

PREFACE

SPECIAL ISSUE: FURTHER ADVANCES IN VIETNAMESE LINGUISTICS

Guest Editors

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INTRODUCTION

The articles featured in this special edition have evolved from presentations delivered at ISVL 3 (the third annual workshop of the International Scholars of Vietnamese Linguistics), hosted by Nigel Duffield at Konan University in March 2023. We extend our deep gratitude to the editors of the Taiwan Journal of Linguistics for granting us another special issue this year.¹

¹ We extend our heartfelt appreciation to all the reviewers for their invaluable feedback and constructive criticism, and to the authors for their excellent collaboration throughout the process. The research and the ISVL-3 workshop were supported by a “KAKEN” grant (21K00538, ‘Progress in Vietnamese Linguistics’) from the Japan Society for the Promotion of Science (JSPS), awarded to the second editor, Nigel Duffield. For academic purposes, Trang Phan is credited with the first half of this introduction, while Nigel Duffield is credited with the second half.

Similarly to previous ISVL publications—in the Journal of the Southeast Asian Linguistics Society (2022) and Taiwan Journal of Linguistics (2024)—all papers in this issue have undergone extensive revisions from their original presentations. Each article has been subject to double-blind peer review by external experts and subsequent revisions, in accordance with the journal’s regular, rigorous standards.

The five papers encompass diverse perspectives in terms of approach—synchronic vs. diachronic—and level of analysis, including phonetic, phonological, lexical, syntactic, and semantic inquiries. We briefly summarize each contribution, as follows.

While previous scholars (Shimizu 1996; Nguyễn T.C. 2008; Gong 2017; Phan 2020) have noted the presence of sesquisyllabic traces in Nôm materials, the debate concerning whether the syllable structure during the creation of Nôm orthography remained sesquisyllabic or transitioned entirely to monosyllabic remains to be fully explored. **Masaaki Shimizu**'s study reanalyzes 133 cases of two-character morphemes in the Sino-Vietnamese version of *Phật thuyết đại báo phụ mẫu ân trọng kinh* 佛說大報父母恩重經: this reanalysis reveals at least 10 cases which strongly support the hypothesis that sesquisyllabic structures existed at the time when the Nôm characters in the material were created.

Vietnamese, an isolating language with rich compounding, lacks morphosyntactic, phonotactic, or phonological evidence suggesting a linguistic level between syllables and phrases. Using a Random Forest Classifier, **Sandrien Van Ommen et al.** model an artificial listener to explore phonetic distinctions between compounds and phrases, following Nguyen and Ingram (2007). This Machine Learning approach assesses phonetic differences and their importance in distinguishing the two classes. Results reveal that only maximal contrast circumstances allow phonetic separation, primarily achieved through juncture marking. Additionally, the article indicates that perfect separation is unattainable even with maximal contrast, as was found with human listeners in Nguyen and Ingram’s (2007) study; it also shows that a compound bias emerges from phonetic data despite training on maximal contrast data.

Trần Phan and Barbara Meisterernst pursue the idea that post-verbal *được* serves as a modal element exclusively for dynamic readings. If not interpreted as dynamic, *được* functions as an aspectual telicity marker, an evaluative predicate, or a pragmatic marker. The authors propose that post-verbal *được* heads VP-internal functional projections when encoding either Aktionsart or dynamic modal meanings. In sentences with refutatory intent, sentence-final *được* acts as a pragmatic marker of public commitment (Krifka 2015, 2023; Wiltschko and Heim 2016), expressing speaker disbelief and a commitment to the truth of the opposite of a prior proposition.

Irene Liao and Jonah Lin present an alternative semantic interpretation of the roles played by two quantificational elements in Vietnamese, *đều* and *cũng*: the authors' interpretation contrasts with that of Tran (2008, 2009). Inspired by Giannakidou & Cheng's (2006) and Xiang's (2008) analyses of Mandarin *dou*, the authors argue that *đều* 'all' functions as a maximality operator, rather than as a distributor (Tran 2008). Additionally, it is suggested that the additive particle *cũng* 'also' solely carries an additive meaning. The universal interpretation of the *wh*-element emerges when paired with *cũng* due to its unique capacity to presuppose an open alternative set. Associating *cũng* with a non-specific noun (a *wh*-indefinite) results in a universal reading by encompassing all possible individuals within the presupposed alternative set. In contrast to Tran's (2009) analysis, *cũng* itself is not a universal quantifier. The analysis of syntactic positions proposes that both *đều* and *cũng* adjoin to T', preceding tense markers and freely accommodating temporal adverbs before or after them.

Tue Trinh highlights some distribution differences between (weak) NPIs in English and their Vietnamese equivalents. In English, NPIs are licensed under ONLY, EVERY's NP argument, adversative predicates like REGRET, and IF-clauses. This is argued to contrast with Vietnamese, where these licensors are absent. English NPIs also are licensed under negation, FEW, and AT MOST, whereas Vietnamese NPIs are only licensed by the first two of these: i.e. negation and FEW, but not AT MOST. A preliminary outline of an approach is also offered towards the end of the article.

Although these papers provide only snapshots of some of the ongoing research in Vietnamese linguistics, they nevertheless highlight the increasing global interest in the field. With each iteration of this workshop, we look forward to witnessing further advances in the field.

SHORT BIO OF THE EDITORS

Trang Phan is an Assistant Professor at Ca' Foscari University of Venice. She obtained her PhD from University of Sheffield (England) in 2013 on the structure and acquisition of Vietnamese verbal aspect, under Professor Nigel Duffield's supervision. Subsequently, she was a postdoc researcher of the Cartographic Syntax project at Ghent University (Belgium), working on various aspects of Vietnamese clausal structure in a cross-linguistic perspective. From 2020 to 2021, Phan was a visiting scholar at Harvard Yenching Institute (USA), working on how Vietnamese nominals update our current understanding of classifier languages. Phan is the author of the monograph *The Syntax of Vietnamese Tense, Aspect, and Negation*, published by Routledge (2023). She is also the co-editor and contributor of the book *Studies in Vietnamese Historical Linguistics: East and Southeast Asian contexts*, published by Springer Nature (2024).

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Nigel Duffield received his PhD in Linguistics from the University of Southern California in 1991. Since then, he has held university positions in Germany, Canada (McGill University), The Netherlands, England (University of Sheffield), and Japan, where he has been a Professor in the Department of English at Konan University (Kobe), since 2012. Duffield's research ranges across topics in theoretical generative syntax, as well as in psycholinguistics (first and second language acquisition, and adult language processing); he is the author of two monographs—*Particles and Projections in Irish Syntax* (Kluwer 1995), and *Raiding the Inarticulate: Reflections on Psycholinguistic Theories* (Cambridge University Press 2018)—as well as numerous journal

articles and book chapters. Nigel Duffield's theoretical work on Vietnamese spans more than 25 years, much of which—since 2009—has been written in close collaboration with Trang Phan.

