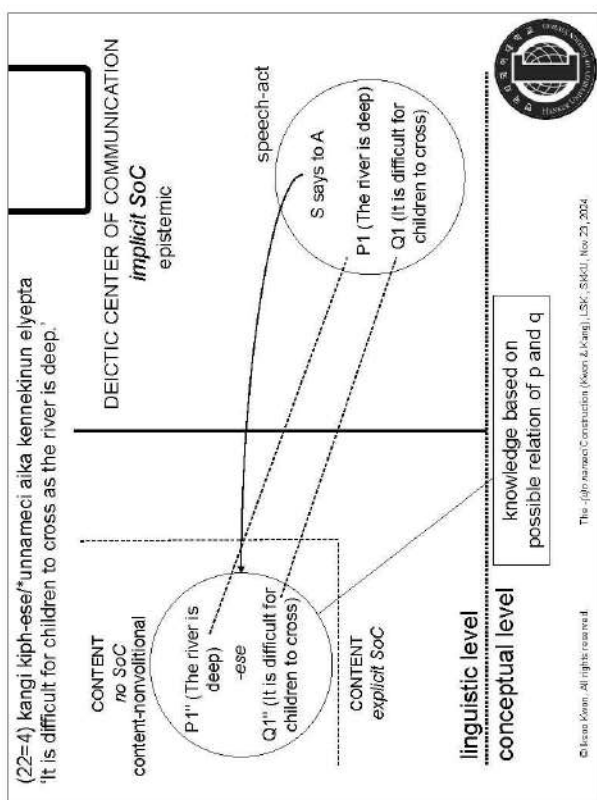
conceptual level

knowledge based on possible relation of p and q



The -(u)n *nameci* Construction (Boon & Kang), LSK, SSKU, Nov. 23, 2024.

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"assessing that the state of affairs encoded in P is excessive (and hence, unexpected or negative)"



Reasoning underlying the subjectification:

- When combined with an event structure, it would refer to an unfinished/incomplete process, which tends to be regarded undesirable
tying up loose ends, The divorce left a residue of pain in the family (Merriam-Webster), etc.
- "Moral accounting" metaphor (Lakoff & Johnson, 1999): in the book-keeping, it is morally imperative to keep the balance clean, i.e., to leave no residue uneven.

Potential source of unexpectedness/negativity: Subjectivity

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What the -(u)n nameci CC relates are not the situations themselves per se, but the narrator's assessments of each of the focal situations

- The causal relation encoded by the -(u)n nameci CC holds in the non-content domain causal type
- Its uses with states and/or (distanced) depiction of narratives would be preferred to those with events
- There is conceptual distance between the speaker and the focal situations that are causally related.

In addition to its sensitivity to negative evaluation/ counter-expectation, what matters to the -(u)n nameci CC's distribution is rather its viewpoint configuration, which requires that there be conceptual distance between the speaker and the focal situations that are causally related.

The different degrees of subjectivity affects -(u)n nameci's functional extension, which relies on whether the causal relation is construed via the perspective of the grammatical subject or that of the narrator.

Summary

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Conclusion

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Appendix A: Abbreviations

ANT Anterority

CON Connective

CONJ Conjunction

DCTV Deductive

DM Discourse marker

D.MOD Deontic modality

EV/FH Firsthand Evidentiality

FCTV Factive

HON honorific

INDIC Indicative

INFR Inferential

PRECED precedence


RLZN Realization

UFP Utterance Final Particle

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The -jigjn named Construction (Kwon & Kang), LSK, 19463, Nov 22, 2024.



Age and Dialect in Korean Case-stacking:
Experimental Data and Theoretical Challenges

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2. Experiment design

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Youngho Lee, Minha Kang¹
¹Department of Linguistics, Seoul National University

LSK 2024 Winter Conference

The data in question

Initial problem: Judgments

(1) holangi-eykey-ka koyangi-ka mek-hi-ess-ta.
tiger-DAT-NOM cat-NOM eat-PASS-PST-DEC
‘The cat was eaten by the tiger.’ (Choi, 2009)

(2) Swuni-ka Yengmi-eykey-lul chayk-ul cwu-ess-ta.
Swuni-NOM Yengmi-DAT-ACC book-ACC give-PST-DEC
‘Swuni gave a book to Yengmi.’ (Choi, 2009)

(3) sensayngnim-kkeyse-ka manhi il-ul ha-si-pni-ta.
teacher-HON.NOM¹-NOM much work-ACC do-SUB.HON-ADDR.HON-DEC
‘The teacher does much work.’ (Levin, 2017)

Nearly every scholar reports diverging judgment on case-stacking.

▶ Youn (1998), Gerdts and Youn (1999) take such constructions to be grammatical in general.

▶ Schütze (1996), Schütze (2001), Lee and Nie (2022) among others think marked prosody is essential on the stack.

▶ Jegal (2023) reports that case-stacking is categorically ungrammatical.

→ Basically, there’s no empirical consensus.

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¹This is a disputed notion, but I report it as Ted Levin has.

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<div><h3>Initial problem: Theories</h3></div> <div>Along such messy data paradigms are corresponding theories.</div> <div><ul style="list-style-type: none">▶ 'It's acceptable': The stacked particle is genuine structural case marking.▶ 'It needs focus': The stacked particle is discourse marking.¹<ul style="list-style-type: none">✓ <i>discourse marking</i> ≈ topic / focus▶ 'It's unacceptable': The syntax should not generate such strings at all.</div> <div>None of these are, in principle, empirically falsifiable – since nobody agrees on judgment.</div> <div><hr/>¹Levin (2017) takes this side empirically, but argues for a genuine case analysis.</div>	<div><h3>Jegal (2023)</h3></div> <div>This is the most recent experiment on constructions like (1)-(3).²</div> <div><ul style="list-style-type: none">▶ Its conclusion is categorical ungrammaticality, regardless of contextual salvaging.</div> <div>While meaningful, this study has some shortcomings that we try to address.</div> <div><ul style="list-style-type: none">▶ not controlled for regional dialect or age▶ conducted with pen and paper³</div> <div><hr/>²To the best of my knowledge, there is no other empirical study exclusively dedicated to case-stacking. ³Stacking is nearly non-existent in formal (and/or written) Korean.</div>
<div>1. Introduction</div> <div>Lee & Kang</div> <div>Nov. 23rd, 2024</div> <div>Age and Dialect in Korean Case-stacking</div> <div>7 / 25</div>	<div>2. Experiment design</div> <div>Lee & Kang</div> <div>Nov. 23rd, 2024</div> <div>Age and Dialect in Korean Case-stacking</div> <div>8 / 25</div>
<div><h3>Proposal</h3></div> <div>At any rate, there are at least two grammars: <i>stacking</i> vs. <i>non-stacking</i>. We believe that we can correctly identify the stacking dialect.⁴</div> <div><ul style="list-style-type: none">▶ <i>Regional dialect</i> is an important factor. Specific varieties of the Northern Gyeongsang dialect allow case-stacking.▶ Age is also an important factor in the Seoul/metropolitan area. Here, the younger generation is more tolerant toward case-stacks.</div> <div>The experiment also has some interesting implications. (Section 4)</div> <div><ul style="list-style-type: none">▶ Diverging judgment in former works can be coherently captured.▶ There exists a low-level PF effect on length.▶ A significant generalization from Gerdts and Youn (1999) is disproved.</div> <div><hr/>⁴Scholars have been largely uninterested in the real-life borders of such dialects.</div>	<div><h3>Variables</h3></div> <div>There are four independent variables.</div> <div><ul style="list-style-type: none">▶ 1) Type of case-stacking<ul style="list-style-type: none">✓ (i) DAT-NOM (Choi, 2009)✓ (ii) DAT-ACC (Choi, 2009)✓ (iii) HON.NOM-NOM (Levin, 2017)<ul style="list-style-type: none">: subcategorized into transitive predicates and intransitive predicates.▶ 2) Age: Young (20s-30s) and Old(50s-60s)▶ 3) Regional dialect: Seoul and Daegu▶ 4) Prosodic: number of syllables between DAT-ACC stack and V.</div>

2. Experiment design	
Stimuli	Stimuli
<p>Description + Image + Question + Audio + Likert Scale</p> <ul style="list-style-type: none"> ▶ 1) Description: contextual information pertaining to Image ▶ 2) Image: visualized context, generated by Copilot. ▶ 3) Question: cue for the answer (Audio stimuli) ▶ 4) Audio: Answer recorded into two dialects (Seoul and Daegu) <ul style="list-style-type: none"> ✓ Participants from Seoul → Audio provided in Seoul dialect ✓ Participants from Daegu → Audio provided in Daegu dialect ▶ 5) 7-point Likert scale 	<p>다들 사진을 보기, 다들 뭐가 좋아 보였는지 물어봐서 물어봐서 (사진 속 선곡의 주는 사람은 좋아, 한 사람은 좋아 안하더라)</p>  <p>이제 음악이랑 선곡을 듣고 싶어요</p> <p>▶ 0 1 2 3 4 5 6 7 8 9 10</p> <p>이제 듣고 싶은 것이 없거나 좋아하지 않거나 좋아하지 않거나 6.0부터 10.0까지</p> <p>Age and Dialect in Korean Case-stacking</p> <p>Lee & Kang</p> <p>Nov. 23rd, 2024</p> <p>9 / 25</p> <p>10 / 25</p>

2. Experiment design	
Method	Method
<p>Audio stimuli were recorded by the researchers themselves.</p> <ul style="list-style-type: none"> ▶ Experiment 1: stacking category test <ul style="list-style-type: none"> ✓ DAT-NOM: 6 sentences ({stacked, unstacked, filler} × 2) ✓ DAT-ACC: 4 sentences ({stacked, unstacked} × 2) ✓ HON.NOM-NOM: 6 sentences ({stacked, NOM, HON.NOM} × 2) ▶ Experiment 2: DAT-ACC stacking test with varying prosodic conditions <ul style="list-style-type: none"> ✓ for the verb <i>chwa</i>: DAT-ACC {∅, 1σ-ACC, 2σ-ACC, 3σ-ACC, 2σ ADV} verb ✓ for the verb <i>ponay</i>: DAT-ACC {∅, 1σ-ACC, 2σ-ACC, 3σ-ACC, 2σ ADV} verb 	<p>Pilot test: Experiments 1 and 2 were conducted simultaneously.</p> <ul style="list-style-type: none"> ▶ PCIBex (PennController for Internet Based Experiments) ▶ Two tests were made: <ul style="list-style-type: none"> ✓ one for Seoul participants ✓ the other for Daegu participants ▶ Drew box plot and applied Kruskal-Wallis H Test & Post-Hoc Dunn's Test (p-adjust: bonferroni) <ul style="list-style-type: none"> ✓ non-parametric test ✓ corresponding to one-way ANOVA (parametric) ✓ Min-Max Normalizing data between 0 and 1 before analysis

3. Pilot test results

Results - Exp. 1: stacking category

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Table: Distribution of participants

	Daegu	Seoul
Old	12	6
Young	15	13

▶ 46 participants in total.

✓ There were not enough Seoul-Old participants.

✓ Planning to collect more in the main experiment.

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3. Pilot test results

Results - Exp. 1: stacking category

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Tendency according to type of stack

▶ 1) DAT-NOM: Seoul Young > Daegu Young > Seoul Old ≈ Daegu Old

▶ 2) DAT-ACC: Seoul Young > Daegu Young > Seoul Old ≈ Daegu Old

▶ 3) HON-NOM-NOM

✓ a. Transitive pred. : no significant differences among the groups

✓ b. Intransitive pred. : Seoul Young > Daegu Young ≈ Seoul Old > Daegu Old

It seems that there is no regional difference! However...

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The Daegu-old group's judgment must be taken differently.

▶ low acceptability for grammatical fillers

▶ high acceptability for ungrammatical fillers

→ planning to review fillers for main session.

Therefore, 1) the Daegu-Old participants use the scale narrowly and 2) the following main experiment should be better thought out.

3. Pilot test results

Results - Exp. 2: prosody for DAT-ACC stacking

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3. Pilot test results

Results - Exp. 2: prosody for DAT-ACC stacking

Notice that not only *cwu-* but also *ponay-* permits DAT-ACC stacking! More data should be collected, but we can presently assume the following:

- ▶ 1) A kind of language change might be in process in Seoul Dialect.
 - ✓ Seoul-Young group shows significantly high acceptability of stacking.
 - ✓ No significant difference of acceptability of DAT-ACC stacking between the verb *cwu-* and *ponay-* contrary to the previous studies.
- ▶ 2) The acceptability of DAT-ACC stacking would be highest in the no prosodic intervention condition.
 - ✓ No-syllable conditions show the highest acceptability in Daegu-Old in *ponay-* and Seoul-Young, Daegu-Young.

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4. Implications

A meta-academic understanding

The previous literature and its divergence now make sense.

- ▶ *'grammatical in general'*: Youn (1998), Gerdts and Youn (1999)
 - Youn is a self-reported Daegu native.
- ▶ *'needs marked prosody'*: Schütze (1996, 2001), Lee and Nic (2022)
 - does not report having controlled for the proposed factors.
 - Kang says that in his dialect, stacks *must* bear marked prosody.⁵
- ▶ *'categorically bad'*: Jegal (2023)
 - again, not controlled for regional dialect or age.
 - a pen-and-paper experiment, so no participant 'heard a dialect'.

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⁵Production without it is simply impossible.

4. Implications

Dative alternation and case-stacking

Only certain verbs like *cwu-* can mark its goal with either DAT or ACC. This contrast has been important for related theories.

(4) John-i Mary-lul ton-ul {*cwu-*/**ponay-*}ess-ta.
John-NOM Mary-ACC money-ACC {*give/send*}-PST-DEC
'John gave/sent Mary money.'

- ▶ Jung and Miyagawa (2004) argue in a seminal paper that the ACC-variant involves *P_{HAVE}*, unlike its dative counterpart.⁶
- ▶ Crucially, Gerdts and Youn (1999) take this phenomenon to be relevant to case-stacking.

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⁶Like English *send*, *ponay-* can only have locative meaning.

4. Implications

Gerdts and Youn (1999)

"...it [case-stacking] is a highly constrained phenomena **limited to constructions that also exhibit case alternations**."

- ▶ Contrary to their claim, we now find that *cwu-* 'give' and *ponay-* 'send' both allow DAT-ACC stacks.

This leads us to think that the stacked ditransitive starts off with *P_{LOC}*.
→ Going further, we need a theory that

- ▶ rules out dative alternation on *send*-goals, but...
- ▶ rules in case-stacking on goals of both *give* and *send*.

This is one of the theoretical puzzles we're considering, provided that experimental data turns up as expected.

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5. Conclusion

Recap

Our pilot test results suggest that there is systematic difference in judgment of case-stacking.

- ▶ Daegu speakers allow it under the right circumstances.⁷
- ▶ In Seoul, younger speakers are much more lenient toward such stacks.

✓ We take this as convincing proof of ongoing language change.

This had the following consequences.

- ▶ Former studies can be coherently understood.
- ▶ A new empirical puzzle for ditransitives has emerged.

We most eagerly take feedback for the actual experiment!

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⁷Their ratings for the critical conditions do not diverge largely from ratings of grammatical fillers.

5. Conclusion

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A QUD-Based Analysis of
Multiple Sluicing Constructions

Jimin Kim

November 23, 2024

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Ch 1. Introduction

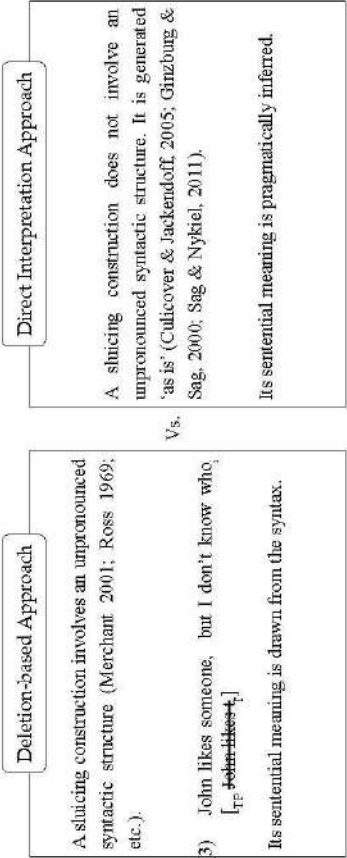
1 Introduction

<Multiple Sluicing Construction>: An elliptical phenomenon where two *wh*-phrases stand in for a full interrogative clause.