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DISYLLABICITY IN VIETNAMESE IN THE EARLY SECOND MILLENNIUM AS SEEN IN TEXTUAL EVIDENCE*

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ABSTRACT

Although traces of sesquisyllabicity preserved in Nôm materials have been pointed out by several researchers (Shimizu 1996; Nguyễn T.C. 2008; Gong 2017; Phan 2020), if the syllable structure in itself at the time of the creation of the Nôm orthography remained truly sesquisyllabic (C.CVC(/T)) or had become completely monosyllabic (CV/T + CVC/T) has not been discussed yet. In this study, through the reanalysis of 133 cases of two-character morphemes in the Sino-Vietnamese version of *Phật thuyết đại báo phụ mẫu ân trọng kinh* 佛說大報父母恩重經, I have found at least 10 cases which strongly support the hypothesis that true sesquisyllabic structure still existed at the time when the Nôm characters in the material were created, because the onsets of the Sino-Vietnamese readings of the second characters are all plosives, which indicates the pre-spirantization stage of the sesquisyllabic structure (e.g., 司盃 *vui* ‘to be happy’: *C.pu:j [盃 *bôi* (幫母*p-)]; 个对 *dối* ‘to lie’: *p.to:j? [对 *dối* (端母*t-)]; 个𢶏 *gãy* ‘to break’: *C.kes [𢶏 *cải* (見母*k-)]; 个些 *ra* ‘to go out’: *-sa: [些 *ta* (心母*s-)].

Keywords: Vietnamese, Nôm characters, syllable structure, sesquisyllabicity

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1. INTRODUCTION

Alves (2024) claims that Vietnamese had presyllables into the 2nd millennium. This opinion is against what seems to be the assumption that Vietnamese, among other Vietic languages, became monosyllabic at a relatively earlier stage through contact with Chinese and Tai languages (Nguyễn T.C. 1995). Alves provides (a) evidence from a comparison with conservative Vietic languages (Ferlus 1982, 1992, etc.), (b) evidence from the Nôm materials that imply the sesquisyllabicity¹ of Vietnamese at the time of creating Nôm (Shimizu 1996, 2015, 2020), (c) evidence from Old Chinese reconstruction that support reconstruction of presyllables and (d) the related matter of spirantization of main syllable onsets in medial position. However, regarding the Nôm materials in Shimizu (2015), it is not quite sure if Vietnamese at the time of Nôm creation was sesquisyllabic or only had preserved a trace of it; that is, the compound characters thought to express the sesquisyllables expressed the phonologically sesquisyllabic unit with unstressed presyllable plus stressed major syllable or two phonologically independent monosyllables which indicate the trace of ancient sesquisyllables, such as *mồ hôi* (cf. mahû: in Thavung²) ‘sweat,’ *chiêm bao* (cf. cumpo: in Rục) ‘to dream,’ *là đá*³ (cf. latá: in Rục) ‘stone,’ etc.

In this study, the Nôm materials in question will be analyzed in more detail by looking at newly provided images of Nôm materials⁴ to confirm the sesquisyllabicity of Vietnamese at the time of Nôm creation and hypothesize the most recent time when Vietnamese was still sesquisyllabic.

¹ “Sesquisyllabic” indicates the type of syllable structure which contains an unstressed minor syllable and a stressed major syllable. Sesquisyllabicity has been reconstructed in Austroasiatic (Shorto 2006), and it has been retained in conservative Vietic languages.

² Thavung and Rục words are cited from the SEALang Mon-Khmer Etymological Dictionary (<http://sealang.net/monkhmer/dictionary/>).

³ A form cited from Alexandre de Rhodes *Dictionarium Annamiticum Lusitanum et Latinum* (1651, Rome).

⁴ I am grateful to Professor Nguyễn Tuấn Cường with Institute of Han-Nom Studies for providing me the clear images of the materials introduced below.

2. REVIEW OF THE PROCESS OF MONOSYLLABIFICATION

According to Ferlus (2014), the syllable structure of Proto-Vietic (PV) is sesquisyllabic, (Cp-)CiV(Cf)/(?), in which Cp represents the presyllable and CiV(Cf) is the major syllable. The most noticeable change from PV syllable structure to that of modern Vietnamese (Ci(w)V(Cf)/T) is the loss of presyllables, or monosyllabification.

Ferlus (1982) pointed out that, in the process of monosyllabification, the onsets of the major syllable underwent spirantization (Alves (2024) refers to it as a type of intervocalic lenition) in the intervocalic environment by comparing Vietnamese and Muong monosyllabic words with Thavung and Sach sesquisyllabic cognates⁵. His conclusion can be summarized as follows:

(1) The process of spirantization (Ferlus 1982)

Proto-Vietic (PV)		Vietnamese ⁶
*C.p/b	>	<i>v</i>
*C.t/d	>	<i>d</i>
*C.c/ɟ	>	<i>gi</i>
*C.k/g	>	<i>g/gh</i>
*C.s	>	<i>r</i>

As in (1), C in unstressed presyllabic position in the PV reconstruction are syllabic consonants. To explain the irregular correspondence of tonal height between Vietnamese and Muong (H/L and L/H), Ferlus (1982) supposed that this was due to voicing of presyllables of PV. The voicing of the onsets of presyllables determined the tonal height of Vietnamese (Cp:[voiceless] > T:H or Cp:[voiced] > T:L), while it did not affect that of Muong at all.

Alves (2024) updates the theory of Ferlus by comparative evidence and reconstruction, to give not only the PV sources but also the Old

⁵ Thompson (1976) reconstructed Proto-Viet-Muong with presyllables to account for the voiced fricative onsets. This should at least be acknowledged as it predates Ferlus's work, though Ferlus's involved Vietic more broadly and provided a more detailed explanation (Alves 2024).

⁶ Quốc Ngữ orthography is written in italics.

Chinese sources⁷ of Vietnamese voiced fricative onsets. The diverse sources are given in (2).

(2) Updated list of Proto-Vietic (PV) and Old Chinese (OC) sources of Vietnamese voiced fricative onsets (Alves 2024)

Vietnamese		Proto-Vietic/Old Chinese sources
<i>d</i>	<	*C.[alveolar] PV: *C.t; *k.t; *p.t; *C.d; *k.d; *k.j; *p.j; j OC: *C.t; *k.dr; *m-ts ^h ; *sə.l; *kə.l; *N-r; *gr; *tsr; *l; *r; *j
<i>gi</i>	<	*C.[palatal] PV: k.c; *j.c; C.c; *k.j; *C.j; *k.j; *k.t; *c; *j; *j; *k ^h OC: *k.t; *C.l; *(mə-)t; *C.ts; *k.dz; *k.dzr; *k.dr; *C.tr; *sə-l; *[d]r; *[d]
<i>g/gh</i>	<	*C.[velar] PV: *t.k; *C.k; *r.k; *ʔ.k; *C.g; *g; *k OC: *C.k; *m.k; *t.k; *s.k; *N-h; *C.kr; *s.kr; *m.kr; *C.q; *S-N-q; *C.g; *g ^w
<i>v</i>	<	*C.[labial] PV: *k.p; *C.p; *t.p; *C.b; *t.b; *C.v; *p.l; *p.n; *k.w OC: *C.p; *C.g ^w ; *C.m; *mə.b; *N.k; *m.k
<i>v</i>	<	*[labial] PV: *v; *ʔ; *p; *b OC: *g ^w
<i>r</i>	<	*C.r/s PV: *C.r; *m.r; *k.r; *s.r; *b.r; *p.r; *ʔ.r; *k.s; *p.s; *m/p.s; C.s; *m.l OC: *C.s; *C.r; *C.sr
<i>r</i>	<	*r PV: *r OC: *r; *sr

⁷ Please refer to Gong (2017) as well.

Another issue is the order of monosyllabification and tonogenesis. There seems to have been an implicit assumption that monosyllabification preceded tonogenesis. However, Alves (2024) points out the possibility that tonogenesis preceded monosyllabification and there had been a period when Vietnamese was sesquisyllabic and tonal, like the case of Chứt lects, such as Ruc and May.

3. ANALYSIS OF NÔM MATERIALS

Shimizu (2015, 2020, etc.) has presented a Nôm text which contains compound characters that are thought to indicate sesquisyllables. *Phật Thuyết Đại Báo Phụ Mẫu Ân Trọng Kinh* 佛說大報父母恩重經 is a Chinese Buddhist sutra translated into Vietnamese, which is supposed to have been compiled between the 13th and 15th centuries (Shimizu and Li 2019). I will analyze the compound characters in more detail to point out the sesquisyllabicity of Vietnamese at that time.

The cases in question are compound characters, each of which indicates the sounds of presyllables and major syllables. Some consist of two independent characters, and others are single characters with two phonetic components⁸. Examples indicating sesquisyllabic words with reconstructed presyllables (*p.; *m.; *t.; *l.; *c.; *k.; *a.) are as follows.

(3) Samples of compound characters representing sesquisyllabicity

*Cp(PV) Nôm	Viet	PV ⁹	Meaning
*p. 破散 <i>phá tán</i>	<i>rắn</i>	*p.səpʔ	"snake"
*m. 麻例 <i>ma lệ</i>	<i>lời</i>	<i>mlời</i> (17C) ¹⁰	"word"
*t. 司布 <i>tư bố</i>	<i>vua</i>	*t.puə	"king"
*l. 羅打 <i>la đả</i>	<i>đá</i>	*l.ta:ʔ	"stone"

⁸ In order to avoid complexity, hereafter both cases are represented with two characters arranged horizontally. In the Appendix, the case of single characters with two phonetic components are represented using Ideographic Description Characters, e.g. {𠂇𠂉南}: 喃.

⁹ PV forms are mainly cited from Ferlus (2007) and Alves (2024). I use Alves's notation /./ to indicate syllable boundaries, instead of Ferlus, who used /-/.

¹⁰ A form cited from Alexandre de Rhodes (1651).

*c.	車莽 <i>xa mǎng</i>	<i>mǎng</i>	*c.manʔ	"to hear"
*k.	可汝 <i>khả như</i>	<i>nhớ</i>	*k.nə:ʔ	"to remember"
*a.	阿甫 <i>a phủ</i>	<i>vỡ</i>	*a.peh ¹¹	"broken"

Samples in (3) show the typical cases of compound characters which contain one character indicating the presyllables, such as 破 *phá*, 麻 *ma*, 羅 *la*, 車 *xa*, 可 *khả*, 阿 *a*, 司 *tu*, 个 *cá*, 多 *đa*, 波 *ba*, 巴 *ba*, 巨 *cự*. Most of them have the readings with central vowels (most typically -a) and high tones (most typically *ngang* or *sắc*). The cases in (4) are all compound characters containing them and representing words with voiced fricatives onsets. Furthermore, some cases in (4) correspond to the PV or Old Chinese (OC) forms that had undergone intervocalic lenition.

(4) Compound characters representing words with voiced fricative onsets

Nôm	Viet	2nd Char.	SV	PV/OC	Ch.Char.
*C.[labial] > v					
司盃	<i>vui</i>	盃	<i>bôi</i>	*C.pu:j	歡, 樂 'happy'
司布	<i>vua</i>	布	<i>bó</i>	*t.puə	王 'king'
个包	<i>vào</i>	包	<i>bao</i>		入 'enter'
阿盃	<i>vội</i>	盃	<i>bôi</i>		早 'hurry'
阿甫	<i>vỡ</i>	甫	<i>phủ</i>	*a.peh	碎 'break'
阿批	<i>về</i>	批	<i>phê</i>		寵弄(<i>vồ</i> -) 'fondle'
阿普	<i>vồ</i>	普	<i>phổ</i>		寵弄(- <i>về</i>) 'fondle'
个尾	<i>vầy</i>	尾	<i>vĩ</i>	*k.pəs	攪 'flourish'
多迷	<i>về</i>	迷	<i>mê</i>	*ve:r	皈 'return'
多埋	<i>vai</i>	埋	<i>mai</i>	*ʁa:j	肩 'shoulder'
*C.[alveolar] > d					
个对	<i>đối</i>	对	<i>đối</i>	*p.to:jʔ	妄惑(- <i>ngò</i>) 'lie'
巨苔	<i>dày</i>	苔	<i>đài</i>	*k.daj	濃 'thick'
个怛	<i>đắt</i>	怛	<i>đát</i>	*C.tac	携 'lead'
个代	<i>dạy</i>	代	<i>đại</i>		訓 'teach'
波沓	<i>dập</i>	沓	<i>đạp</i>		臃脹(- <i>dềnh</i>) 'bulging'

¹¹ When Ferlus (2007) uses /*-/ to indicate a presyllable vowel, I will use /*a/ alternatively in this paper.

波凌	<i>dềnh</i>	凌	<i>lăng</i>	膨脹(<i>dập-</i>)	‘bulging’
阿与	<i>đĩ/dẫu</i>	與	<i>đĩ</i>	假	‘if’
波欲/	<i>duột</i>	欲	<i>dục</i>	習	‘learn’
巴欲					
*C.[palatal] > gi					
阿質	<i>giắt</i>	質	<i>chất</i>	懺(<i>-gyạ</i>)	‘wash
阿至	<i>gyạ</i>	至	<i>chí</i>	懺(<i>giắt-</i>)	‘wash’
个正	<i>giếng</i>	正	<i>chính</i>	<i>*a.ciɛŋ?</i>	井 ‘well’
个愈 ¹²	<i>gió</i>	愈	<i>dũ</i>	<i>*k.jo:?</i>	風 ‘wind’
*C.[velar] > g					
个脰	<i>gãy</i>	脰	<i>cải</i>	<i>*C.kes</i>	折 ‘break’
波急	<i>gáp</i>	急	<i>cáp</i>		吐煙(<i>-lửa</i>) ‘in a hurry’
个高	<i>gào</i>	高	<i>cao</i>	<i>*[C.g]ʰaw</i>	號 ‘shout’
阿計	<i>gầy</i>	計	<i>kế</i>		羸 ‘thin’
阿枯	<i>gỗ</i>	枯	<i>khô</i>	<i>*C.ko:h;</i>	打 ‘strike’
				<i>*go:h</i>	
司姜	<i>guơng</i>	姜	<i>khương</i>	<i>*C.qraŋ-s</i>	鏡 ‘mirror’
*C.r/s > r					
破散	<i>rắn</i>	散	<i>tán</i>	<i>*p.səŋ?</i>	蛇 ‘snake’
个些	<i>ra</i>	些	<i>ta</i>	<i>*a.sa:</i>	出 ‘out’
个塞	<i>ráy</i>	塞	<i>tái</i>		洗濯(<i>rửa-</i>) ‘wash out’
波散	<i>ran</i>	散	<i>tán</i>		猛列(<i>rực-</i>)
					‘spread with fury’
多覓	<i>rách</i>	覓	<i>mịch</i>	<i>*se:k</i>	悶絕(<i>muốn-</i>) ‘torn’
				(thm kasê:k)	
个呂	<i>rửa</i>	呂	<i>lữ</i>		洗濯(<i>-ráy</i>) ‘wash out’
阿邏	<i>ra</i>	邏	<i>la</i>		開張, 解脫 (<i>trải-</i>) ‘out’
可囉	<i>ra</i>	囉	<i>la</i>		垂 ‘shed’