- (1) Fred said some girl likes some boy, and I wonder **which girl which boy**.
- (2) A: Every student has published on some topic.
 B: **Which student on which topic?**
 A: John has published on NPI and Sue published on FCL (Adapted from Abels and Dayal 2023: 448)

1 Introduction

Two Approaches to Sluicing



1 Introduction

Terminologies

- ‘Correlate’: Expressions in the antecedent, corresponding to the *wh*-fragments
e.g., A: *Some girl* fought *with some boy*.
B: Which girl with which boy?
- ‘E-site’: The place where the elided syntactic structure is positioned. (Only applicable to DE)
e.g., Every student talked with some professor, but I don't know [which professor]
[with which professor] $[\text{E-site } t_i \text{talked to } t_i]$

Ch 2. Phenomena

2.1 Island Insensitivity

- (4) Linda was moved because everyone prepared for something, but I just don't know **who for what**.
(Cortés Rodríguez 2022: 437).

... but I just don't know [who]_i [for what]_j [_{E, state} ~~Linda was moved~~_i [_{adjunct, island} ~~because~~_i ~~prepared~~_j]]
t_j]].

8

2.2 Clause-mateness?

Exceptions to the "Clause-mate Condition":

Barros and Frank (2018): 'non-shifty subject'

- (7) Some student claimed that **there** was a problem with some professor, but I can't recall [which student]_i [with which professor]_j [_{TP} ~~t_i claimed~~_j [_{CP} ~~that there was a problem~~_i]]
(Barros and Frank 2023: 655)
- (8) Some student lamented that **no professor** talked about a certain topic, but I can't recall [which student]_i [about which topic]_j [_{TP} ~~t_i lamented~~_j [_{CP} ~~that no professor talked~~_i]]
(ibid.)

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2.2 Clause-mateness?

- (5) *One of the students said [_{CP} that Mary spoke to one of the professors], but I don't know which student to which professor (Kim 2016: 845).

- (6) [_{CP} One of the students spoke to one of the professors], but I don't know which student to which professor.

⇒ "Clause-mate condition" (Abels and Dayal, 2023; Lasnik, 2014, etc.): the two *wh*-fragments must not be separated by a tensed clause boundary.

- (5): *... [which student]_i [to which professor]_j [_{TP} ~~t_i said~~_j [_{CP} ~~that Mary spoke~~_i]]

13

2.3 Clause-mateness?

Judging from this, it can be inferred that the clause-mate condition is not a rigid syntactic constraint.

13

2.4 The Order of the Two *Wh*-fragments

- (9) Every boy likes some girl, but I don't know which boy which girl.
- (10) *Every boy likes some girl, but I don't know which girl which boy.
- (11) Some boy likes some girl, but I don't know which boy which girl.
- (12) *Some boy likes some girl, but I don't know which girl which boy.

13

14

2.5 Prepositional Omission

- (13) Peter talked about something to somebody, but I can't remember (about) what *(to) whom.
(Barros 2014: 39)

2.6 Type of the Embedding Verbs of an Antecedent

- (14) A: Fred told/thought/claimed/asserted that a certain boy talked to a certain girl.
B: I wish I could remember which boy to what girl.
- (15) A: Fred denied/doubted that a certain boy talked to a certain girl.
B: ??? I wish I could remember which boy to what girl.

(Lasnik 2014: 12)

15


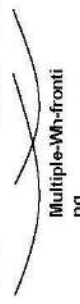
14

2.7 Calaphoric Multiple Sluicing

- (16) I don't know who with who, but I'm sure everybody will dance with somebody.
(Romero 1997: 197)

Ch 3. Previous Approaches and Challenges

3.1 Deletion-Based Approach

- i. Rightward Focus Movement (Lasnik, 2014)
(17) Some girl fought with some boy, but I don't know [which girl]_i [_{CP} ~~t_i fought t_i~~] [with which boy]_j

Wh-fronting
- ii. Genuine Multiple Shifting (Abels and Dayal, 2023)
(18) Some girl fought with some boy, but I don't know [which girl]_i [with which boy]_j [_{CP} ~~t_i fought t_i~~]

Multiple-Wh-fronting

3.1 Deletion-Based Approach

They both assume that the E-site contains a mono-clausal syntactic structure.

Lasnik (2014): Rightward focus movement is subject to the Right Roof Constraint

Cf. clause-boundedness of Rightward Focus Movement
Abels and Dayal (2023): Covert *wh*-phrasal movement is clause-bounded and subject to superiority

3.1 Deletion-Based Approach

(19) I thinks a certain boy talked to a certain girl. I wish I could remember **which boy** to **what girl**.

(Barros 2014: 12)

- (i) ... [_{CP1} [which boy]_i [_{E-site(=TP)} Fred thinks [_{CP2} t_i talked t_i] [to what girl]_j]
- (ii) ... [_{CP2} [which boy]_i [_{E-site(=TP)} t_i talked t_i] [to what girl]_j] (i.e., short source approach)

3.1 Deletion-Based Approach

Limitations – Lasnik (2014)

- ### 1. Landing site for extraposition

(20) I know who Mary talked to yesterday about phonology, ?*but I don't know who about semantics.

... but I don't know who_k [_{TP} ~~Mary~~ talked to_t _t_i] [_{about semantics}]_i

! Extraposition generally targets positions beyond TP.

34

3.1 Deletion-Based Approach

Limitations – Lasnik (2014)

2. Cannot address examples provided by Barros and Frank (2018)

(21) Some student claimed that there was a problem with some professor, but I can't recall which student with which professor.

Bi-clausal structure

27

3.1 Deletion-Based Approach

Limitations – Abels and Dayal (2023)

Merchant's E-giveness Condition

- (i) A constituent E can be deleted iff E is e-GIVEN.
- (ii) An expression counts as e-GIVEN iff E has a salient antecedent A and, modulo \exists -type shifting,
 - a. A entails the Focus closure of E (written $F\text{-clo}(E)$), and E entails $F\text{-clo}(A)$
 - b. $F\text{-clo}(A)$ is the result of replacing F -marked parts of a with \exists -bound variables

In a nutshell, the E-site may contain a mono-clausal structure non-isomorphic to the antecedent.

25

3.1 Deletion-Based Approach

(22) Ich kenne einen Lehrer, der jedem Kind ein Geschenk gegeben hat.
I know a teacher who every.DAT child a.ACC present given has

aber ich weiß nicht genau welches Kind welches Geschenk.
--

but	I	know	not	exactly	which.DAT	child	which.ACC	present
but	I	know	not	exactly	which.DAT	child	which.ACC	present

'I know a teacher who gave a present to each child, but I don't know exactly which present to which child.'

- (i) ... I don't know exactly [which present]_i [_{CP} ~~know~~_i ~~to which child~~_j] [_{NP} ~~the teacher~~_j] [_S ~~what went t~~_j]]_i

4

3.1 Deletion-Based Approach

Limitations:

- (i) Cannot account for certain island-insensitivity cases
(23) A: Sally will be surprised if some student wins in some contest.

B: Which student in which contest?

[Which student]_i [in which contest]_j [L-site]_k [L-wins-E]_l
$$\exists x \exists y [x \text{ wins in } y]$$

→ Antecedent does not entail the Focus-closure of the E-site.

3.1 Deletion-Based Approach

Limitations:

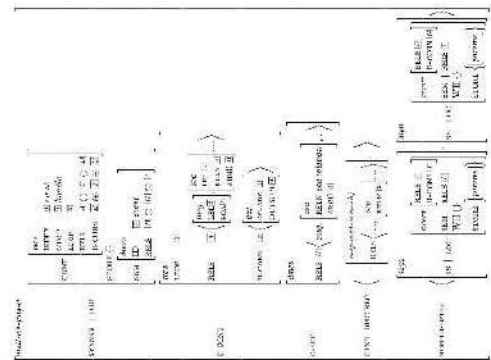
- (ii) Can a covert movement be rendered overt through the deletion of the lower copy?
- (25) Every professor must teach some lecture, *but I don't know which professor which lecture must teach, *but I don't know [which professor] [which lecture] [_{CP} t_i must [_{CP} t_i teach t_j]].

3.2 Direct Interpretation Approach

Park's (2009) HPSG approach



- The semantic relation of the linguistic antecedent is combined with the semantics of the two *wh*-fragments.
- Mandates the existence of a linguistic antecedent.
- Cannot address multiple sluicing across a clause-boundary

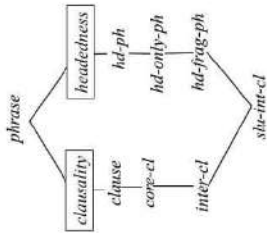


Ch 4. My Proposal

4.1 G&S's Analysis of Single Sluicing Construction

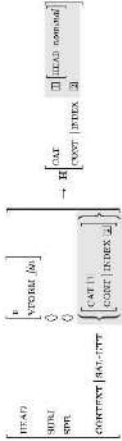
Cf. G&S: Ginzburg and Sag (2000)

(26) Type Hierarchy Associated with *slu-int-cl*
(extracted from Ginzburg and Sag 2000: 333)



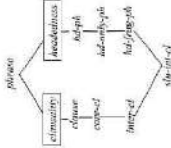
4.1 G&S's Analysis of Single Sluicing Construction

(27) Constraint on *hd-frag-ph* (Ginzburg and Sag 2000: 304)

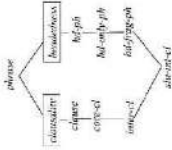


(28) A: Bo likes someone.
B: Who?

Cf. Type hierarchy of *slu-int-cl*

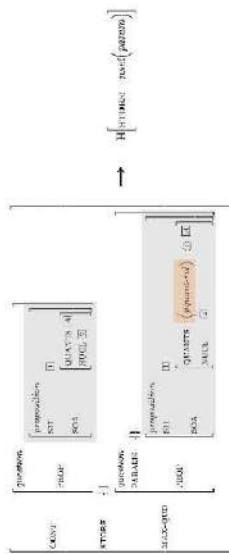


Cf. Type hierarchy of *slu-int-cl*



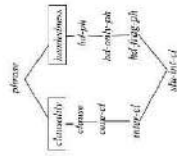
4.1 G&S's Analysis of Single Sluicing Construction

(30) Constraint on *slu-int-cl* (Ginzburg and Sag 2000: 324)



MAX-QUD: the most immediate Question under Discussion in the sense of Roberts (1996)
NUCL: key semantic relation

Cf. Type hierarchy of *slu-int-cl*

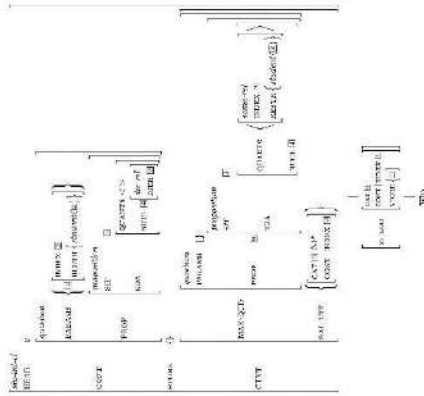


33

4.1 G&S's Analysis of Single Sluicing Construction

(31) A: A student died.

B: Who?

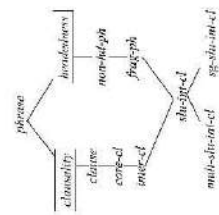


34

4.2. Syntax of Multiple Sluicing Constructions

G&S's problem: *slu-int-cl* is treated as a headed construction with a single head daughter

(32) Modified Type Hierarchy Associated with *slu-int-cl*

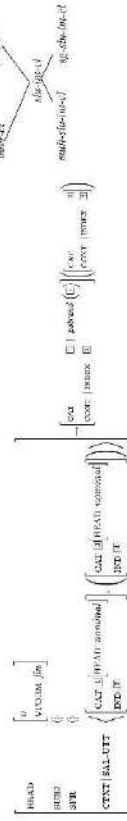


35

Cf. Type Hierarchy Associated with *slu-int-cl*

4.2. Syntax of Multiple Sluicing Constructions

(33) Modified Type Constraint on *frag-ph*:

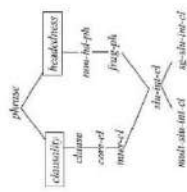


(34) Peter talked about something to somebody, but I can't remember (about) what (to) whom.

36

4.2. Syntax of Multiple Sluicing Constructions

Cf. Type Hierarchy Associated with *slu-int-cl*



(35) The Modified IRC

$$\begin{aligned}
 & \text{Inter-cl:} \\
 & (i) \text{ In } \textit{hd-ph} \\
 & \left[\begin{array}{c} \text{STORE } \boxed{\Sigma_1} \\ \text{CONT } \boxed{\text{PARAMS } \Sigma_2} \end{array} \right] \rightarrow \dots \rightarrow \text{H} \left[\text{STORE } \boxed{\Sigma_1} \uplus \boxed{\Sigma_2} \right] \dots \\
 & (ii) \text{ In } \textit{non-hd-ph} \\
 & \left[\text{CONT } \boxed{\text{PARAMS } \Sigma_1} \uplus \dots \uplus \boxed{\Sigma_n} \right] \rightarrow \left[\text{STORE } \boxed{\Sigma_1} \right] \dots \left[\text{STORE } \boxed{\Sigma_n} \right]
 \end{aligned}$$

37

4.3. Semantics of Multiple Sluicing Constructions

(37) Constraint on *mult-slu-int-cl*:

$$\left[\begin{array}{c} \text{CONT } \left[\text{PROP } \boxed{\text{SOA}[\text{QUANTS } \boxed{\Delta}]} \right] \\ \text{MAX-QUI } \left[\text{PROP } \boxed{\Delta} \right] \text{ SOA } \left[\text{QUANTS } \langle \langle \text{quant-rel} \rangle \rangle \odot \langle \langle \text{quant-rel} \rangle \rangle \odot \boxed{\Delta} \right] \\ \text{BCKGRND } \{ \text{fact}(\boxed{\Delta}) \} \end{array} \right]$$

A: Fred denied/doubted that a certain boy talked to a certain girl.

B: ???I wish I could remember which boy to what girl.

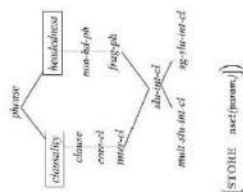
B: Who?

Cf.

A: Fred wonders if Mary likes a certain boy.

4.3. Semantics of Multiple Sluicing Constructions

Cf. Type Hierarchy Associated with *slu-int-cl*

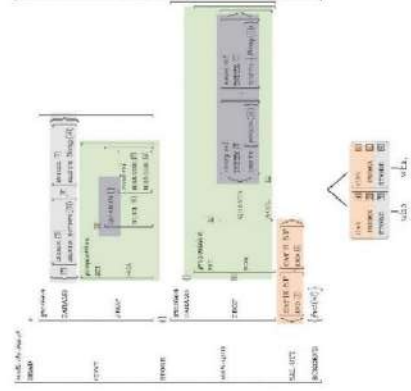


(36) Modified Constraint on *slu-int-cl*:

$$\begin{aligned}
 & \left[\begin{array}{c} \text{CONST} \\ \text{STORE} \\ \text{MAX-QUI} \end{array} \right] \left[\begin{array}{c} \text{quantifier} \\ \text{SET} \\ \text{SOA} \end{array} \right] \left[\begin{array}{c} \text{propagation} \\ \text{SET} \\ \text{SOA} \end{array} \right] \left[\begin{array}{c} \text{QUANTS } \boxed{\Delta} \\ \text{SET} \\ \text{SOA} \end{array} \right] \\
 & \rightarrow \left[\text{STORE } \text{non-params} \right] \left(\left[\text{STORE } \text{act(params)} \right] \right) \\
 & \left[\begin{array}{c} \text{MAX-QUI} \\ \text{PROP} \end{array} \right] \left[\begin{array}{c} \text{quantifier} \\ \text{SET} \\ \text{SOA} \end{array} \right] \left[\begin{array}{c} \text{propagation} \\ \text{SET} \\ \text{SOA} \end{array} \right] \left[\begin{array}{c} \text{QUANTS } \langle \langle \text{quant-rel} \rangle \rangle \odot \langle \langle \text{quant-rel} \rangle \rangle \odot \boxed{\Delta} \end{array} \right]
 \end{aligned}$$

38

(38) Everyone read something, but I don't know who what.



39

4.4 A Comprehensive Picture

Parameters of the daughters are retrieved in the mother

CAI and INDEX identity between correlates and *wh*-fragments

Question meaning is drawn from the situation and semantic relation of the maximal QUD

The quantifier relations associated with the correlates

4.4.4 A Comprehensive Picture

Island Insensitivity

(39) Linda was moved because everyone prepared for something,
but I just don't know who for what.

(40) A: Sally will be surprised if some student wins in some contest.

B: Which student in which contest?

Cf. Constraint on *mult-shu-int-cl*.

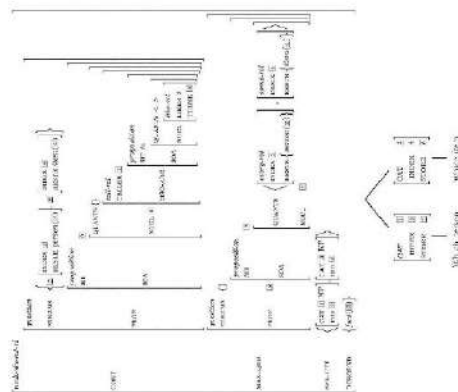
[illegible]

A speaker is at least temporarily/hypothetically assuming the truthfulness of $\langle \rangle$

4.4.4 A Comprehensive Picture

(42) [Context: Mary has been trying to find the right birthday gift for Tom. She asked everyone who knows what the best gift for him would be, and each person she asked provided a different answer.]