In the case of *C.[labial] > v, Sino-Vietnamese (SV) readings of the Nôm characters have the onsets *b* /b/ and *ph* /f/. The SV onsets for *C.[alveolar] > *d* are *đ* /d/ and *d* /z/. Those for *C.[palatal] > *gi* are *ch* /c/ and *d* /z/. Those for *C.[velar] > *g* are *c* /k/ and *kh* /x/. And those for *C.r/s > *r* are *t* /t/, (*m* /m/) and *l* /l/. I will analyze the cases in (4) in more

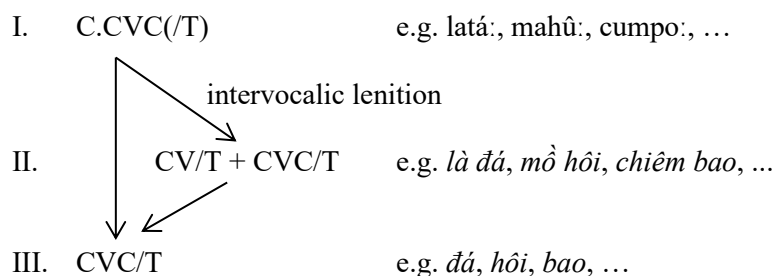
¹² This case is cited from *Chỉ Nam Ngọc Âm Giải Nghĩa* 指南玉音解義.

detail to show that these correspondences represent the process of intervocalic lenition quite clearly and provide strong evidence that suggests the sesquisyllabicity of Vietnamese at the time of creating these Nôm characters.

4. DISCUSSION

When looking at the cases in (3), we can think of two possibilities. One is the situation representing two independent monosyllables, such as *chiêm bao* ‘to daydream’ and *mồ hôi* ‘sweat’ in modern Vietnamese, and *là đá* ‘stone’ in the Middle Vietnamese, which correspond to sesquisyllabic *cumpo:* in Rục, *mahû:* in Thavung, and *latá:* in Rục, respectively (Ferlus 1979; Nguyễn P.P. et al. 1988; Nguyễn V.L. 1994). The other situation is that they represent actual sesquisyllabicity. The situation can be illustrated as (5).

(5) The process of monosyllabification



The question here is whether the situation of Nôm data belongs to stage I or stage II. I will provide evidence to show that the answer is it belongs to stage I. The cases in (6) are parts of (4) which have the PV reconstructed forms¹³.

¹³ As for the whole sentences containing the cases in (6), please refer to Appendix.

(6)	Nôm	Viet 2nd Char.	SV	PV/OC	Middle Chinese initials
<i>*C.[labial]: v</i>					
	司盃(*)	<i>vui</i> 盃	<i>bôi</i>	<i>*C.pu:j</i>	盃 (幫母 <i>*p-</i>)
	司布(*)	<i>vua</i> 布	<i>bó</i>	<i>*t.puə</i>	布 (幫母 <i>*p-</i>)
	阿甫(*)	<i>võ</i> 甫	<i>phủ</i>	<i>*a.peh</i>	甫 (非母 <i>*f-</i>)
	个尾	<i>vũy</i> 尾	<i>vĩ</i>	<i>*k.pəs</i>	攪 (微母 <i>*v-</i>)
	多迷	<i>vê</i> 迷	<i>mê</i>	<i>*ve:r</i>	皈 (明母 <i>*m-</i>)
	多埋	<i>vai</i> 埋	<i>mai</i>	<i>*6a:j</i>	肩 (明母 <i>*m-</i>)
<i>*C.[alveolar]: d</i>					
	个对(*)	<i>dôi</i> 对	<i>đôi</i>	<i>*p.to:j?</i>	对 (端母 <i>*t-</i>)
	巨苔(*)	<i>dày</i> 苔	<i>đài</i>	<i>*k.daj</i>	苔 (定母 <i>*d-</i>)
	个但(*)	<i>dắt</i> 但	<i>đát</i>	<i>*C.tac</i>	但 (端母 <i>*t-</i>)
<i>*C.[palatal]: gi</i>					
	个正(*)	<i>giếng</i> 正	<i>chính</i>	<i>*a.ciɛŋ?</i>	正 (章母 <i>*tɕ-</i>)
	个愈(*)	<i>gió</i> 愈	<i>dũ</i>	<i>*k.jo:?</i>	愈 (以母 <i>*j-</i>)
<i>*C.[velar]: g</i>					
	个胲	<i>gãy</i> 胲	<i>cải</i>	<i>*C.kəs</i>	胲 (見母 <i>*k-</i>)
	司姜	<i>guong</i> 姜	<i>khương</i>	<i>*C.qraŋ-s</i>	姜 (見母 <i>*k-</i>)
	个高	<i>gào</i> 高	<i>cao</i>	<i>*[C.g]ʰaw</i>	高 (見母 <i>*k-</i>)
	阿枯	<i>gồ</i> 枯	<i>khô</i>	<i>*C.ko:h;</i> <i>*go:h</i>	枯 (溪母 <i>*kʰ-</i>)
<i>*C.r/s: r</i>					
	破散(*)	<i>rắn</i> 散	<i>tán</i>	<i>*p.səp?</i>	散 (心母 <i>*s-</i>)
	个些(*)	<i>ra</i> 些	<i>ta</i>	<i>*a.sa:</i>	些 (心母 <i>*s-</i>)

I mark those with strong evidence of sesquisyllabic structure with (*), while those with weaker support are not marked with (*).

The SV readings of Nôm in case of **C.[labial] > v* have the onsets *b* and *ph*, which belong to Middle Chinese 幫母 (**p-*) and 非母 (**f-*), respectively. In particular, the onsets originating from 幫母 and not from 微母 (*v* in SV reading) show the obstruency of the onsets of major syllables. Likewise, the SV readings of the onsets of **C.[alveolar] > d* are obstruent *đ* which originate from 端母 (**t-*) or 定母 (**d-*) and not 以母 (*d* in SV reading), and those of **C.[palatal] > gi* are *ch* (originating from 章母 **tɕ-*). As for **C.[velar] > g*, although the SV reading of the onset is obstruent *c* (from 見母 **k-*), the SV system has no corresponding

fricatives. Therefore, I assume that they only provide weak support for their sesquisyllabicity. As for *C.r/s > r, the SV reading of the onset remained *s which comes from 心母 (*s-). All these cases show the original obstruency or *s- of the onsets of major syllables, though many of them have fricative or lateral candidates in the SV initial system, for example, 為 *vi* for *vui*; 移 *di* for *dày*; 這 *giá* for *gió*; 羅 *là* for *ra*¹⁴. I believe this situation strongly supports the sesquisyllabicity of the lexicons written in Nôm.

The remaining cases, such as *ph* (< 非母 *f-) for *C.[labial] > v, *d* (< 以母 *j-) for *C.[palatal] > gi, *kh* (< 溪母 *k^h-) for *C.[velar] > g and *l* (< 來母 *l-) for *C.r/s > r in (4), can be regarded as the cases in which the intervocalic lenition process had already begun at the time when those Nôm were created.

Our comprehensive analysis of the Chinese part of the document (Shimizu and Li 2019; Shimizu 2020) showed that the date of the Chinese contents that were translated into Nôm text cannot be earlier than the 13th century. In addition, other evidences such as avoidance of taboo characters of emperors shows that the Nôm text had already existed in the 15th century. Considering also the simple structure of Nôm characters contained therein¹⁵, the time that these Nôm characters were created can be put around 14th to 15th centuries.

5. CONCLUSION

In this paper, I reanalyzed the compound characters of Nôm in *Phật Thuyết Đại Báo Phụ Mẫu Ân Trọng Kinh* 佛說大報父母恩重經 for the purpose of confirming that some of them represent true sesquisyllables, with presyllables plus major syllables, not the trace of it with two phonologically independent two syllables. The point here is the existence of compound characters, the second element of which possesses plosive

¹⁴ These SV readings were actually used as the phonetic component of each Nôm character in the later stage (<http://www.nomfoundation.org/nom-tools/Nom-Lookup-Tool?>).

¹⁵ Characters of hình thanh 形聲 (i.e., phonosemantic compounds in which one part indicates approximate phonetic form and the other indicates approximate sense) type only constitute about 10% (107/1,053) of all characters in the whole text.

onsets and reads as voiced fricatives in the present Vietnamese. Although fricative candidates for the phonetic component to represent the fricative onset did exist, the creator of Nôm still chose the characters with a plosive onset. It means that the plosive onset of major syllables that underwent intervocalic lenition had not been lenited at the time of Nôm creation. As the process of lenition of plosives only occurred in the intervocalic position, the syllable structure which allowed the process must be bisyllabic or sesquisyllabic, where both presyllable and major syllable are adhered to each other, enough to affect the plosives both progressively and regressively. If this is the case, in the period that these characters were created there still existed sesquisyllabicity in Vietnamese. And it was around 14th to 15th centuries when the text was written.

What we have to consider next is whether Vietnamese at that time had a tone system or not. And if it did, what kind of system did it possess? Alves (2024), as mentioned above, supposed a syllable structure with both sesquisyllabicity and a tone system, like the case of Rục and May. As Shimizu (2020) claimed, Nôm characters created based on Sino-Vietnamese readings reflect the tonal system in their own way. In the case of Nôm characters in the present document, the contrast between high and low registers is generally taken into account when selecting the SV reading of phonetic components. Furthermore, when the words are bisyllabic, the register of the characters representing major syllables has the opposite height value. It means that Vietnamese at that time at least distinguished two registers, and in the process of monosyllabification the registral shift occurred in some words, as Ferlus (1982) hypothesized. Now it is necessary to analyze the tonal characteristics in the phonetic components of Nôm characters representing sesquisyllabicity from the viewpoint of contour distinction.

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APPENDIX

v-

(20a3) 歡愛長乖 [Chinese sentences](page&line)

美 {𠂔𠂔盃司} 西 波恒 利 [Nôm]

lòng vui dẫu hằng rời [Quốc Ngữ transcription]

heart delighted love long apart [Gloss]

‘the delighted and loved heart is away forever’ [Translation]

(6b2) 奉詔譯

那(邦) 例 {𠂔𠂔布司} 麻 譯 經

vâng lời vua mà dịch kinh

obey word king CONJ translate sutra

‘obey the king’s words and translate the sutra’

(43a5) 粉骨碎身

{𠂔𠂔个怛} 歇 昌 {𠂔𠂔阿專(甫)}

nát hết xương vỡ hết mình

crush exhaust bone broken exhaust body

‘crush the bones and break the body’

(26a3) 左右出入

招 允 {𠂔𠂔包个} 囉

chiêu đăm vào ra

left right enter go out

‘enter and go out from side to side’

(38a1) 何不早死、彊在地上

守(牢) 庄 阿盃 折、專 例 羅 工 担。

sao chẳng vội chết, chuyên lia ra trong đất.

why NEG in a hurry die indulge depart out in earth

‘why not die early and depart from inside the earth’

(14a4) 寵弄鎮能歡

{𠵿阿普} {𠵿阿批} 沒 羨 哈 盃
vồ về một đường hay vui
 fondle one manner know happiness
 ‘fondle the child and wholeheartedly feel the happiness’

(11a4) 千刃攪腹

羅彦 洞 {𠵿尾个} 工 弄
ngân đòng vầy trong lòng
 thousand spear flourish in belly
 ‘flourish thousands of spears in the belly’

(24a1) 左肩擔父

{𠵿多埋} 招 梗 吒
vai chiêu gánh cha
 shoulder left carry father
 ‘carry father on the left shoulder’

(5b1) 皈命十方佛

{𠵿多迷} 命 礼 孛 工 邁 方
về mệnh lễ bụt trong mười phương
 returnlife saluteBuddha in ten directions
 ‘return to oneself and salute Buddha in the ten directions’

d-

(41a4) 妄惑顛倒

{𠵿对个} 疑 篤 虐
dối ngờ dốc ngược
 lie doubt upside-down
 ‘lie and disobey’

(15a2) 黛濃

合 {𠂔𠂔𠂔} 𠂔巨
sáp *dày*
 eyebrow pencil thick
 ‘drawn eyebrow is thick’

(42b3) 父提母訓

吒 {𠂔𠂔𠂔} 𠂔个 嫲 {𠂔个代}
cha *dắt* *mẹ* *dạy*
 father lead mother teach
 ‘father leads and mother teaches’

(20a2) 臃[音傍]脹[音脹]爛壞

波沓 波凌 彰 阿論 涅
dập *dềnh* *chương* *lụn* *nát*
 bulging bulge broken to pieces
 ‘bulge to be broken to pieces’

(19a5) 習已性成

波欲 它 年 性
duyet *đã* *nên* *tính*
 learn already become custom
 ‘learn and become custom’

(18a3) 婚嫁習學

丐 𠂔 巴欲 鵠
cưới *gả* *duyet* *học*
 marrymarrylearn study
 ‘for marriage and learning’

(24a1) 假使有人

{𠂔𠂔𠂔} 阿与 朱 故 𠂔
đi *cho* *có* *người*
 if CAUS exit person
 ‘if there is a person’

gi-

(35a3) 井竈碓磨

或 多 來 工 个正工 法 准 ?
hoặc đi lại trong giếng trong bếp chốn ?
or go come in well in kitchen place ?
'or go and come to the well and kitchen to ?'