A: ?Everyone told that Tom likes a different item, but she doesn't recall **which person which item**.



4.4.4 A Comprehensive Picture

Clause-mateness

(41) *Everybody claimed that Fred had talked to some professor, but I can't remember who to which professor.

Assumption:

The existence of a strong processing preference to treat two fragment daughters as the semantic argument of a single abstract predicate (e.g., Nykiel and Kim, 2022).

4.4.4 A Comprehensive Picture

Cataphoric Multiple Sluicing

(43) I don't know **who with who**, but I'm sure everybody will dance with somebody.

(Romero 1997: 197)

G&S assumed that each discourse participant might have his own view of the common ground, including the QUD. Thus, if the speaker decides that a particular question can be and should be addressed immediately, that question can become the maximal QUD, even without a linguistic antecedent.

Thank you.

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한국어 다중 분열문의 통사론

이정훈(서강대학교)

1. 목적

한국어는 하나의 성분이 분열성분으로 나타나는 단일 분열문에 더해 ‘[철수가 만난] 것은 [[학교에서] [영이]]였다’에서 보듯이 외견상 둘 이상의 성분이 분열성분으로 등장하는 다중 분열문 현상을 보인다(김영희 2000). 그렇다면 다중 분열문은 통사적으로 어떻게 이해해야 하는가? 이 발표는 방금 제시한 질문에 대해 나름대로 답하는 것을 목적으로 한다.

2. 제안

여타의 언어 현상과 마찬가지로 다중 분열문도 이동(movement)이나 삭제(deletion), 삽입(insertion)과 같은 변형을 적극적으로 활용해서 설명할 수도 있고(변형론적 접근), 변형보다는 언어 자료에서 직접 관찰되는 어휘항목의 특성을 토대로 설명할 수도 있다(비변형론적 접근). 이 연구는 변형론적 접근과 비변형론적 접근 중 후자의 입장을 따르는데, 변형을 무분별하게 동원하지 않고 구, 절, 문장 등 구체적인 언어 표현에 충실한 통사론을 구성하는 데에는 비변형론적 접근이 적합하다고 판단하기 때문이다.

비변형론적 관점을 택하면, 분열문은 기본적으로 계사문의 일종으로 파악된다(박철우 2008, 이정훈 2020가 등 참고).¹⁾ 예를 들어 분열문 ‘영이가 만난 것은 철수였다’는 명사성 허사 ‘것’. 동일성의 계사 ‘이-_[동일성]’을 포함하며, 이를 토대로 (1가)와 (1나)에서 보듯이 ‘0₂ = 것₂ = 철수₂’가 보장된다.

- (1) [VP [NP [CP 영이가 0₂ 만난] 것은₂] 철수₂ 이-] -었다
 가. [NP [CP 영이가 0₂ 만난] 것은₂] ⇔ [NP [CP 영이가 0₂ 만난] 사람₂]
 나. [VP [NP ... 것은₂] 철수₂ 이-] -었다 ⇔ [VP [NP 그 사람이₂] 철수₂ 이-] -었다

그렇다면 비변형론적 관점에서 아래 (2가)와 (2나)는 어떻게 설명할 수 있는가?

- (2) 가. 그가 작년에 미국에서 죽은 것은 교통사고로이다.
 나. 그가 작년에 죽은 것은 미국에서 교통사고로이다. (= 1가)
 cf. It was by pure accident, at a football match, that I saw him again.
 (Taglicht 1984: 58 참고)

먼저, (2가)를 (1)과 마찬가지로 파악하기는 곤란하다. (1)의 계사는 ‘이-_[동일성]’으로서 (1)에 서처럼 개체 ‘철수’와는 어울릴 수 있지만 (2가)에서처럼 어휘격 조사 K ‘-로’를 취한 KP ‘교통사고로’와 어울린다고 보기는 곤란하기 때문이다. 그런데 계사에는 ‘이-_[동일성]’에 더해 ‘영이가 학생이다’와 같은 예의 ‘이-_[서술성]’도 있으며, ‘교통사고로’와 같은 부가어 KP는 서술성을 지닌다(Davidson 1967/2001 참고). 따라서 (2가)는 부가어 KP ‘교통사고로’와 ‘이-_[서술성]’이

1) 한국어 분열문을 변형론적 관점에서 다룬 사례는 최기용(2011), 박소영(2014) 등 참고.

결합하여 술어가 되면서 ‘그가 작년에 미국에서 죽은 것’을 논항으로 취한 것으로 이해된다.²⁾ 다음으로, (2가)에 대한 이해를 확장하면 (2나)는 ‘철수는 논문을 읽고 썼다’, ‘철수는 노래를 부르고, 춤을 추었다’나 ‘영이는 사과를 꺾어 먹었다’와 마찬가지로 술어/술부 접속으로 이해할 수 있다.³⁾ 논의와 관여적인 부분의 통사구조를 보이면 아래와 같다.

(3) 그가 작년에 죽은 것은 [술어 [KP [KP 미국에서] [KP 교통사고로]] 이-] -다.

cf. 그가 작년에 죽은 것은 [[미국에서] 그리고 [교통사고로]]이다.

그가 작년에 죽은 것은 [[미국에서] 또는 [중국에서]]이다.

3. 논항이 다중 분열 성분으로 나타나면?

앞절에 제시한 다중 분열문에서 분열 성분은 부가어이다.⁴⁾ 그렇다면 논항의 경우는 어떤가? 논항도 다중 분열문의 분열 성분으로 나설 수 있는가?⁵⁾

(3) 철수가 학교에서 영이를 만났다.

가. 철수가 만난 것은 학교에서 영이었다.⁶⁾

나. * 철수가 만난 것은 영이(를) 학교에서였다.

cf. * It was Paul here that we are meeting.

* It was here Paul that we are meeting. (Taglicht 1984: 58 참고)

(3가)에 대한 판단은 일치하지 않고, 성립한다는 직관과 성립하지 않는다는 직관으로 갈린다. 예를 들어 김영희(2000: 86)은 성립하지 않는다고 판단하지만, 자연스럽다는 직관도 존재한다.

위와 같은 상황을 설명하기 위해서는 두 가지 문제를 풀어야 한다. 첫째, (3가)를 설명하고, (3가)와 (3나)의 대조를 설명해야 하고, 둘째, (3가)에 대한 직관의 실태를 실증적으로 조사하고, 이를 토대로 직관차를 설명해야 한다. 이 둘 중 여기서는 첫 번째에 집중한다.

4. 무표찰 구성과 다중 분열문의 도출

다중 분열문 (3가) ‘철수가 만난 것은 학교에서 영이었다’는 어떻게 설명할 수 있으며, (3가)

2) 이 경우의 ‘것’은 사건(event)을 나타낸다(이정훈 2020가: 72-74 참고). 참고로 어휘격 조사가 생략될 수도 있는데 이에 대해서는 손근원(2000) 참고.

3) 김영희(2000: 87-88)은 ‘(가) 내가 만난 것은 만이, 분이이다. (나) *내가 만이 만난 것은 분이이다. (다) *내가 분이 만난 것은 만이이다’를 제시하며 접속으로 볼 수 없다고 하였다. 접속이라면, (가)와 달리 (나), (다)가 성립하지 않듯이 (5나)와 달리 (5가)가 성립하지 않아야 한다고 본 것이다. 하지만 (나), (다)는 ‘것’의 지표(index)가 모순적이어서 성립하지 않는 것으로 이해된다. 즉, (나)의 ‘것’은 관형절 내의 ‘만이’와 동지표되고 ‘이-_[동일성]’에 의해 ‘분이’와도 동지표되는바((4) 참고), 지표에서 모순이 발생하여 성립하지 않는다. 그리고 이런 점은 (다)도 마찬가지이다.

4) 편의상 분열문 ‘[A 철수가 만난] 것은 [B 영이]였다’에서 A는 분열절, B는 분열 성분이라고 한다.

5) ‘철수가 건넨 것은 영이에게 책이었다’에서 보듯이 분열 성분 자리에는 논항만 두 개 이상 나타날 수도 있는데 제기되는 문제는 동질적이므로 따로 살피지 않는다(cf. *철수가 건넨 것은 책(을) 영이에게였다).

6) (3)과 달리 이 경우에는 ‘그리고’가 좀처럼 개입할 수 없는데, ‘학교에서’와 ‘영이’가 계사 ‘이-’와의 관계에서 이질성을 띠기 때문인 듯하다((4) 참고).

와 (3나)의 대조는 또 어떻게 설명할 수 있는가? 여기서는 뒤의 질문은 다음절로 미루고, 앞의 질문에 논의의 초점을 맞추는데, 아래의 도출 과정을 거쳐 (7가)가 형성되는 것으로 본다. '□'는 무표찰(unlabeled) 구성임을 나타낸다.⁷⁾

- (4) 가. '학교에서'와 '영이'의 병합(merge) → 무표찰 구성 [□ [KP 학교에서] [NP 영이]] 형성
 '학교에서'는 KP이고 '영이'는 NP이므로 이 둘이 결합하면 표찰이 정해지지 않음. 그 결과 무표찰 구성 '[□ [KP 학교에서] [NP 영이]]'가 형성됨.⁸⁾ '[□ [KP 학교에서] [NP 영이]]'는 무표찰 구성이므로 해석 단위가 아니며, '[KP 학교에서]'와 '[NP 영이]'는 표찰을 지니므로 해석 단위임.
- 나. 무표찰 구성 [□ [KP 학교에서] [NP 영이]]과 계사 '이-'의 병합 → [[□ [KP 학교에서] [NP 영이]] 이-] 형성
- ① 무표찰 구성 '[□ [KP 학교에서] [NP 영이]]'에서 '[KP 학교에서]'가 해석되는 경우
 '철수가 영이를 만난 것은 학교에서였다'의 '학교에서 이-[서술성]'과 마찬가지로. 즉, 다중 분열문 (3가) '철수가 만난 것은 학교에서 영이였다'의 분열절 '철수가 만난 것은'을 논항으로 취함. 이 경우의 '것'은 사건을 나타냄(이정훈 2020가).
- ② 무표찰 구성 '[□ [KP 학교에서] [NP 영이]]'에서 '[NP 영이]'가 해석되는 경우
 '철수가 만난 것은 영이였다'의 '영이 이-[동일성]'과 마찬가지로. 즉, 다중 분열문 (3가) '철수가 만난 것은 학교에서 영이였다'의 분열절 '철수가 만난 것'과 '영이'가 동지표됨.

위의 (4나) ①과 (4나) ②는 동시에/평행하게 성립한다. 그래서 (4나) ①만 고려하면 분열절의 V '만나-'의 목적어 논항이 부재하는 듯하나 (4나) ②를 동시에/평행하게 고려하면 그러한 우려는 불식된다.

위와 같은 도출을 거쳐 형성되는 다중 분열문 (3가)의 통사구조를 제히하면 아래와 같다.

- (5) 철수가 만난 것은 학교에서 영이였다. (= 3가)
 [VP [철수가 만난 것은] [V [□ [KP 학교에서] [NP 영이]] 이-]]

(4나) ①과 (4나) ②에 따르면 (5)의 계사 '이-'는 [서술성]이자 [동일성]이다. 앞면(그림)과 뒷면(숫자)이 공존하면서 하나의 동전이 되는 상황에 비유할 수 있는데, 이러한 상황은, 중의성(ambiguity)과 액어법(zeugma)이 있기는 하지만, 언어 현상에 일반적이지는 않은 것으로 판단된다. 이 때문에 다중 분열문의 성립 여부에 대한 직관이 갈리는 것은 아닌지 검토할 필요가 있다.

7) 무표찰 구성은 일반적으로 허용되지 않지만 내포가 불가능한 구성, 예를 들어 부름말 구성 등에서 성립하며(이정훈 2014: 34-40 참고), 이하의 논의에서 알 수 있듯이 다중 분열문에서도 허용된다. 참고로 표찰(label)은 N, NP, V, VP 등의 전통적인 통사범주(syntactic categories)와 통한다. 다만 전통적인 통사범주는 구 구조 규칙(phrase structure rules) 자체나 핵 계층 이론(X-bar theory)의 투사(projection) 등을 통해 약정(stipulation)되는데 비해 표찰은 약정적 성격을 지니지 않은 표찰화 기제(labeling algorithm)를 통해 정해지는 차이가 있다. 다시 말해 통사범주의 약정적 성격을 개선한 것이 표찰화라 할 수 있다. 표찰화에 대해서는 Chomsky(2013), 이정훈(2020나) 등 참고.

8) 이러한 구성은 '[철수에게 책] -이랑 [순이에게 논문]'은 철수가 주었다'와 같은 접속 구성에서도 나타난다. 이 접속 구성에 대한 자세한 사항은 이정훈(2012) 참고.

5. 분포 제약

아래 (6)으로 반복한 (3가)와 (3나)의 대조는 왜 나타나는가? 왜 대격 성분은 분열 성분 자리에 분포하는 것이 제약되는가?

(6) 철수가 학교에서 영이를 만났다.

가. 철수가 만난 것은 학교에서 영이었다.

나. *철수가 만난 것은 영이(를) 학교에서였다.

대격 조사 '-을/를'이 인허되려면 타동사가 나타나야 한다. 하지만 (6나)에서 '영이를'의 대격 조사 '-을/를'과 어울리는 술어는 타동사가 아닌 계사 '이-'이다. 따라서 (6나)는 대격 조사가 인허되지 못하여 성립하지 않는다.

위와 같은 제안은 대격 조사가 수반되지 않으면 (6나)와 같은 어순도 성립하리라는 예측을 가능케 하며, 이러한 예측은 사실과 부합한다.

(7) 철수가 만난 것은 영이는 학교에서였고, 순이는 전철역에서였다.

다만 일체의 조사를 동반하지 않은 (8)은 성립하지 않는데, 이는 조사를 동반하지 않으려면 술어에 인접해야 하는 제약이 따로 존재하기 때문이다(홍용철 1994, 이남순 1998 등).

(8) *철수가 만난 것은 영이 학교에서였다.

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(4) 지칭 사항으로의 지칭³⁾

담화표지	상대노임법 지칭	의미지칭
미스	o (+노임)	x
양/예	o (+노임)	
이	o (+노임)	빈화 내용에 대한 청자에게의 동조(alignment) 요청
게	x	청자의 믿음이나 행위에 대한 화자의 정정(correction)

2.1. "마썸": 청자노임 표지(addressee honorification marker)

- "마썸"은 표준어의 '오'에 해당하는 것 (한동원 2002: 16, 문순덕 2005: 3). 이것은 상대노임 방법의 [+노임] 자질을 지님.

- (5)a. 철수야, 가이 밥 먹인. (철수야, 그 아이 밥 먹었어)
- b. *철수야, 가이 밥 먹인-마썸. (철수야, 그 아이 밥 먹었어요)
- c. 성남, 가이 밥 먹인-마썸. (성남, 그 아이 밥 먹었어요)

2.2. "양/예", "이": 동조 표지(alignment marker)

- "양/예"는 상대노임법의 [+노임] 자질을, "이"는 [-노임] 자질을 지님.

- (6)a. {+철수야, 성남}. 가이 밥 먹인-양/예. (먹었어-양/예)
- b. {철수야, *성남}. 가이 밥 먹인-이. (먹었어-이)

- "양/예"와 "이"는 동시에 빈화 내용에 대해 청자에게 동조를 요청하는 동조(alignment) 기능을 지님. "양/예"와 "이"는 확인 용법과 강조 용법이 있는데 동조는 확인과 강조를 모두를 포착할 수 있는 개념임

- 확인 용법: 일반적으로 동조 요청은 청자가 알고 있다고 생각하는 것에 대해 청자에게 확인하고자 할 때 자연스럽다.

(7) B가 오랜만에 철수를 만난 후 철수 어머니 B에게

- A: 철수 하영 저삼니다-양/예. (철수 많이 컸었습니다-양/예)
- B: 오게, 이제 중학생 아니가게. (그럼, 이제 중학생이잖아)

(8) 보리가 다 익은 밭을 바라보며 A가 옆에 있는 B에게

- A: 아이고, 보리 다 {익었습니다-양, 익었지-이}.
- B: 게메, 혼자 베어시거. (그러게, 원은 베어야겠다)

3) 상대노임법 지칭을 포착(vocative)과 일치해야 할 요소로 볼 경우 이 지칭은 동사 지칭으로 취급된다 (cf. 홍용철 2018, 2022). "양/예", "이", "게"와 달리 "마썸"은 단독 용법이 존재하지 않는다. 이것은 "마썸"이 청자들과 달리 동사 자질만을 지니는 요소임을 암시하는 것 같다.

제주어 청지칭 문말 담화표지들의 담화 기능과 본포적 제약¹⁾

(Discourse Functions and Distributional Constraints of Hearer-Oriented Sentence-Final Discourse Markers in Jeju Language)

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1. 서론

- 제주어의 "마썸", "양/예", "이", "게" = 문말 담화표지(sentence-final discourse marker): 이것들은 문장종결어미 다음에 수의적으로 나타나는 것들로 문장 내용의 진위에 영향을 미치지 않고 특정 담화 기능만을 수행한다.

(1)a. 가이 밥 먹인. (그 아이 밥먹었어.)

- b. 가이 밥 먹인[-마썸, -양/예, -이, -게].²⁾

- 청지칭(hearer-oriented) 담화표지: 이 담화표지들은 모두 이것들이 나타나는 문장이 청자를 향한 발화임을 알려주는 것들로 가령 청자를 가칭하지 않는 일기장 같은 데서는 나타날 수 없다.

(2) 발표의 목적

- a. 제주어 문말 담화표지 "마썸", "양/예", "이", "게" 각각의 담화 기능을 알아본다.
- b. 이 담화표지들의 억양 세임과 문장종결어미와 관련된 본포적 제약을 살펴본다.
- c. 이 억양 제약과 본포적 제약을 이들의 담화 기능으로 포착할 수 있음을 주장한다.

2. 담화 기능

- 우리는 이 담화표지들이 지니고 있는 청지 지향 담화 기능이 기존 연구들을 고려하고 또 새로운 논거를 근거로 각각 다음과 같다고 주장한다.

(3)a. "마썸"은 상대노임법의 기능만을 지니고 있다.

- b. "양/예"와 "이"는 상대노임법의 기능에다 빈화 내용에 대해 청자에게 동조(alignment)를 요구하는 기능이 공존한다.

- c. "게"는 상대노임법 기능은 배제되고 청자의 믿음이나 행위를 정정(correction)하는 기능만을 지니고 있다.

1) 이 발표의 내용은 홍용철(2024)를 수정 보완한 것이다.

2) "양/예"와 "이"는 문포와 기능이 동일한 요소들임. "양"은 나이든 사람, "예"는 젊은 사람과 여자들이 많

이 사용하는 경향이 있음 (문순덕 2005: 15).

- b. 개난 비 올 줄 알았수강-게? (그러니까 비 올 줄 알았습니까-게?)
- (15) a. 그거 알았 무신 거 출다-게? (그거 있어서 뭐 할래-게?)
 b. 아이고, 무신 거 포 후젠 후염수강-게. (아이고, 무일 또 하려고 하십니까-게?)
- "게"가 진정 질문 해석을 지닐 수 없다는 것은 이것의 어휘적 의미를 청자의 믿음이나 행위에 대한 정정(correction) 또는 반박(refutation)의 기능을 지닌다는 시각으로 설명이 가능하다: 정정이나 반박은 진정한 질문과 양립할 수 없음.

3. 억양 제약

3.1. "마쑈"

- "마쑈"는 문장유형과 관련한 억양(intonation) 제약이 없다: "오"와 마찬가지로 평서문의 하강억양(↘). 평정의문문의 상승억양(↗). 설명의문문의 하강억양(↘) 모두를 허용한다.

- (16) a. 그 아이 밥 먹었어-오.↘ (평서문)
 b. 그 아이 밥 먹었어-오?↗ (평정의문문)
 c. 그 아이 뭐 먹었어-요?↘ (설명문의문)

- (17) a. 가이 밥 먹인-마쑈.↘ (평서문)
 b. 가이 밥 먹인-마쑈?↗ (평정의문문)
 c. 가이 무슨 거 먹인-마쑈?↘ (설명문의문)

- 설명: "마쑈"는 상대높임법 기능만을 지니고 있는데, 상대높임법 기능은 문장유형과 관련 없는 것으로 문장유형과 관련한 억양 제약을 보일 이유가 없다.

3.2. "양/예", "이"

- 억양은 항상 상승하강(↗↘): 평정의문문의 억양인 상승억양이나 평서문의 억양인 하강억양은 불가능

- (18) a. 가이 밥 먹인-양/예.↗↘
 b. *가이 밥 먹인-양/예.↗
 c. *가이 밥 먹인-양/예.↘

5) "양/예", "이" 이전에 나타나는 문장에 휴지가 주어질 경우는 "양/예", "이"에 상승억양이 가능하다.

- (19) a. 가이 밥 먹었수강? 양/예?↗
 b. 가이 밥 먹었? 이?↗

이 경우는 단독 용법으로 "양/예", "이"는 휴지가 주어지는 지전 문장과 독립된 요소임

- 김조 용법: 확인 용법과 달리 김조 용법에서는 말의 내용이 청자에게 구성되기 아니라 진정 보임, 진정보라고 해서 논리적으로 동조 요청이 배제되는 것은 아님

- (9) A: 성님은 하영 아파 보입니다. (형님은 많이 아파 보였습니다)
 B: 아이고, 어제부터 밥 하나도 먹지 않아서-이. (안았어-알겠지)
 B: 아더, 성님은 아젠 밥 잘 먹었지(#-이).

- (10) a. 놀지 마랑 혼자 공부하서 양/예. (문순덕 2005: (12))
 (놀이 말고 일은 공부하십시오. 알았죠)
 b. 놀지 마랑 혼자 공부하라-이.

- (9B)의 경우 (9A)의 내용에 근거하여 '어제부터 밥 하나도 먹지 않았다'는 사실을 동조할 거라고 기대하면서 동조를 요청한다고 볼 수 있음 ((9B)에서 "이"가 부자연스런 이유를 설명할 수 있음) : (10)의 경우 '일은 공부해야 한다'는 것에 동조하기를 요청한다고 볼 수 있음.

- 질문에 대한 대답으로는 부정적: 밥 먹었는지를 묻는 사람에게 밥 먹었다는 사실에 동조를 요청하는 것은 화용론적으로 적절하지 못함

- (11) A: 가이 밥 먹었지나? (그 아이 밥 먹었나?)
 B: 밥 먹었수다(#-양/예). (밥 먹었습니다-양/예)
 B: 밥 먹었지(#-이). (밥 먹었어-이)

2.3. "게": 정정 표지(correction marker)

- "게"는 화자가 청자의 믿음이나 행위에 대해 정성을 표현하는 정정(correction marker) 기능을 지님

- (12) A: 가이 아직 밥 안 먹었지. (그 아이 아직 밥 안 먹었어)
 B: 가이 밥 먹었수다. (그 아이 밥 먹었습니다)
 A: 안 먹었지(#-게). (안 먹었어(#-게))

- (13) (서둘러야 하는데 꾸물거리고 있는 사람에게 재촉하거나 지적하는 상황)
 A: 늦었수다. 혼자 가서-게. (늦었습니다. 이서 가십시오)

- "게"가 의문문과 결합하는 경우 대답을 강한 부정을 표현하는 부정 수사의문문(negative rhetorical question) 해석만 가능

- (14) a. 나가 밥 먹었지나-게? 가이가 먹었수. (내가 밥 먹었나-게? 그 아이가 먹었지)

- 4) "안 먹었지"가 평이한 억양으로 받음될 경우 "게"가 없으면 부자연스럽다. 그러나 단호한 억양으로 받음될 경우는 "게" 없이도 자연스러움.

평서문		의문문	명령문	청유문
존 우 데	갑수다 (갑니다)	갑수강(갑니까)		
	기쿠다 (기겠습니까)	기쿠강?		
비	크우다 (크니다)	크우파?		
	갑네다 (갑니다)	갑네까(갑니까)	갑서 (가세요)	갑주 (가시죠)
평대	갑서 (간다)	갑서?		
	기 (가이)	기?	기	기주 (가시)
하대	기메 (가네)	기나? (가나)		기게
	갑저 (간다)	갑시나? (가나)	갑시라 (가고 있오)	기저

(26) "마쌈"의 상대높임 등급과 문장유형에 따른 결합 여부

평서문		의문문	명령문	청유문
존 우 데	??갑수다-마쌈 ??갑쿠다-마쌈 ??크우다-마쌈 비 *?갑네다-마쌈	?갑수강-마쌈? ?갑쿠강-마쌈? ?크우파-마쌈? ?갑네까-마쌈?		
평대	ok갑저-마쌈 ok가-마쌈 *가네-마쌈	ok갑저-마쌈? ok가-마쌈? *가나-마쌈?	갑저-마쌈 ok가-마쌈	ok갑주-마쌈 ok기주-마쌈 ok기게-마쌈
하대	*갑저-마쌈	*갑시나-마쌈	*갑시라-마쌈	*가저-마쌈

• 비종결어미와는 항상 결합 허용

(27)A: 밥 칭소하라. (밥 칭소하라.) (김순덕 2005: 3)

B: 밥 먹영 마쌈. (밥 먹고-요)

(28)A: 가원 어땜 경 진 일임신고? (그 아이는 어떻게 진 알고 있는가?)

B: 그런 일을 해났넌-마쌈. (그런 일을 했었다고요.) (김순덕 2005: 7)

• "마쌈"의 결합 특징: 전반적으로 "오"와 동일

(29)a. 문장유형 종결어미와의 결합에 대한 제약은 없다.

b. 상대높임법 종결어미와의 결합에 대한 제약이 존재한다.

• 설명: "마쌈"은 상대높임법 자질만을 지닌 요소로 상대높임법과 관련된 없는 문장유형 종결어미와의 결합에 대한 제약은 존재할 이유가 없다.

(30) 상대높임법 종결어미와의 결합에 대한 제약

a. 존대 등급은 허용 여부기 불확실

b. 하대 등급은 허용 불가

c. 평대 등급은 문장유형 종결어미가 아닌 경우 허용, 즉 평서문, 명령문 등 두 가지 이

(19)a. 가이 밥 먹언-이. / >

b. *가이 밥 먹언-이. / >

c. *가이 밥 먹언-이. >

• 설명의문은 억양 불가

(20)a. 가이 무슨 거 먹언? (그 아이 뭐 먹었어?. 설명의문 해석 가능)

b. *가이 무슨 거 먹언-영/예/이? (부정대명사 해석만 가능)

(21)A: 이거 흘저 치우라. (이것 일러 치워라) (문순덕 2005: (20))

B1: 무슨? (왜?)

B2: 무슨-마쌈? (왜요?)

B3: *무사-영/예/이? (왜-영/예/이?. 의문사 조각문 불가)

• 설명: "영/예", "이"는 확지기 지신의 진술이나 명령에 대해 청자에게 동조를 구하는 기능을 지니는데, 동조 요청은 질문 기능과 양립하지 못함. 따라서 질문 억양이 나타날 수 없음.

3.3. "게"

• "게"는 형식 하강억양(↘)만 허용: 평정의문문의 상승억양(↗) 불가

(22)a. 가이 밥 먹언? / > (그 아이 밥 먹었어?)

b. 거기 비 하영 오면? / > (거기 비 많이 오고 있어?)

(23)a. 가이 밥 먹언-게.[ok↘, *↗]

b. 거기 비 하영 오면-게.[ok↘, *↗]

• 설명의문은 억양 불가

(24)a. *가이 무슨 거 먹언-게? (그 아이 뭐 먹었어-게) (부정대명사 해석만 가능)

b. *어디 비 하영 오면-게? (어디 비 많이 오고 있어-게) (부정대명사 해석만 가능)

• 설명: "게"는 청자의 믿음이나 행위에 대한 화자의 정정(correction)을 표현하는 정정 기능을 지니고 있는데, 이 기능은 질문 기능과 양립할 수 없음. 따라서 질문 억양과 양립할 수 없음.

4. 문장종결어미와의 결합 제약

4.1. "마쌈"

(25) 현평표(1977, 1991, 1997)의 3등급 체계

- 상의 문장유형을 허용하는 종결어미의 경우 허용
d. 비종결어미는 허용

(31) 상대높임법 자질 충돌 제약

- 상대높임법 자질 [±/높임]은 중복 출현이 허용되나, 값이 충돌하지 않아야 한다.
a. *감수다, *감나다의 [±높임]은 '마춤', '모의 [±높임] 자질과 충돌하지 않아 허용된다.
b. *감저, *감다의 [±높임]은 '마춤', '모의 [±높임] 자질과 충돌하여 허용되지 않는다.
c. 평대 종결어미는 상대높임법 자질을 포함하고 있지 않다.
d. 비종결어미 '며영', '며고'는 상대높임법 자질 자체를 포함하고 있지 않아 자질이 충돌하지 않고 따라서 허용된다.

• (31)에 대한 증거

- (32)a. ??가이 학교 감수다-마춤
b. ?가이 학교 감수강-미춤?
c. 성년. 이제 학교 감수-미춤.
d. *가이 학교 감저-미춤.
e. 가이 학교 감수다-양/에/아.
f. 가이 학교 감저-양/*에/아.

4.2. "양/에", "이"

(33) "양/에"의 상대높임 등급과 문장유형에 따른 결합 여부

평서문	의문문	명령문	칭유문
존 우 de	*감수강-양/에? *가쿠강-양/에? *크우과-양/에? *감네까-양/에? *감저-양/에? *가-양/에? *가나-양/에? *감시나-양/에?		
평대	ok감수다-양/에 ok감나다-양/에 ok감저-양/에 ok가-양/에 ok가메-양/에 *감시-양/에	ok감시-양/에 ok가-양/에	감주-양/에 ?가주-양/에 ok가게-양/에 *가시-양/에
하대	*감시-양/에	*감시라-양/에	

• "양/에"의 결합 특징

- (34)a. "양"과 "에"는 동일한 본포를 보인다.
b. 문장유형 종결어미와의 결합에 대한 제약이 존재한다: 의문문 표시와 결합 불가
c. 상대높임법 종결어미와의 결합에 대한 제약이 존재한다: 존대와 평대와는 결합 가능하나 하대와는 결합 불가 => (31) 상대높임법 자질 제약

- 설명: "양/에"는 상대높임법 자질 [±높임]을 지니고 있고 동시에 발화 내용에 대해 청자에게

동조를 요청하는 기능을 지닌 요소이다.

- (35)a. "양"과 "에"의 동일한 본포 => "양"과 "에"는 동일 요소의 변이체
b. 의문문 표시와 결합 불가 => 동조 요청 기능은 질문 기능과 양립 불가
c. 존대와 평대와는 결합이 가능하나 하대와는 결합 불가 => (31) 상대높임법 자질 제약

(36) "이"의 상대높임 등급과 문장유형에 따른 결합 여부

평서문	의문문	명령문	칭유문
존 우 de	*감수강-이? *가쿠강-이? *크우과-이? *감네까-이? *감저-이? ok감시-이		
평대	*감시-이 *가-이? *가나-이? *감시나-이?	*감시-이 ok가-이 ok가메-이 ok감시라-이	*감주-이 ?가주-이 ok가게-이 ok가시-이
하대	ok감저-이		ok가지-이

• "이"의 결합 특징

- (37)a. 의문문 표시와는 결합 불가 => 동조 요청 기능은 질문 기능과 양립 불가
b. 존대와는 결합 불가능하나 하대와는 결합 가능 => "이"는 [±높임] 자질
c. 평대에서는 "양"과 "에"와 마찬가지로 결합 가능 => 평대는 [높임] 자질이 부재!

4.3. "게"

(38) "게"의 상대높임법 등급과 문장유형에 따른 결합 여부

평서문	의문문	명령문	칭유문
존 우 de	ok감수다-게 ok가쿠다-게 ok크우다-게 ok감네다-게 ok감시-게 ok가-게 ok가메-게 ok감시나-게	ok감수강-게? ok가쿠강-게? ok크우과-게? ok감네까-게? ok감시-게? ok가-게? ok가나-게? ok감시라-게?	
평대	ok감시-게 ok가-게 ok가메-게 ok감시나-게	ok감시-게 ok가-게 ok가메-게 ok감시라-게	ok감주-게 ok가주-게 ok가게-게 ok가시-게
하대	ok감저-게	ok감시라-게	ok가자-게

- 의문문의 경우 언제나 부정 수사의문문 해석만 가능

• "게"의 결합 특징

- (39)a. 상대높임법 종결어미와의 결합에 대한 제약이 없다: 모든 등급에서 결합 가능

b. 문장유형 종결어미의 결합에 대한 제약이 없다. 단, 의문문 표지와 결합할 때는 언제나 부정 수사의문을 해석된 기능이다.

- 설명: “게”는 상대높임법 자질 없이 청자의 믿음이나 행위에 대한 회자의 정정(correction)을 표현하는 기능만 지닌다.

(40a. 모든 상대높임법 등급과의 결합 가능 => ‘게’는 상대높임법 자질이 없음

- b. 의문문 표지와 결합할 때 부정 수사의문을 해석된 기능 => 정정 기능은 질문 기능과 양립 불가 (의문문 표지는 질문 기능을 필연적으로 수반하는 것이 아님)

5. 결론

제주어의 담화표지 “마씀”, “앙/예”, “이”, “게”는 다음과 같이 상대높임법 자질과 의미 자질의 사항으로 정의될 수 있다.