(43b2) 懺洗前愆

{阿質} {阿至} 例 錯 畧
giặt gĩa rầy thác trước
wash abandon fault before
'wash away the past faults'

g-

(42b1) 心欺面折

弄 哂 {阿个} 畧 末
lòng nẻ gẫy trước mặt
heart respect break front face
'respecting heart is broken before one's eyes'

(29a5) 吐煙焰燠

波急 阿呂 阮 波債
gấp lửa ngon cháy
hurry fire flame burn
'fire in hurry and burn with a flame'

(12a5) 明鏡掩粧臺

{姜司} 朗 補 工 架
gương sáng bỏ trong giá
mirror brightput insideshelf
'the bright mirror is put inside the shelf'

(39b2) 號哭動地

{ 高个 }	哭	代	歇	怛
<i>gào</i>	<i>khóc</i>	<i>dậy</i>	<i>hết</i>	<i>đất</i>
shout	cry	wake	exhaust	earth

‘cry bitterly to waken the Earth’

(19b5) 困苦饑羸

匍	辱	对	阿計
<i>bực</i>	<i>nhục</i>	<i>đối</i>	<i>gây</i>
suffertired	starvethin		

‘tired out and get thin’

(27a2) 打骨出髓

阿枯	骨	囉	沃
<i>gỗ</i>	<i>cốt</i>	<i>ra</i>	<i>óc</i>
strike	bone	let out	marrow

‘break a bone and let out marrow’

r-

(29a5) 銅狗鐵蛇

主	同	破散	可列
<i>chó</i>	<i>đồng</i>	<i>rắn</i>	<i>sắt</i>
dog	copper	snake	iron

‘copper dog and iron snake’

(31a3) 拔出其舌

雷	个些	礼	擬
<i>lôi</i>	<i>ra</i>	<i>lưỡi</i>	<i>nghe</i>
pull	out	tongue	oneself

‘pull out one’s own tongue’

(29a3) 洞然猛列

阿竜 債 力 波散

rỗng cháy rức ran

empty burn broaden

‘flame spread with great fury’

(11b5) 七者洗濯不淨恩

摆 羅 把 恩 呂 {塞个} 吉 帶

bảy là trả ơn rửa ráy cứt đái

7 COP returnfavor wash out feces urine

‘The seventh is to return the favor of washing out feces and urine’

(15a3) 洗濯頻除穢

{呂个} {塞个} 練 忽 如

rửa ráy rén hót nhờ

wash out secretly clean up dirt

‘wash out and clean up dirt secretly’

(13a2) 身心俱悶絕

身 美 調 {悶多} {寬多}

thân lòng đều muốn rách

body heart all want torn

‘the body and the heart are about to be torn’

(33b3) 歲滿月充

南 缶 {林个} 倘 缶 奴

năm đã rằm tháng đã no

year already full moon already full

‘The year and the moon are full’

(9a1) 吾當爲汝分別解說

蚤 侯 爲 邁 {哩个} {耒个} 注 說

tao hầu vì mấy rẽ rời chú thuyết

I about to for you separate dissociate explain

‘I will explain for you in simpler terms’

(36a1) 弄意時行

課 {𠵿个弄} 哈 多 眠
thuở rông hay đi men
time release know walk along
‘the time when one learns to walk along something freely’

(15a3) 洗濯頻除穢

{𠵿呂个} {𠵿塞个} 練 忽 如
rửa ráy rén hót như
wash out secretly clean up dirt
‘wash out and clean up dirt secretly’

(28a1) 垂淚悲泣

可囉 若 眵 伤 染
ra nước mắt thương nhuộm
shed water eye sad dyed
‘shed tears dyed with sadness’

(13a1) 五臟摠開張

南 臟 調 阿賴 阿邏
năm tạng đều trái ra
five viscera all spread out
‘all the five viscera are spread out’

(29a5) 燒煎煮爇

咄 債 {𠵿火箇} 阿浪
đốt cháy nấu rạng
burn burned cook roast
‘burn, cook and roast’

(29a3) 洞然猛列

阿竜 債 力 波散
rỗng cháy rục ran
empty burned spread with fury
‘the flames spread with great fury’

從喃字材料看單音節化的過程
- 修訂和更新 -

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儘管許多研究人員指出喃字材料中保留了 1.5 音節性的痕跡 (Shimizu 1998; Nguyễn T.C. 2008; Gong 2017; Phan 2020)，但喃字創建時的音節結構是否保持 1.5 音節 (C.CVC(/T)) 或完全變成單音節 (CV/T + CVC/T) 尚未討論。本研究通過對漢越文《Phật thuyết đại báo phụ mẫu ân trọng kinh 佛說大報父母恩重經》中的 133 個二字詞素的再分析，發現至少有 10 個案例有力地支持了喃字出現時 1.5 音節結構仍然存在的假設，因為第二個字的漢越音聲母都是爆破音，這顯示了 1.5 音節結構的前擦音化階段。(e.g., 司盃 vui “高興”: *C.pu:j [盃 bôi (幫母*p-)]; 个对 dôi “說謊”: *p.to:jʔ [对 đối (端母*t-)]; 个脰 gầy “折斷”: *C.kes [脰 cải (見母*k-)]; 个些 ra “出去”: *-sa: [些 ta (心母*s-)]).

關鍵字：越南語、喃字、音節結構、1.5 音節性

TELLING COMPOUNDS AND PHRASES APART IN VIETNAMESE. A RANDOM FOREST CLASSIFICATION*

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ABSTRACT

Vietnamese is an isolating language with rich productive compounding, but no morphosyntactic, phonotactic or phonological evidence to assume a linguistic level between the syllable and the phrase (Schiering et al. 2010). We model an artificial listener with a Random Forest Classifier, to study the phonetic distinguishability of compounds vs. phrases, following Nguyen and Ingram (2007). This Machine Learning algorithm represents the maximal potential for a system to differentiate the two classes based on phonetics alone. It ranks the importance of each phonetic correlate to the differentiation of these classes. This allows an interpretation beyond whether a difference on a particular phonetic dimension exists including how important this difference is. The results confirm that the two classes can only be phonetically separated under circumstances of maximal contrast, and that maximal contrast is realized through juncture marking. Furthermore, we show that the two classes cannot be perfectly separated even under conditions of maximal contrast and additionally that there is an across-the-board preference for a compound interpretation from the phonetic data, even when the Random Forest Classifier was trained on maximal contrast data.

Keywords: Phonetics, Random Forest Classification, Prosodic Hierarchy, Speech Production, Chunking, Phonology

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1. INTRODUCTION

As an isolating language, Vietnamese is in large part made up of monosyllabic words (Tran and Vallée 2009) with a highly productive system of compounding. The number of unique syllables in Vietnamese¹ is about half of that in English (Pham and Baayen 2015) and syllables derive their function and part of their meaning from the way they form linearly ordered compounds with other syllables. In short, compounding is a central mechanism for the Vietnamese language. More so, Thompson (1963) points out: “In connection with the frequency of dissyllabic (sic) words there is an interesting feature of usage: in many circumstances where it would seem to the non-native speaker that a monosyllabic form would convey the desired meaning, the native Vietnamese will use a two-syllable expression of some sort. Sometimes it is simply a phrase, making use of some reinforcing word, but often it is a compound, pseudo-compound or derivative.”

However, at the same time, there is no linguistic evidence for a level between the syllable and the phrase. Even if polysyllabic forms have conventionalized coherence and meaning, and not all monosyllabic morphemes can occur as basic free forms (Noyer 1998; Thompson 1963), there is no clear evidence for a word-level in Vietnamese. This is argued in detail in Schiering et al. (2010) and we highlight some main points here.

First, polysyllabic forms lack cohesion and they do not always have a fixed order. Polysyllabic words can be interrupted by other morphemes like the negative morpheme. For instance, *hoa hoét* (flowers, in which *hoét* adds a frustrated attitude) can be interrupted as in *hoa với chả hoét* (flower with NEG) such that it indicates a strong negative criticism. Furthermore, coordinating compounds can be reversed without a change in meaning even when the overall meaning cannot be derived from the meaning of the individual syllables, such as in *núi sông* (mountain river) and *sông núi*; *nước non* (water mountain) and *non nước*. All of these compounds mean ‘country’ and reversal does not change their meaning. Reversible coordinating compounds are not rare, such as also *áo quần - quần áo*

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¹ In this count, the authors based their number on the written system.

(clothes), *bát đĩa - đĩa bát* (tableware) and *thở than - than thở* (complain) and again, these compounds can be interrupted with attitudinal markers such as in *áo với chả quần - quần với chả áo* (the clothes are bad/ugly-looking, or weird).² Even a seemingly unbreakable disyllable like the loanword *cà phê* (coffee) can be interrupted as in: *tôi sẽ uống cà nguội phê lạnh* (I FUT drink cof- cool -fee cold; ‘I will drink the cold coffee’). In this case, the interrupting syllable indicates a negative, disdainful, attitude towards the cold coffee (Noyer 1998).

Second, still following Schiering et al. (2010), syllables exhibit the same phonotactics irrespective of their grammatical status as affixes, stems, or words, i.e. the language does not distinguish monosyllabic ‘words’ from other syllables phonotactically. In many other languages, word-internal syllables often have other allowances than monosyllabic words. For instance, Mon (a distantly related Mon-Khmer language) allows monomoraic syllables only as the first syllable of a disyllabic word, and as soon as these same syllables are used as separate words, their vowel is lengthened to become bimoraic. In a different example, in Dutch, the velar nasal cannot be used as an onset except within a word as an ambisyllabic intervocalic consonant.

Third, stress assignment is argued to be unrelated to morphosyntactic structure. There is a long-standing disagreement on whether Vietnamese has word stress (Brunelle 2017), let alone whether any word stress is morphosyntactically conditioned (e.g. Thompson 1963) or fixed word-final (e.g. Nguyen and Ingram 2006). However, recent results suggest that stress is regulated at the level of phonological phrases irrespective of their morphosyntax (Schiering et al. 2010) and might reduce to phrase-final lengthening (Brunelle 2017).

Last, there are no tone sandhi rules related to the prosodic word level. There are patterns of reduplication in which different bases select different correspondences, involving both segmental and tonal identity and change. However, the formalization of these series poses challenges, the same

² There are also coordinating compounds which cannot be reversed, for instance due to a resulting tonal inharmony, such as *bàn ghế* (tables and chairs), but not *ghế bàn*. Others do not allow reversion for yet unidentified reasons, such as *sách bút* (books and pens), *sách vở* (books and notebooks), *giày dép* (shoes and sandals, i.e. footwear in general), but not *bút sách, vở sách, dép giày*.

patterns do not surface in other lexical units, and the process is better approximated by an idiosyncratic, lexical, process rather than by the formulation of phonological rules (Schiering et al. 2010).

This presumed absence of a prosodic word level (Selkirk 1986) in Vietnamese stands in stark contrast to the ubiquitous compounding, which raises the question of how speakers and listeners differentiate compounds from phrases, to correctly plan and infer their compounded meaning.

Nguyen and Ingram (2007) investigated this question with a phonetic analysis of the production of homophonous disyllabic compounds and phrases, such as *hoa hồng* (flower pink; phrase: ‘pink flower’, compound: ‘rose’), *người làm* (person working; phrase: ‘working person’, compound: ‘worker’) and *nhà đá* (house stone; phrase: ‘stone house’, compound: ‘prison’). In contrast with the aforementioned coordinate compounds, these types of compounds are subordinate compounds which are structurally parallel to phrases. Nguyen and Ingram (2007) studied noun phrases, but examples are not restricted to those, as exemplified by the verbal compound *đánh võng* (fight hammock; phrase: ‘to swing the hammock’, compound: ‘to maneuver one’s motorbike dangerously on the road’).

The aim of Nguyen and Ingram (2007) was to identify the phonetic resources Vietnamese offers to distinguish the two levels, and to what extent listeners can identify these levels. The context of their investigation is the view that Vietnamese has iambic recursive stress and hence different stress levels should be distinguishable in this comparison. Speakers produced the two levels under two pronunciation conditions, ‘normal speaking’ versus ‘maximal contrast’ and their normal speech contained no difference between phrases and compounds, while their maximal contrast speech did. In the latter, phrases were marked through the insertion of a pause between the first and second syllable, and as a function of this pausing additionally a lengthened prepausal syllable with an expanded tone range, lowered amplitude and raised F1, presumably as a function of jaw lowering. In a subsequent perception experiment, listeners did not distinguish the two levels in the normal speech condition while showing a strong across-the-board preference for classifying tokens as compounds. In the maximal contrast condition, on the other hand, accuracy was higher

and more tokens were classified as phrases, though overall accuracy was far from perfect (~70%).

The combined facts of low overall accuracy and a strong compound bias opens the issue to what extent listeners have relied on acoustic cues to make their decision. On the one hand, the maximal contrast condition invoked more phrasal responses, suggesting a role for phonetics and particularly juncture marking. On the other hand, accuracy is still low and listeners may need context to reliably infer the speaker's intended meaning. Moreover, if acoustic cues are not informative and reliable enough to make a distinction in their normal speech, this could affect listeners' strategies and teach them not to rely on phonetics. In sum, it is at present unclear whether and how listeners use phonetic cues while distinguishing compounds and phrases, and it is unclear how much information is comprised in phonetics to separate the two classes. The current study approaches these open issues with a random forest classifier (Breiman 2001), modelling a non-cognitive phonetic listener. This Machine Learning algorithm reaches high accuracy and precision, does not overfit models to data, deals well with collinearity and can handle large numbers of differently distributed variables including e.g. zero-inflated distributions. The output of this algorithm gives us insight into the maximal accuracy that a classification of Vietnamese compounds and phrases can reach based on phonetics alone. It furthermore outputs a ranking of variables depending on their importance for the classification, as well as a cut-off point at which values of each variable a token is more accurately classified. With this algorithm, we can infer which phonetic features an ideal listener might rely on, i.e. how accurate their classification would be if phonetics were fully exploited and the only criterion, and to what extent a compound bias can be expected from phonetics alone.

2. METHOD

2.1 Stimuli

Stimuli were based on Nguyen and Ingram (2007), with slight adjustments of carrier sentences due to data loss³. The design of the stimuli is as follows. A total of 15 disyllabic targets were selected which are used both as compounds and as noun phrases in the language. Examples are presented in Table 1.

Table 1. Examples of different stimuli, from Nguyen and Ingram (2007)

Type	Example	Compound	Phrase	Rank
Noun-Adj	Hoa hồng	Rose	Flower [is] pink	Clause
Noun-Verb	Bò cày	Ox-plough	Ox [is] ploughing	Clause
Noun-Noun	Chân vịt	Propeller	Duck's foot	NP

The disyllabic targets were placed in medial position of uniform carrier sentences: “*Có nhiều [TARGET] ở đây*” (“there are many [TARGET] here”) and in initial position in short sentences such as “*[TARGET] thì đẹp*” (“[TARGET] are beautiful”).