담화표지	상대높임법 자질	의미자질
마씀	o (+높임)	x
앙/예	o (+높임)	
이	o (-높임)	말화 내용에 대한 청자에게의 동조(alignment) 요청
게	x	청자의 믿음이나 행위에 대한 회자의 정정(correction)

즉, “마씀”은 의미자질 없이 [+높임] 상대높임법 자질만을 지니는 요소이고, “앙/예”는 [+높임] 상대높임법 자질과 함께 [동조] 의미자질을 지니는 요소이고, “이”는 [-높임] 상대높임법 자질과 함께 [동조] 의미자질을 지니는 요소이고, “게”는 상대높임법 자질 없이 [정정] 의미자질만 지니는 요소이다.

이 정의는 이 담화 표지들의 어양과 관련된 음운론적 제약과 문장종결어미들과의 결합 제약을 포착하게 해 준다.

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Hearing shapes, seeing sounds: Early word learning through sound symbolism in Korean infants

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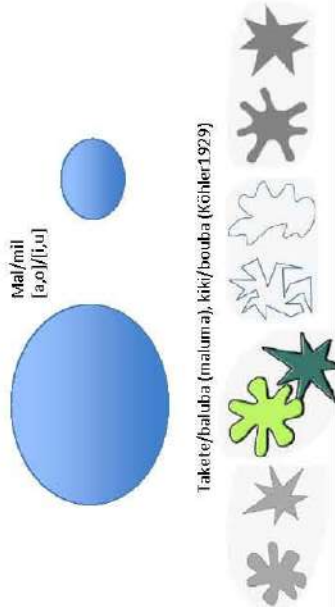
Three types of signs

Charles Saunders Peirce (1838-1914)

- Icons:** Signs that visually or perceptually resemble the things they represent.
 – e.g., mirror images, photos, paintings, maps 
- Indices:** Signs that have a direct but non-representational connection to their referents
 – e.g., smoke as a sign of fire; arrows indicating directions; sundial indicating time 
- Symbols:** Signs where the relationship between form and meaning is arbitrary and established by convention.

Sound symbolism

- Some words are classified as 'iconic', rather than symbolic.
 – The sound of a word represents its lexical meaning.



Research questions

- Are Korean-learning infants sensitive to the "bouba-kiki" type sound symbolism?
- Does this sensitivity drive word mapping differently at 14 & 28 months old?
 - e.g., mapping incongruent stimuli?
- Can they generalize the sound-shape link to different colors?
 - shape-bias?

METHODS

Participants

- A total of 64 infants (40 males) were tested.
(27 additional infants were excluded for various reasons.)

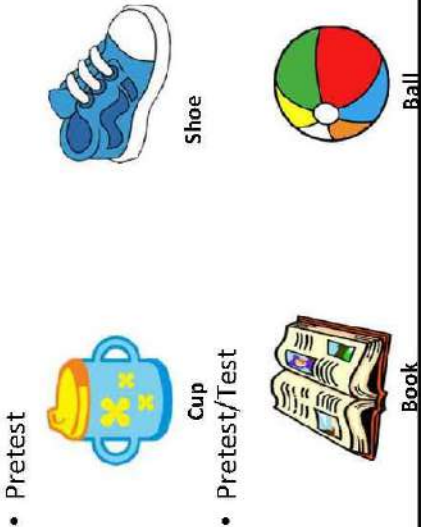
	Match	Mismatch
Younger (N = 33)	N = 22 (14 males), M = 14.06	N = 11 (7 males), M = 14.15
Older (N = 31)	N = 18 (11 males), M = 28.01	N = 13 (8 males), M = 28.06

Stimuli



































- Labels decided based on a survey of 52 participants (F=28, M=24, Mean Age=31 (SD=12)).

Filler items



Experimental procedure and visual stimuli

Pretest	(1) 	(2) 	(3) 
	(4) 	(5) 	(6) 
Habituation	Nimch:    		
	Mimach:    		
Test	(1)  Baba, where is the <u>Kya</u> ?	(2)  Kya, where is the <u>Baba</u> ?	(3)  Baba, where is the <u>Kya</u> ?
	(4)  Baba, where is the <u>Baba</u> ?	(5)  Kya, where is the <u>Kya</u> ?	(6)  Baba, where is the <u>Baba</u> ?
	(1)  Baba, where is the <u>Baba</u> ?	(2)  Kya, where is the <u>Baba</u> ?	(3)  Baba, where is the <u>Baba</u> ?
	(4)  Baba, where is the <u>Baba</u> ?	(5)  Kya, where is the <u>Baba</u> ?	(6)  Baba, where is the <u>Baba</u> ?
Generalization	(1)  Baba, where is the <u>Baba</u> ?	(2)  Kya, where is the <u>Baba</u> ?	(3)  Baba, where is the <u>Baba</u> ?
	(4)  Baba, where is the <u>Baba</u> ?	(5)  Kya, where is the <u>Baba</u> ?	(6)  Baba, where is the <u>Baba</u> ?

Coding

Right, Left, Center, Away



Experimental procedure

Attention-getting Movie

Pretest Phase (42.61')

Attention-getting Movie

Habituation Phase (16 trials, maximum 18')

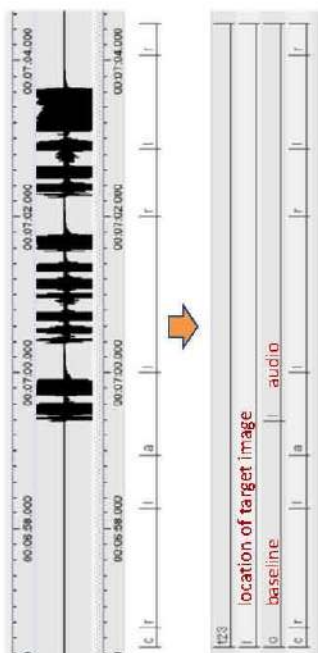
Attention-getting Movie

Test Phase 1 (6 trials, 8')

Attention-getting Movie

Test Phase 2 (6 trials, 8')

Attention-getting Movie



look to target look to distractor

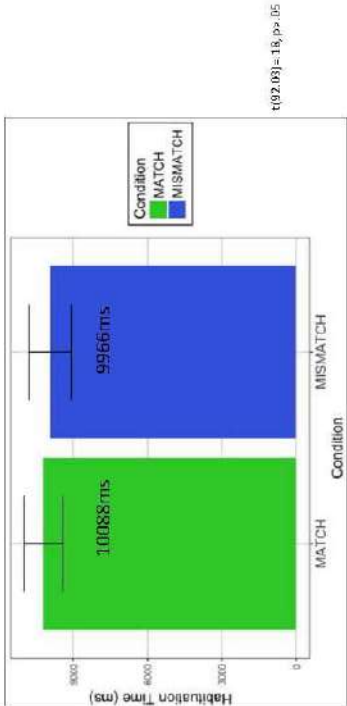
Reliability between two coders based on total looking time in each trial based on 48 trials: The Cronbach's Alpha value of 0.85 indicates excellent reliability.

RESULTS

Analysis

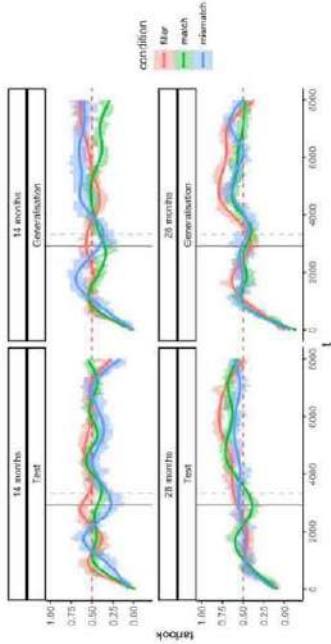
- Extract looking direction at every 30ms
- Time window: Initial 2 sec for baseline and 4 sec after audio stimuli (376ms after audio onset)
- Data Cleaning
 - Exclude participants who were crying/not interested.
 - Exclude trials where participant spent more than 50% of time looking away.
 - Exclude trials where child looked only at one image for the trial.
- About 75% trials included.

Habituation time for each condition

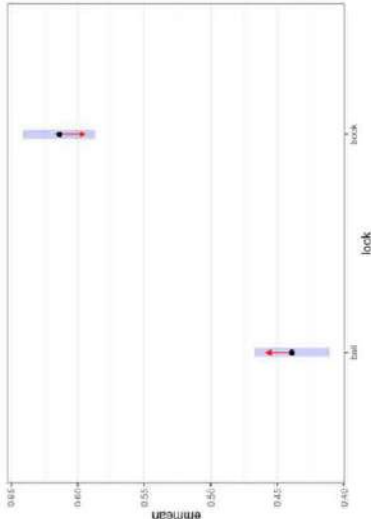


Time course plot for the proportion of look

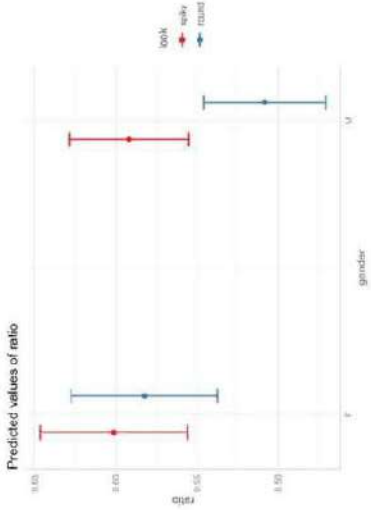
- Target look in the filler, match and mismatch condition during trial.



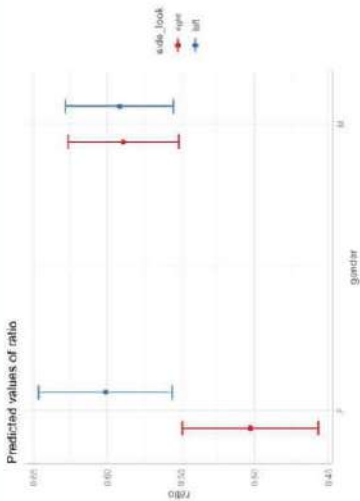
Baseline bias during filler trials



Baseline bias of shape



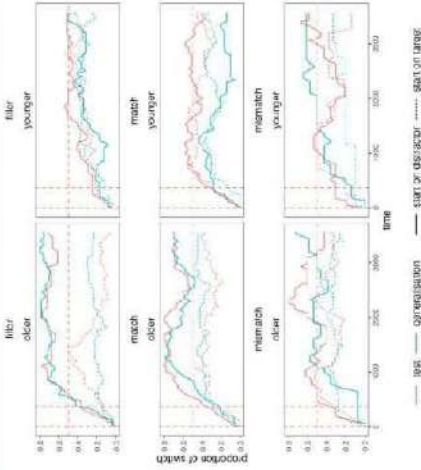
Side bias in girls



Switch from distractor-to-target vs target-to-distractor

- **Assessment Criteria:**
 - **Gaze Switching:** The extent to which children switched their gaze from a distractor image to a target image.
 - **Gaze Fixation:** The extent to which children maintained their gaze on the target image when initially fixating on it.
- **Proportion of Switch Over Time:** Defined as the switch of gaze from the fixation on one image at the start of stimuli onset to the other image on the screen.
- **Evidence of Target Recognition:**
 - **Significant Proportion Differences:** A significantly larger proportion of distractor-to-target compared to target-to-distractor switches could indicate target recognition.
- **Exclusion Criteria:** Trials where the child did not fixate on either image at the beginning were excluded from the analysis.

Proportion of switch over time



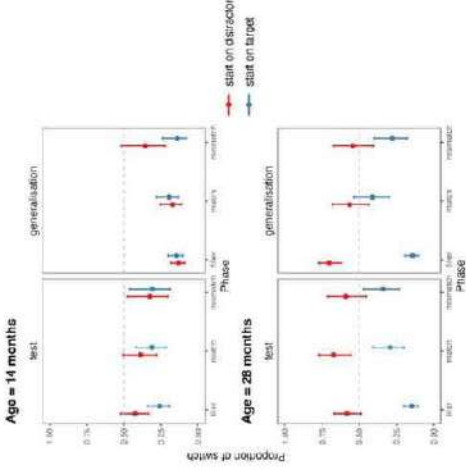
Statistical model

- Binomial Linear Mixed-Effects Model (GLMM)
- Model Formula:
`glmer(proportion ~ gaze_start * condition * age * phase_type + (1 | subj), family = binomial("logit"))`
- Significant interaction between all four variables.
- Pairwise Comparisons: Performed to explore interactions further.

Summary by age and condition during test phase

Age	Condition	Distractor-to-Target Switches	Statistical Significance
14 Months	Filler Condition	Significantly more frequent	$p < .001$
	Match Condition	Significantly more frequent	$p < .001$
	Mismatch Condition	No difference	$p = 1$
28 Months	Filler Condition	Significantly more frequent	$p < .001$
	Match Condition	Significantly more frequent	$p < .001$
	Mismatch Condition	Significantly more frequent	$p < .001$

- Both younger and older children recognized the filler items.
- **Younger children:** does not show difference in Mismatch condition.
- **Older children:** show evidence for learning in both conditions.



Summary by age and condition during generalization

Age	Condition	Distractor-to-Target Switches	Statistical Significance
14 Months	Filler Condition	No significant difference	$p = .373$
	Match Condition	No significant difference	$p = .358$
	Mismatch Condition	Significantly more frequent	$p < .001$
28 Months	Filler Condition	Significantly more frequent	$p < .001$
	Match Condition	Significantly more frequent	$p < .001$
	Mismatch Condition	Significantly more frequent	$p < .001$

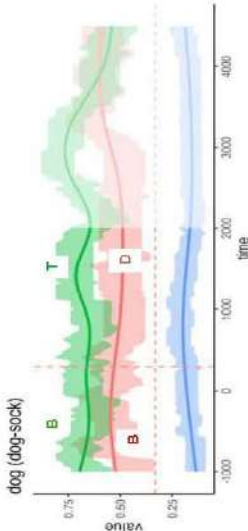
- **Older children:** Learning generalizes well to new items in both Match and Mismatch conditions.
- **Younger children:** Fatigue effect (no learning in Filler condition).
 - limits our ability to draw reliable conclusions about their generalization abilities.

Biases

- Preference for book vs. ball
- Boy's preference for spiky shape vs. round shape
 - One of the first studies to report gender bias.
- Girls' left-side bias
 - **6-Month-Old Infants:** Show a wider tendency for left gaze preference towards objects and faces of different species and orientations.
 - **Adults:** Bias appears only towards upright human faces. (Guo et al., 2008)

DISCUSSION

Methods - Eye-tracking Task



- Target look during Test: T
- Target look during Baseline: T - B
- Image as Distractor: T - D (requires at least a yoked pair)

How firm is 14 month old's sensitivity to sound symbolism?

- **Applying switch method** showed 14-month-olds' mapping of sound and shape in the Match condition.
 - But the result is not consistent if using different methods.
 - Sound symbolism not found in 12-month-olds (Sidhu et al., 2023).
- **Link to vocabulary scores?**
 - If sound symbolism helps word learning, those who demonstrate sensitivity are expected to have greater vocabulary.
 - 12-month olds who babbled more showed a greater sensitivity to sound symbolism (Sidhu et al., 2023).

Summary

1. Are Korean-learning infants sensitive to the "bouba-kiki" type sound symbolism?
 - Yes: Both younger (14-month-olds) and older (28-month-old) children showed mapping in the congruent condition.
2. Does this sensitivity drive word mapping differently at 14 & 28 months old?
 - Yes: Older infants showed consistent mapping across all conditions.
3. Can they generalize the sound-shape link to different colors?
 - Yes, but with age differences:
 - 28 Months: Older children successfully generalize the sound-shape link to different colors, regardless of shape-color pairing reversals.
 - 14 Months: Younger children's ability to generalize is compromised by fatigue, as shown by their performance in the generalization phase.

Shape bias in generalization phase


- **Sound-shape or sound-color pairings?**
- **Reversed Pairings:** Shape-color pairings were reversed compared to the habituation and test phases.
 - **Example:** Spiky shape presented in green during habituation/test is later presented in orange (color of round shape) during generalization.
- **Color as a Non-Primary Reference:**
 - **Observation:** Color-sound association reversed during generalization phase.
 - **Outcome:** Results show no significant difference, suggesting color is not the primary reference for the label.

Thank you!

Questions?

Acknowledgements: The mothers and infants who participated in this study, Theo Veerker for his help with setting up the experimental software, Euisan Kim, Jiho Kim, and Taesung Lee for their assistance with stimuli generation and coding, and Youngja Nam and Jiho Kim for their help with administering the experiments.

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Code-Switching and Emotion

Seokhwa Lee

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- 01 Introduction
- 02 Method
- 03 Results
- 04 Discussion

01 Introduction

Research Questions

How do the emotional states of Korean (L1) speakers impact the frequency of code-switching to English (L2) in natural communication settings?

- Matrix Language: Korean (L1)
- Embedded Language: English (L2)

Literature Review

- Immigrant mothers and their heritage bilingual children tend to **code-switch** more frequently in **emotional situations** (Williams et al. 2020).
- Code-switching is most frequent when talking about **personal or emotional topics** with **friends or colleagues** and is significantly less frequent when talking about neutral topics to strangers or to larger audiences (Dewaele, 2010).
- The **sudden emotional arousal** of the speaker may automatically activate expressions with the highest emotional resonance, which may cause code-switching (Grosjean, 2008).

02

Method

- Corpus Analysis** (Bentley-Martinez et al., 2018).
- 4 Popular **Korean Comedy Shows** where celebrities **play games** (Not scripted).
- The cast in the analyzed shows have English proficiency ranging from **low to intermediate** and were born and raised in Korea.
- 151 Non-code-switched sentences (Korean sentences).
- 73 Code-switched sentences (From L1 Korean to L2 English).

Show (Year)	Cast	Age range	Analyzed line
Girakstil (2022)	3 singers, 1 comedian (all female)	$M = 24.0$ $SD = 4.64$	1 hour
Shipoya (2022)	5 actors (2 females, 3 males)	$M = 39.4$ $SD = 1.85$	20 mins
BTS Show (2021)	7 singers (all male)	$M = 25.71$ $SD = 1.48$	20 mins
Shinseonyugi (2020)	2 comedians, 4 singers (all male)	$M = 36.17$ $SD = 7.97$	40 mins

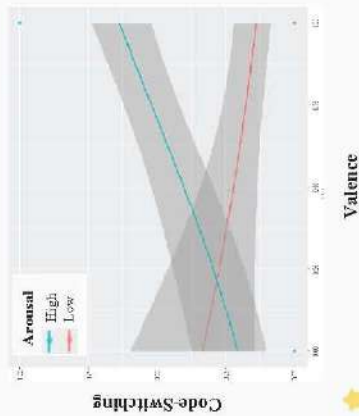
- Previous studies on code-switching have only focused on **valence**.
- Emotion = Valence + Arousal + Dominance** (Balan et al., 2019; Warriner et al., 2013)
- All types of code-switching (e.g., insertion, alternation, dense code-switching) were analyzed.

	Valence	Arousal	Dominance	Emotion	CodeSwitching
1. Corpus					
1. gesture+reaction	1	1	1	1 Joy	0
2. Let's go	1	1	1	0 Excitement	0
3. Oh hey	1	1	0	1 Optimism	0
4. Oh my god	1	1	1	0 Excitement	0
5. Let's go let's go	1	1	1	0 Excitement	0
6. Let's go let's go let's go	1	1	0	1 Calmness	0
7. Over	1	1	1	1 Joy	0
8. I love it	1	1	0	1 Calmness	0
9. regular size	1	0	1	1 Calmness	0
10. regular size	1	0	1	1 Calmness	0
11. What's wrong	1	1	1	0 Excitement	0
12. What's your problem	1	1	1	0 Excitement	0
13. In sorry	1	1	0	1 Depression	0
14. Over	1	1	0	1 Joy	0
15. I'm picky	1	1	1	0 Excitement	0
16. I'm so sorry for this	1	1	1	0 Excitement	0
17. I don't expect this situation	1	1	1	1 Depression	0
18. Shall we start again	1	1	0	1 Optimism	0
19. Shall we start again	1	1	1	0 Excitement	0

03

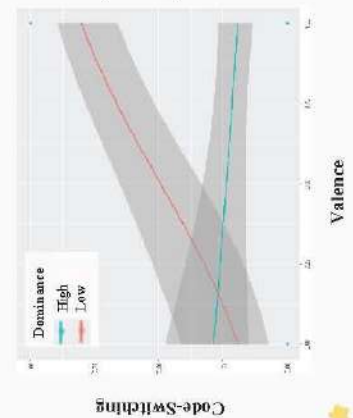
Results

Interaction between Valence and Arousal on Code-Switching



- The interaction between valence and arousal was statistically significant ($\beta = 2.01, SE = 0.98, p = .041$).
- When both valence and arousal were high, the likelihood of code-switching increased.
- The logistic regression analysis indicated that the model achieved AUC of 79% ($M = 0.7946$), suggesting good predictive performance, and the AIC value was 1148.1, which serves as an indicator of model fit.
- The VIP for Valence was 1.12, for Arousal it was 1.62, and for Dominance, it was 1.61, suggesting that multicollinearity was not a concern in this model.

Interaction between Valence and Dominance on Code-Switching



- The interaction between valence and dominance was significant ($\beta = -2.01, SE = 1.01, p = .047$).
- When valence was high and dominance was low, the likelihood of code-switching increased.

04

Discussion

- **High arousal and low dominance, which reduce cognitive control** (Demanet et al., 2011; Harlie et al., 2013; Robbins & Arnsten, 2009), made it **more challenging to suppress the L2** in positive valence situations, which ultimately led to **more frequent code-switching**.
 - Bilinguals' languages are activated in **parallel** (Andel et al., 2015; Costa et al., 2000; 2005; Kroll et al., 2006; 2014; Libben & Titone, 2009; Van Hell & Dijkstra, 2002; Sandoval et al., 2010; Woumans et al., 2021) and thus the non-target language has to be inhibited when speaking the other language according to the Inhibitory Control model (Green, 1998).
 - Lexical gap was not the key factor for code-switching given participants' low to intermediate proficiency in English.
- While language-switching has costs (Misra et al., 2012), the results suggest that certain **emotional states can override these costs**.
 - **Code-switching** is a unique discourse mode that bilinguals use to **facilitate production** (Johns & Steuk, 2017)
- The fact that the analyzed shows were all **comedy shows** and the casts were all **close colleagues** could have caused more frequent code-switching.
 - A **stronger familiarity with the interlocutor** is linked to increased code-switching (Dewale, 2010).
 - Code-switching communicates an air of playfulness and can have a **comic effect** (Dewale, 2010).
- The fact that all Koreans can speak English to some extent may have functioned as an **interactional context**, rather than a separated context, despite the cast members **not** being fully immersed in an L2 culture.
 - The cast members in the show somewhat resemble the participants in the **integrated context** described in the study of Beatty-Martinez et al. (2020).

이종현 발표자료

Pragmatic inference of scalar implicature by LLMs

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Overview

1. Background
2. Research questions
3. Method
4. Experiment 1
5. Experiment 2
6. Discussion & Conclusion

Background

- **Pragmatic inference** refers to the process of making inference based on the contexts and intentions of language use.
- **Implicature** is a type of pragmatic inference where the speaker conveys additional meaning or information that is not explicitly stated.
- **Scalar implicature** represents the quantity or range of a particular attribute, such as a quantifier *some*.

Background

Some students passed the exam.

- Semantic entailment:
At least one (or two) and possibly all students passed the exam.
- Pragmatic implicature:
Not all students passed the exam.

Background

<some, all>
weak-(informativeness)-strong

- The informativeness on the quantifier scale corresponds to the scale strength (Horn, 1972).
- In pragmatic interpretation, the weak term implies the negation of the strong term.
i.e.) Some = Not all
- In the processing of scalar implicature, humans tend to prefer pragmatic interpretation to semantic interpretation (Bott and Noveck, 2004).

6

Background

- However, whether *some* is interpreted with the pragmatic implicature is determined by the broader context, such as **Question Under Discussion (QUD)** (Roberts, 2012).
- **QUD** refers to the topics in conversation that should be addressed by appropriate answers

Upper-bound QUD	Lower-bound QUD
A: Did all students pass the exam? B: Some students passed the exam.	A: Did any students pass the exam? B: Some students passed the exam.

8

Background

Some is clearly interpreted as **not all** relevant to pragmatic implicature.



Some is felicitously interpreted without **not all** implicature.



Upper-bound QUD	Lower-bound QUD
A: Did all students pass the exam? B: Some students passed the exam.	A: Did any students pass the exam? B: Some students passed the exam.

7

Background

Two approaches to the processing of scalar implicature

- **Default model (Levinson, 2000)**
As human generally has an expectation of how language is typically used, implicature is generated as a default and can be negated or canceled when it becomes irrelevant in the given context.
- **Context-driven model (Wilson & Sperber, 1995)**
Human cognition tends to integrate a given utterance with context, resulting in more positive cognitive effects for a more relevant utterance, while requiring greater cognitive effort for a less relevant utterance.

8

Background

Two approaches to the processing of scalar implicature

In Yang et al. (2018), cognitive efforts were greater when interpreting *some* in the upper-bound QUD (i.e., *all*-condition) rather than lower-bound QUD (i.e., *any*-condition). This finding supports **Context-driven model**, indicating that more cognitive effort is required to infer scalar implicature with a contextual cue (QUD) in human sentence processing.

- **Context-driven model (Wilson & Sperber, 1995)**

Human cognition tends to integrate a given utterance with context, resulting in more positive cognitive effects for a more relevant utterance, while requiring greater cognitive effort for a less relevant utterance.

9

Research questions

1. Do LLMs prefer pragmatic interpretation rather than semantic interpretation for scalar implicature without context?
2. Do LLMs exhibit sensitivity to a contextual cue (QUD) during the processing of scalar implicature?

10

Method

Data

- A total of 198 sentences from British National Corpus (BNC)
- 'Some + NP' construction positioned as subject
- Excluded multiple clauses to avoid the possibility of cancellation
- **"Some information should be secret."** (BNC W:newsbiotheisocial, K5C-156)

Models

- BERT-base-uncased
- GPT-2 small



11

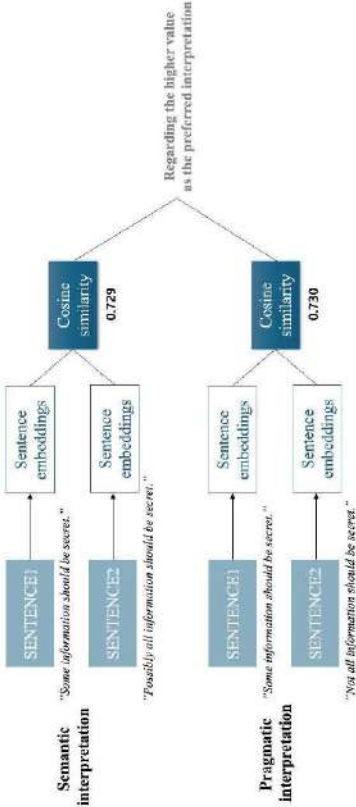
Experiment 1

Materials

SENTENCE1	SENTENCE2	Interpretation
<i>Some information should be secret.</i>	<i>Possibly all information should be secret.</i>	Semantic
<i>Some information should be secret.</i>	<i>Not all information should be secret.</i>	Pragmatic

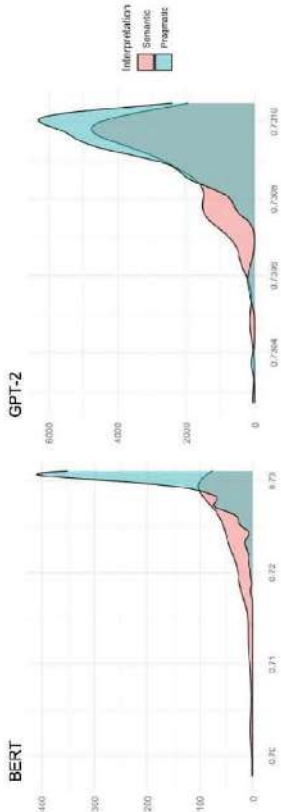
12

Experiment 1



Experiment 1

Result



Experiment 1

Result

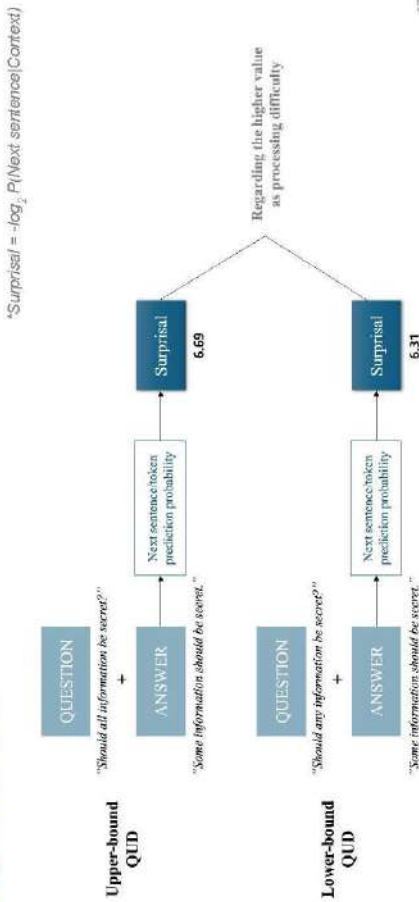
- Out of 198 sentences, BERT preferred semantic interpretation for 28 and pragmatic for 170 ($p < 0.001$)
- GPT-2 preferred semantic for 53 and pragmatic for 145 ($p < 0.001$)
- While both interpretations exhibited high degree of sentence similarities, the pragmatic interpretations appeared relatively more prominent

Experiment 2

Materials

QUESTION	ANSWER	QUD
Should all information be secret?	Some information should be secret.	Upper
Should any information be secret?	Some information should be secret.	Lower

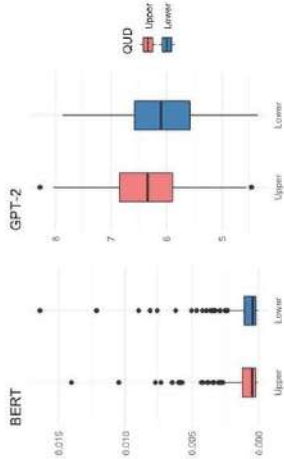
Experiment 2



Experiment 2

Result

- BERT showed little difference in surprisals based on QUDs ($p=0.48$).
- GPT-2 exhibited higher surprisal scores for the upper-bound QUD compared to the lower-bound QUD ($p < 0.01$).
- During the processing of scalar implicature across QUDs, BERT exhibited no sensitivity to context, whereas GPT-2 manifested the effects of context.



Discussion & Conclusion

- Experiment 1 revealed that, without context, both models preferred the interpretation of pragmatic implicature over semantic entailment.
- Experiment 2 revealed that, considering context, BERT showed no significant difference in processing difficulties based on QUDs, whereas GPT-2 showed more processing difficulties in the upper-bound QUD.
- The processing result of **BERT** can be explained by **Default model**, whereas the processing result of **GPT-2** follows **Context-driven model**.

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Thank you

Dependency Resolution

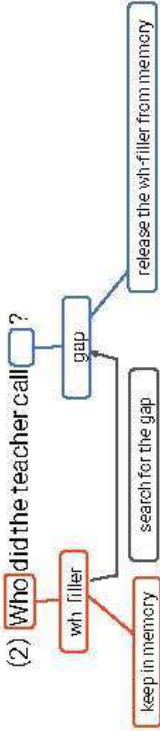


The processing of backward Noun Phrase Ellipsis

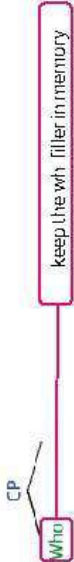
Younseo Ha & Nayoun Kim

(Sungkyunkwan University: English Language and Literature)
The 2024 Linguistic Society of Korea Winter Conference
2024/11/23

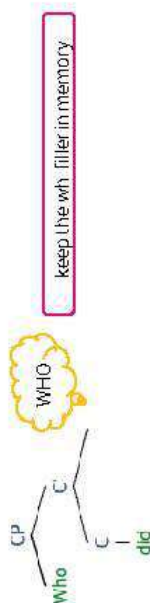
Wh-filler Gap Dependency



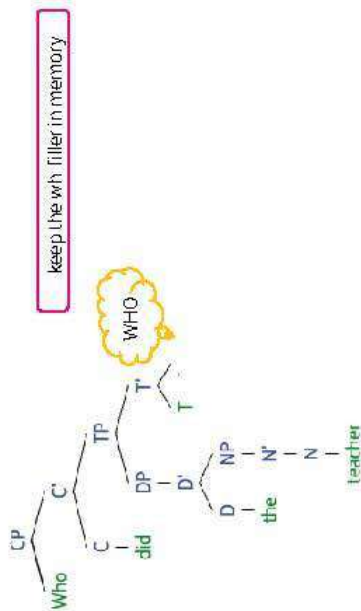
Wh-filler Gap Dependency



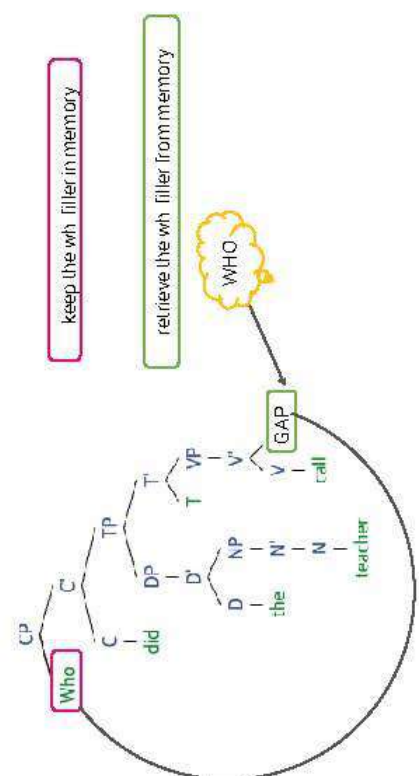
Wh-filler Gap Dependency



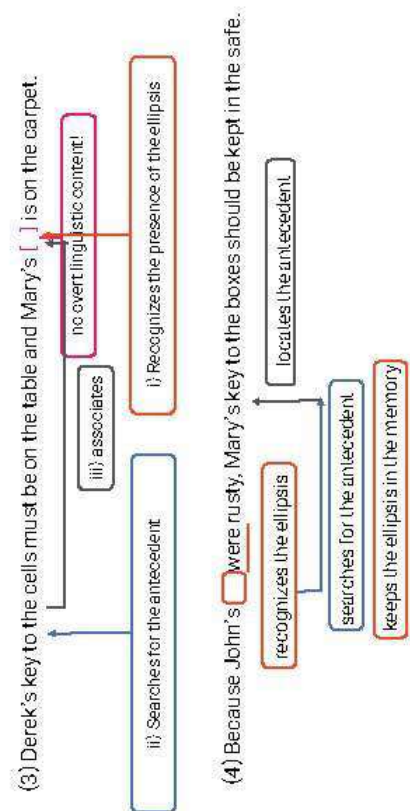
Wh-filler Gap Dependency



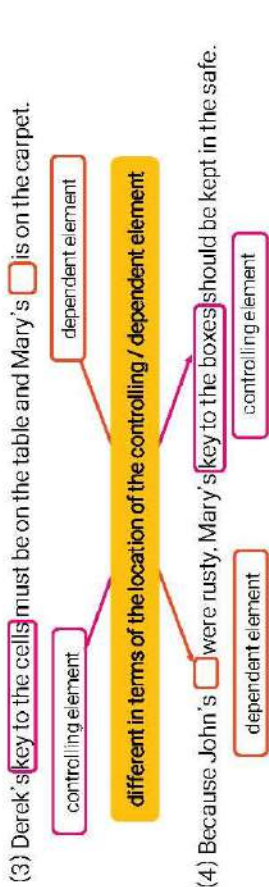
Wh-filler Gap Dependency



Backward Noun Phrase Ellipsis (NPE)



Why Backward Noun Phrase Ellipsis (NPE)?

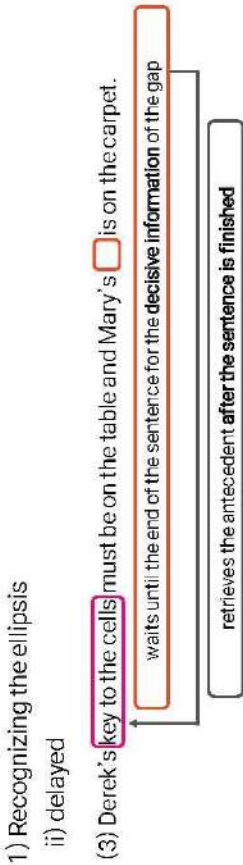


The Processing of Ellipsis



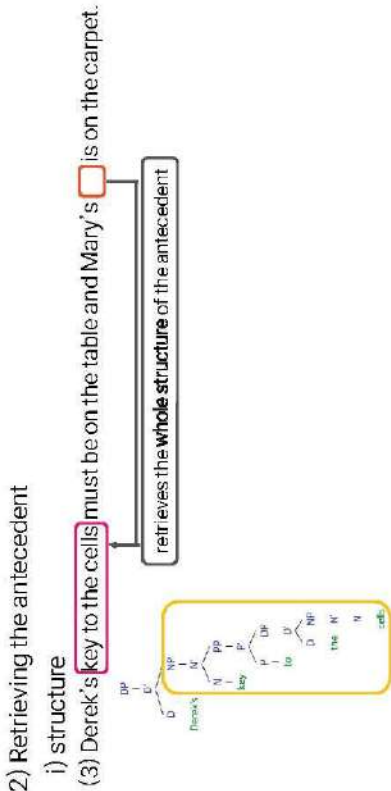
(Kim, Brehm, & Yoshida, 2019; Kim & Frazier, 2023; Kim, Fujita, & Cummings, in preparation; Kim & Yoshida, under revision; Martin & McElree, 2008; Martin & McElree, 2011; Martin & McElree, 2018; Phillips & Parker, 2014; Yoshida, Wang, & Potter, 2012; Yoshida, Dickey, & Sturt, 2013; Yoshida & Gallego, 2008; Yoshida & Nakao, 2014)

The Processing of Ellipsis



(Kim, Brehm, & Yoshida, 2019; Kim & Frazier, 2023; Kim, Fujita, & Cummings, in preparation; Kim & Yoshida, under revision; Martin & McElree, 2008; Martin & McElree, 2011; Martin & McElree, 2018; Phillips & Parker, 2014; Yoshida, Wang, & Potter, 2012; Yoshida, Dickey, & Sturt, 2013; Yoshida & Gallego, 2008; Yoshida & Nakao, 2014)

The Processing of Ellipsis



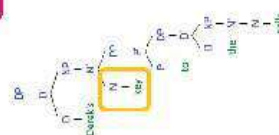
(Kim, Brehm, & Yoshida, 2019; Kim & Frazier, 2023; Kim, Fujita, & Cummings, in preparation; Kim & Yoshida, under revision; Martin & McElree, 2008; Martin & McElree, 2011; Martin & McElree, 2018; Phillips & Parker, 2014; Yoshida, Wang, & Potter, 2012; Yoshida, Dickey, & Sturt, 2013; Yoshida & Gallego, 2008; Yoshida & Nakao, 2014)

The Processing of Ellipsis

2) Retrieving the antecedent

ii) morphology + meaning

(3) Derek's key to the cells must be on the table and Mary's ☐ is on the carpet.

retrieves **only the head** and its **morphology + meaning**[illegible]

Illusion of Grammaticality

(5)

- a. * The key to the boxes are on the table.
- b. The key to the boxes is on the table.
- c. * The key to the box are on the table.
- d. The key to the box is on the table.

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Illusion of Grammaticality

(5)

- a. * The key to the **boxes** **are** on the table.
- b. The key to the boxes is on the table.
- c. * The key to the **box** **are** on the table.
- d. The key to the box is on the table.

O'Neil, V., & Soggett, S. (Eds.). (2016). *Kelly's Young People's Encyclopedia*. New York: Scholastic.

Pearson, L., & Gentry, J. (Eds.). (2014). *The World's Most Dangerous Places*. New York: Macmillan/McGraw-Hill.

[illegible]

Illusion of Grammaticality

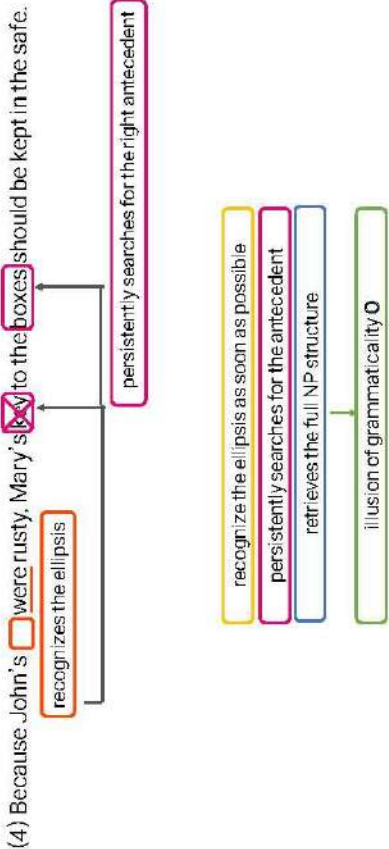


Dillon, Mishler, Sloggett, & Phillips, 2013; Kim et al., 2019; Kim & Yoshida, under revision; Lago, Shalom, Lau, & Phillips, 2015; Parker & Phillips, 2017; Pearlmutter, Gernsey, & Bock, 1999; Tanner, Nicol, & Brahm, 2014; Thornton & MacDonald, 2003; Wagers, Lau, & Phillips, 2009

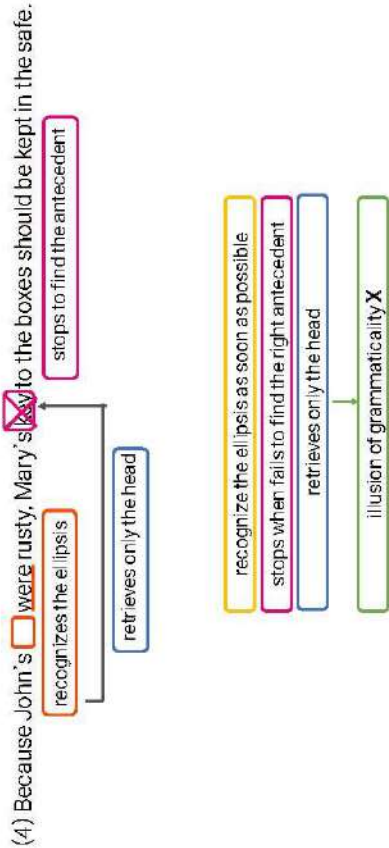
Backward Noun Phrase Ellipsis (NPE)

Is the processing of backward NPE similar to that of NPE?
- Does the illusion of grammaticality also take place in backward NPE?
Is the processing of backward NPE similar to that of wh-filler-gap dependency?

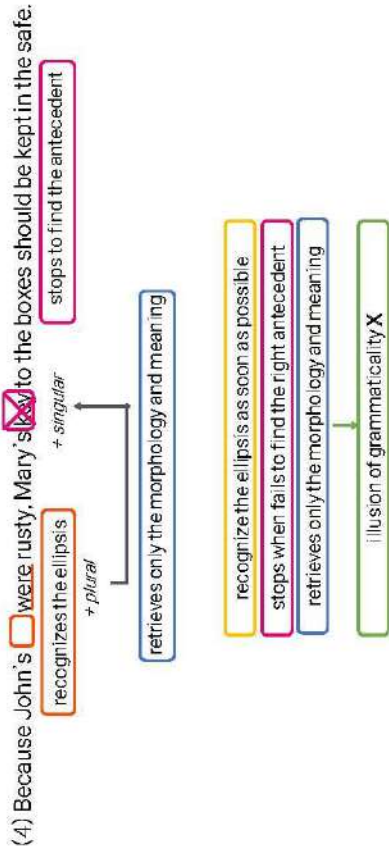
The Processing of Backward NPE: Scenario 1



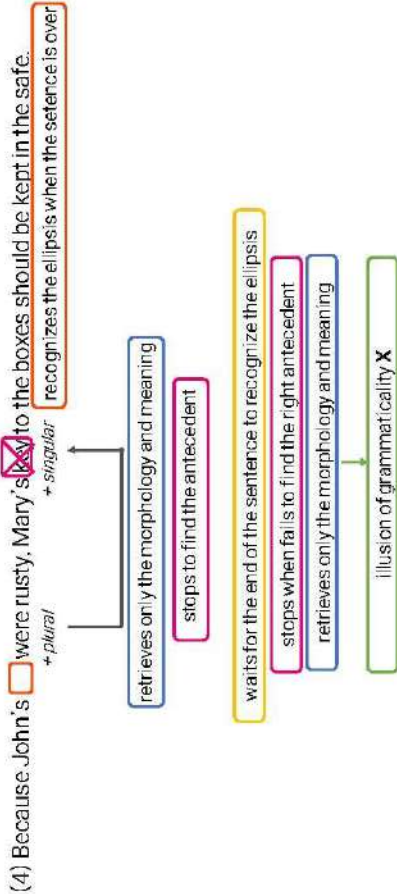
The Processing of Backward NPE: Scenario 2



The Processing of Backward NPE: Scenario 3



The Processing of Backward NPE: Scenario 4



Self-paced reading experiment: methods

- Self-paced reading (N= 44, native speakers of English)
 - 2X2 design (*Number of DP inside the PP* X *Grammaticality*)
- a. Although Momma's were comforting, Billy's from the closets still terrified the kids.
- +plural

ungrammatical

+singular

plural
- d. Although Momma's was comforting, Billy's from the closet still terrified the kids.
- +singular

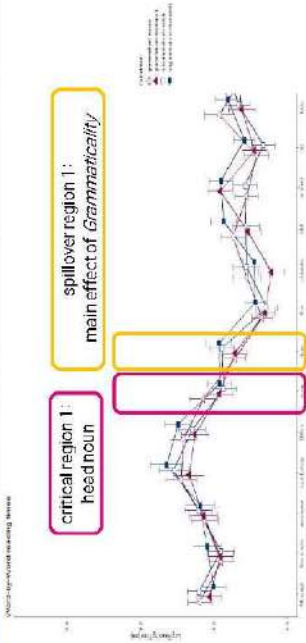
grammatical

+singular

singular

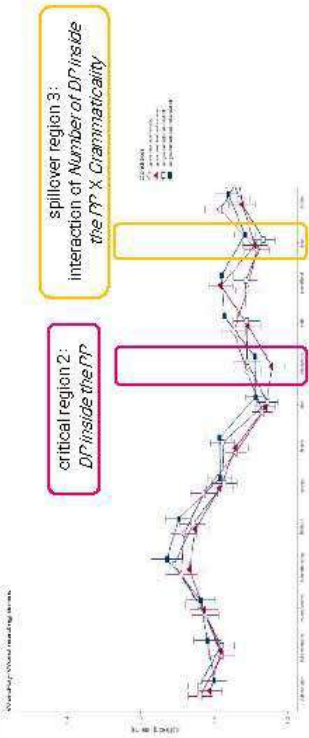
Self-paced reading experiment: result

	Plural DP	Singular DP
Ungrammatical	a. Although Momma's were comforting, Billy's song from the closets still terrified the kids.	c. Although Momma's were comforting, Billy's song from the closet still terrified the kids.
Grammatical	b. Although Momma's was comforting, Billy's song from the closets still terrified the kids.	d. Although Momma's was comforting, Billy's song from the closet still terrified the kids.

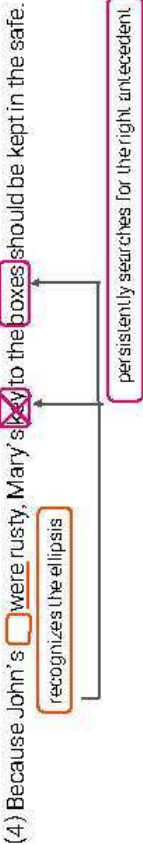


Self-paced reading experiment: result

	Plural DP	Singular DP
Ungrammatical	a. Although Momma's were comforting, Billy's <i>scat</i> from the <i>closets</i> still terrified the kids.	c. Although Momma's were comforting, Billy's <i>scat</i> from the <i>closet</i> still terrified the kids.
Grammatical	b. Although Momma's was comforting, Billy's <i>scat</i> from the <i>closets</i> still terrified the kids.	d. Although Momma's was comforting, Billy's <i>scat</i> from the <i>closet</i> still terrified the kids.



Discussion : Scenario 1



recognize the ellipsis as soon as possible

persistently searches for the antecedent

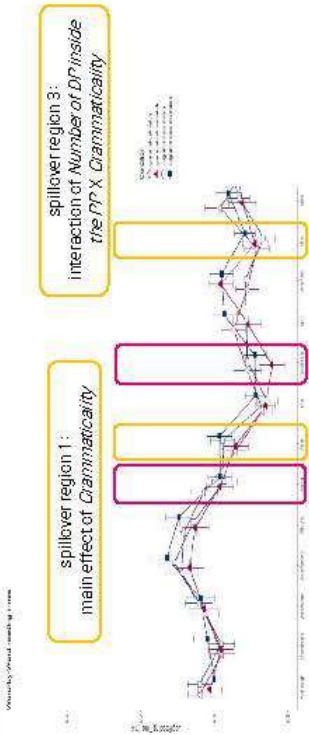
retrieves the full NP structure

illusion of grammaticality **0**

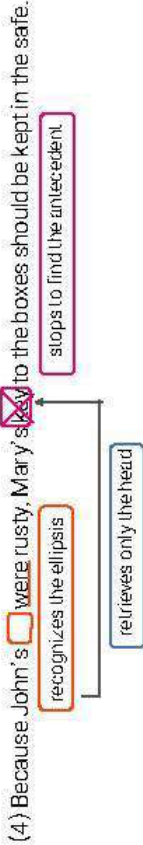
0

Self-paced reading experiment: result

	Plural DP	Singular DP
Ungrammatical	a. Although Momma's were comforting, Billy's <i>scat</i> from the <i>closets</i> still terrified the kids.	c. Although Momma's were comforting, Billy's <i>scat</i> from the <i>closet</i> still terrified the kids.
Grammatical	b. Although Momma's was comforting, Billy's <i>scat</i> from the <i>closets</i> still terrified the kids.	d. Although Momma's was comforting, Billy's <i>scat</i> from the <i>closet</i> still terrified the kids.



Discussion : Scenario 2



recognize the ellipsis as soon as possible

stops when fails to find the right antecedent

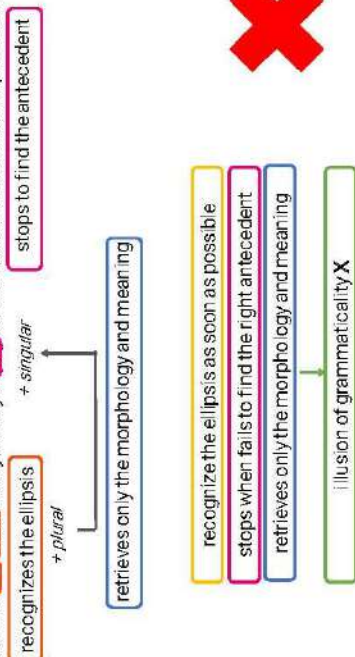
retrieves only the head

illusion of grammaticality **X**

X

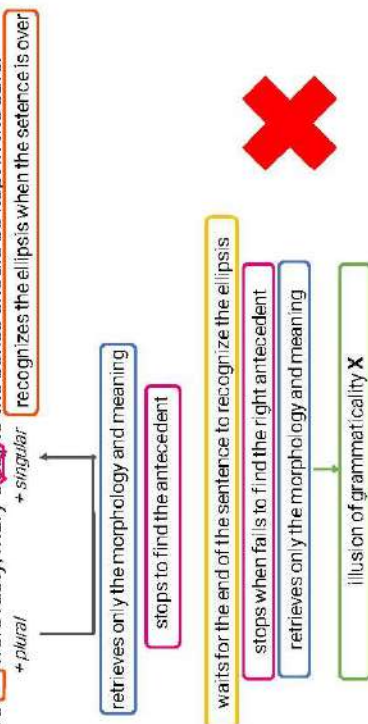
Discussion: Scenario 3

(4) Because John's ☐ were rusty, Mary's ☒ to the boxes should be kept in the safe.



Discussion: Scenario 4

(4) Because John's ☐ were rusty, Mary's ☒ to the boxes should be kept in the safe.



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The Role of Distinctness and Alignment in Korean Nominative Object Constructions

2024 LSK Winter Conference
November 23, 2024
Juyeon Cho
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1. Introduction and Background

- 1.1 Double Case Constructions
- 1.2 Korean Nominative Object Constructions

Outline

- 1. Introduction and Background
 - 1.1 Double Case Constructions
 - 1.2 Korean Nominative Object Constructions
- 2. Theoretical Framework
 - 2.1 Distinctness Principle
 - 2.2 Alignment Principle
- 3. Empirical Studies
 - 3.1 Acceptability Judgment Study
 - 3.2 Corpus Study
- 4. Conclusion

2

1.1

Double Case Constructions

- Double case constructions occur when both the subject and the object share the same case marking.

- (1) a. John-ga Mary-ga suki-da.
John-NOM Mary-NOM fond-PRES
'John is fond of Mary.' (Kolzumi 2008: 144) [Japanese]
- b. Mig vanta-r pening-a.
me.ACC need-PRES money-PL.ACC.INDEF
'I need money.' (Jonsson 2003: 140) [Icelandic]
- c. E-a-ra yapa keen-ai.
I-ABS-PRT fish(.ABS) want-IMPF
'I want to eat fish.' (Baker 2014: 347) [Shipibo]

3

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1.2	1	<div>Introduction and Background</div> <div>Research questions</div> <div><ul style="list-style-type: none">• Experiencer verb selection: Two NPs are selected by the experiencer verb (e.g., <i>Belletti & Rizzi 1988; Lendau 2010</i>)• Subject case alternation: The subject can be followed by a nominative marker (<i>ka-i</i>), dative marker (<i>-eykey</i>), or two case markers stacked (e.g., <i>Gerdts & Yoon 1988, 1989</i>)<div>(2) a. <div>Nay-kaI-NOMkangaci-ka puppy-NOMcoh-ta. likeable-DECL</div><div>'I like puppies.'</div> (Park & Kim 2022:1488)</div><div>b. <div>Ku ai-tul-ka / eykey(-ka) kongpwu-(tul)-i silh-ess-ta.</div><div>the child-PL-NOM / DAT(-NOM) studying-(PL)-NOM dislikeable-PST-DECL</div><div>'The children disliked studying.'</div> (Gerdts & Yoon 1999:327)</div></div>	5
	2	<div>Theoretical Framework</div> <div>Accessibility</div> <div><ul style="list-style-type: none">• Accessibility (<i>Arnold 2010</i>)<ul style="list-style-type: none">– The concept refers to the property of information that makes it easier to access, independently of ambiguity considerations• Core hierarchies ranking NPs by accessibility<ul style="list-style-type: none">– The Accessibility Hierarchy (<i>Keenan & Comrie 1977: 66</i>)<div>Subject < Direct object < Indirect object < [...]</div>– Thematic hierarchy (based on Dowty 1991)<div>Proto-agent (e.g., agent, experiencer, causer) < Proto-patient (e.g., theme, goal)</div>– Morphological case hierarchy (<i>Otsuka 2006: 83</i>)<div>unmarked case (NOM, ABS) < marked case (ERG, ACC) < oblique case (DAT)</div></div>	6
	7	<div>Theoretical Framework</div> <div>2. Theoretical Framework</div> <div><div>2.1 Distinctness Principle</div><div>2.2 Alignment Principle</div></div>	8

2.1

Distinctness Principle

- **The Distinctness Principle** posits that referents in any given event should be as different as possible from each other (Borikesset-Schlesewsky & Schlesewsky 2009:44).
 - Two NPs within the same clause should differ in morphosyntactic and semantic features (e.g., gender, animacy) to avoid ambiguity (Richards 2010:5)
- **Role of Case Marking:** Disambiguates the grammatical role of an NP from that of its clause mate (Yip, Maling & Jackendoff, 1987; Marantz, 1991; Yuan, 2020). .
- **Double case constructions** violate this principle by assigning the same case to two NPs, potentially reducing clarity.
 - These configurations may be judged less acceptable by speakers, as they lack distinctness.

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2.2

Alignment Principle

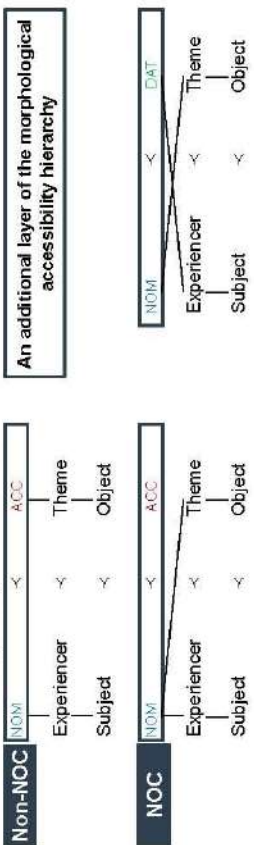
- **The Alignment Principle** posits that sentences are preferred (e.g., rated as more acceptable and produced more frequently) when the grammatical role, thematic role, and morphological case are aligned.
 - Builds on the *thematic-grammatical alignment* hypothesis: Misaligned object experiencer ones (e.g., Ferreira 1994; Piñango 2000; Cupples 2002; Nguyen & Pearl 2019; Do & Kaiser 2022; Wilson & Dillon 2022).
- Psych verbs can have different mappings of **thematic roles to grammatical functions**.
 - **Subject Experiencer Verbs** (e.g., *admire, dislike*): The experiencer is in the subject position.
 - prototypical alignment between grammatical function (Subject < Object) and thematic role (Experiencer < Theme)
 - **Object Experiencer Verbs** (e.g., *delight, irritate*): The experiencer is in the object position.
 - misalignment between grammatical function and thematic role

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2.2

Alignment Principle

- **The Alignment Principle** posits that sentences are preferred (e.g., rated as more acceptable and produced more frequently) when the grammatical role, thematic role, and morphological case are aligned.
 - Builds on the *thematic-grammatical alignment hypothesis*
- Within Korean subject experiencer verbs



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2

Theoretical Framework

Distinctness and Alignment

- **Non-NOM Constructions:**
 - **Violation of Distinctness:** Subject and object bear the same case.
 - **Violation of Alignment:** Lower-ranked object/theme bears a higher-ranked unmarked case.
- **DAT-NOM Constructions:**
 - **Satisfies Distinctness:** Subject and object bear different cases.
 - **Violates Alignment:**
 - Higher-ranked subject/experiencer bears the lower-ranked marked case.
 - Lower-ranked object/theme bears the higher-ranked unmarked case.
- **Non-ACC Constructions:**
 - **Satisfies Both Principles:** Distinct morphological markings and consistent mapping between case, thematic role, and grammatical function.

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3.1

Acceptability Judgment Study

- Aim to identify which principle—alignment or distinctness—influences acceptability judgments, by contrasting Non-NOCs (NOM-ACC) with NOCs (NOM/DAT-NOM).
- Acceptability judgment

Non-NOC	NOM-ACC; {No LV/ LV}	배우가 감독님을 director _{NOM-ACC} {좋았다/좋아했다} {like-φ-PST-DECL/like-do-PST-DECL}
	Actor-NOM	
	The actor liked the director _{NOM}	
	NOM-NOM; {No LV/ LV}	배우가 감독님이 director _{NOM-NOM} {좋았다/좋아졌다} {like-φ-PST-DECL/like-become-PST-DECL}
	Actor-NOM	
	The actor liked the director _{NOM}	
NOC	DAT-NOM; {No LV/ LV}	배우에게 감독님이 director _{DAT-NOM} {좋았다/좋아졌다} {like-φ-PST-DECL/like-become-PST-DECL}
	Actor-DAT	
	The actor liked the director _{NOM}	

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3. Empirical Studies

- 3.1 Acceptability Judgment Study
- 3.2 Corpus Study

3.1

Acceptability Judgment Study: Method

- Participants: 48 native Korean speakers, aged 18-40, with limited international experience; compensated for participation.
- Materials: 3x2 within-subjects design with factors **CASE** (NOM-ACC, NOM-NOM, DAT-NOM) and **LIGHT VERB** (with/without), 24 trials and 24 fillers in SOV order, randomized using a Latin square design.
- Procedure: Sentences rated on a 7-point Likert scale in an online experiment via PClab; duration approximately 10 minutes.
- Predictions:
 - Distinctness Hypothesis: NOM-ACC is expected to be rated highest; DAT-NOM should be rated higher than NOM-NOM for meeting distinctness.
 - Alignment Hypothesis: NOM-ACC should be rated highest; DAT-NOM may be rated less acceptable than NOM-NOM as it violates alignment twofold.

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3.1

Acceptability Judgment Study: Results

- Effect of Case Marking
 - NOM-ACC sentences rated significantly higher than NOM-NOM and DAT-NOM.
 - DAT-NOM sentences rated slightly lower than NOM-NOM.
- Effect of Light Verb
 - Sentences with a light verb rated higher than those without (main effect driven by NOM-ACC condition).
- Interaction: NOM-ACC with light verb shows the highest acceptability (mean 6.1) vs. without light verb (mean 2.2).

Condition	Light Verb	No light verb
NOM-ACC	~6.1	~2.2
DAT-NOM	~3.5	~2.2
NomNom	~3.5	~3.5

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Acceptability Judgment Study: Discussion

- **NOCs** (NOM-NOM, DAT-NOM) rated lower in acceptability than **non-NOCs** (NOM-ACC).
 - Supports the **alignment hypothesis** (Otsuka 2006), penalizing cases that violate alignment between case, grammatical function, and thematic role.
- **NOM-NOM** rated higher than **DAT-NOM**, regardless of the presence of a light verb.
 - Contradicts the distinctiveness hypothesis
- **Misalignment effect**
 - **NOM-NOM** : Only the object misaligned (higher NOM → lower object theme)
 - **DAT-NOM**: Both subject (lower DAT → higher experiencer subject) and object (higher NOM → lower object theme) misaligned.
- **Next Step**: Investigate conditions for acceptability of NOM-NOM and DAT-NOM by analyzing attested examples in a Korean corpus.

Corpus Study: Method

- The Modu Corpus Written Corpus (version 1.1) (National Institute of Korean Language 2020)
 - Database limited to 24 psych verbs from previous experimental designs
 - Each psych verb includes 44 of the most frequently used conjunctions (29,829 sentences)

Features	Labels
Subject marking	NOM / DAT / TOP / DROP / GAP / ALSO / ONLY / EVEN*
Object marking	NOM / ACC / TOP / DROP / GAP / ALSO / ONLY / EVEN*
Object form	SIMPLE / DEMONSTRATIVE / POSSESSIVE / WH / ADJECTIVE / COORDINATING / COMPLEX
Object referentiality	1 ST , 2 ND , 3 RD / REFLEXIVE / RECIPROCAL / PROPER / DEMONSTRATIVE / OTHER
Object givenness	HIGH / LOW
Object animacy	YES / NO
Clause type	MATRIX / COMP / ADJUNCT / QUESTION / RC / CLEFT

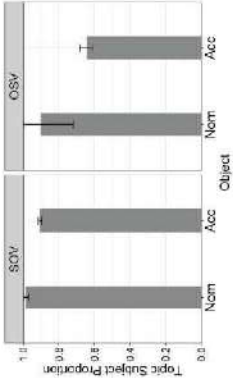
Corpus Study: Results

- **Subject and Object Case Marking**
 - Majority of sentences had a TOP-marked subject (92%).
 - Only 7.2% had NOM-marked subjects, and 0.3% had DAT-marked subjects.
- **TOP-NOM Constructions**: TOP-marked subjects co-occur with NOM objects (27%) significantly more than NOM subjects do (2%).
- **TOP-ACC Constructions**: NOM subjects co-occur with ACC objects (97%) more frequently than TOP subjects do (72%).

	TOP subject	NOM subject	DAT subject
TOP object	24 (0.01)	3 (0.01)	10 (0.59)
NOM object	1,246 (0.27)	7 (0.02)	7 (0.41)
ACC object	3,286 (0.72)	344 (0.97)	-
Total	4,556 (1)	354 (1)	17 (1)

Corpus Study: Results

- **Topic Position**
 - SOV: Higher proportion of topic subjects.
 - OSV: Increase in topic objects, decrease in topic subjects.
 - Consistent with the cross-linguistic strategy of having the topic in the left-peripheral position (e.g., Kuno 1973, Lee & Shimjoo 2016).
- **NOCs vs. Non-NOCs**
 - NOCs: Less pronounced difference in topic subject proportion between SOV (0.99) and OSV (0.90).
 - Non-NOCs: Greater difference in topic subject proportion between SOV (0.91) and OSV (0.65).



Corpus Study: Discussion

- Alignment
 - Top-Marking as a Strategy: TOP-subjects help clarify thematic roles, stabilizing the relationship between the subject (experiencer) and object (theme).
 - In OSV order, topic marking ensures that the thematic roles are clear despite the change in word order.
- Distinctness
 - In NOCs, topic marking is crucial to distinguish between subject and object, especially when both are nominative.
 - In Non-NOCs, accusative marking inherently provides distinctness, making topic marking less critical.

NOM		ACC
Experiencer	✓	Theme
Subject	✓	Object

Topic	NOM
Experiencer	Theme
Subject	Object

4. Conclusion

Nature of NOCs

- NOM-ACC
 - Rated highest due to satisfying both distinctness and alignment principles.
 - More frequent in natural language use.
- NOM-NOM
 - Rated more acceptable than DAT-NOM due to partial alignment, despite violating distinctness.
 - Less frequent, indicating lower acceptability and more specific contexts of use.
- DAT-NOM
 - Rated lowest due to violating alignment twofold.
 - Less frequent, indicating lower acceptability and more specific contexts of use

Conclusion

Contexts and Properties Influencing NOCs

- To understand the nature of Korean NOCs with experienter psych verbs
 - The Alignment Principle accounts for low acceptability and frequency of NOM-NOM and DAT-NOM structures.
 - The Distinctness Principle predicts preferences for structures with more distinct morphological marking of arguments.
- Topicality
 - Topic marking helps clarify thematic roles and stabilize the relationship between the subject (experiencer) and object (theme).
 - In NOCs, topic marking is crucial to distinguish between subject and object, especially when both are nominative.
 - Pragmatic foregrounding in NOCs: Both NOM-NOM and DAT-NOM configurations serve to foreground a subject experiencer that might otherwise be interpreted as backgrounded.
 - This marking alerts the addressee to the presence of new information in the utterance, enhancing communication clarity.

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