2.2 Procedure

Six female native speakers of Hanoi Vietnamese were recorded, five of whom at the University of Languages and International Studies, Vietnamese National University, Hanoi, and one of whom at the Linguistics Research and Infrastructure (LiRI) lab at the university of Zürich, Switzerland⁴. Speech was elicited with the use of Python-based OpenSesame Experiment Software (Mathôt et al. 2012). Stimuli were

³ We acknowledge and thank Anh-Thư Thị Nguyễn for reconstructing the stimuli and providing us with the stimulus lists.

⁴ The procedure for this latter speaker was slightly different, as recordings were first made in the context of experimental stimulus preparation. The automatized elicitation procedure for the subsequent five speakers was designed to be maximally comparable to the original procedure.

presented block-wise, organized by target position (Medial and Initial) and two different elicitation conditions: Neutral Pronunciation and Maximal Contrast. Trials in the first two blocks (Neutral Pronunciation) started with a written presentation of the sentence, followed by a beep, followed by a picture congruent with the intended meaning of the target word. Speakers were instructed to start speaking upon seeing the picture and hence did not speak while reading. The second two blocks (Maximal Contrast) started with a presentation of two pictures of both possible meanings of the target word side by side to create awareness of the two possible meanings of the (segmentally) identical sentence. This screen was followed by a sequence of the written sentence and subsequent picture of one of the meanings, again followed by the written sentence and a subsequent picture of the other meaning. Speakers were instructed to start speaking upon seeing each picture, and to maximize the difference between the two meanings.

All stimuli were pseudorandomized with a minimum distance of 7 stimuli between identical disyllabic targets, and a maximum repetition of 4 per condition (Compounds vs. Noun Phrases). In the Maximal Contrast Blocks, the order of conditions (Compounds vs Noun Phrases) was counterbalanced such that half of the trials started with the Compound meaning followed by the Noun Phrase meaning and vice versa for the other half. Six tokens of each stimulus were elicited and each participant received a different order. In total, this sums up to 15 (Disyllabic Targets) x 2 (Compounds / Noun Phrases) x 2 (Maximal Contrast and Neutral Pronunciation) x 2 (Sentence Position) x 6 (Tokens) = 720 phonetically unique stimuli per participant. The experiment was self-paced, participants were encouraged to take breaks whenever necessary and were able to go one back if they made a mistake. Participants were instructed in Hanoi Vietnamese and a native speaker of Hanoi Vietnamese was present during the experiment to monitor the process. Recordings were made at a sampling rate of 44.1 kHz and 16 bit. Speakers signed a consent form and were financially compensated at an hourly rate.

2.3 Measures

The recordings were visually and auditorily inspected and manually transcribed at the utterance level using Praat 6.3.06 (Boersma and

Weenink 2023). After segmentation, using the TextGrid files and associated WAV files, forced alignment of the speech signal was performed via the web interface of the Munich Automatic Segmentation System (MAUS) using the language independent model (Kisler et al. 2017). This forced aligner uses a grapheme to phoneme conversion, with a parameter model based on SAMPA. In a first step, the web service G2P was used to convert the orthographic text input into a canonical phonological transcript (Reichel 2014). The resulting files were used to compute a phonetic segmentation and labelling based on the speech signal and a phonological transcript in MAUS. The alignment process provided a TextGrid for each utterance in which all phonemes were segmented and marked with boundaries. All utterances were thereafter visually inspected in Praat, with reference to wideband spectrograms and corresponding waveforms. The segmentation of phones in target phrases was corrected when necessary. During the correction of segmental alignment, special attention was paid to the setting of phone boundaries. A boundary was set between vowels and nasals, laterals or approximants at the point where sudden changes in both amplitude and formant structure occurred. Figure 1 is an example of a segmented sentence. Data processing issues resulted in 2.27% of data loss.

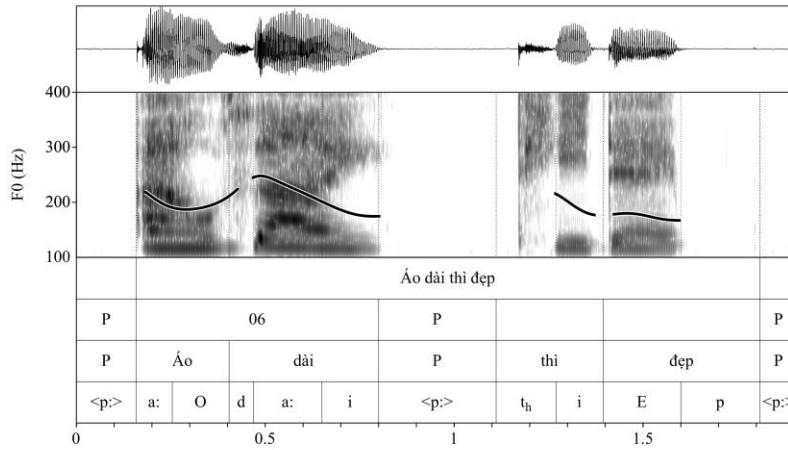


Figure 1. Example of a segmented sentence in Praat figuring a compound in initial position in the Maximal Contrast pronunciation condition (‘The Ao Dai is beautiful’, where Ao Dai is the name of a traditional dress)

A hierarchical database was constructed using the EMU Speech Database Management System (Winkelmann et al. 2017). To query acoustic and durational measurements the emuR package in R was used (Winkelmann et al. 2017; R Core Team 2022).

Measures of interest in this study are duration of segments and pauses (in ms), fundamental frequency (in Hz), and first and second formant frequencies (in Hz). Duration was calculated by obtaining the start and end point of segment of interest and calculating the time difference. Pauses were measured after each syllable. Fundamental frequency was calculated using the K. Schaefer-Vincent periodicity detection algorithm used in the ksvF0 function of emuR. The gender specific setting for females of 100-400 Hz was applied. Formant frequencies were obtained with Praat processing routines using PraatR to call Praat’s “To Formant...” function and then converting the returned values with help of the wrassp function in emuR. For the speech of our female speakers the formant window was set at 5500 Hz. Measurements for fundamental frequency (f0), were taken at regular intervals from 20% to 80% of the way into the vowel, allowing for trajectories of ten points. Their minimum, maximum, mean and range

were used in the analysis. The same ten-point procedure was applied to the first and second formats, obtaining trajectories of ten points of these as well. A slope and intercept were calculated for each frequency of each individual segment. All numerical measures were normalized (z-transformed) per participant.

Figure 2 depicts the distributions of the non-normalized data for each of the 22 variables that were used in the analysis. The distributions show a general overlap for most features, and a potential marking of the Phrase Condition in the Maximal Contrast Pronunciation Condition for the features F1 Mean, F2 Mean, Syllable Duration and Vowel Duration of Syllable 1, Duration of the Pause following Syllable 1 and F0 Range Syllable 2. There is furthermore a potential marking of the Compound Condition in the Maximal Contrast Pronunciation Condition for the features F1 Mean, Syllable Duration and Vowel duration of Syllable 2 and the duration of the Pause following Syllable 2.

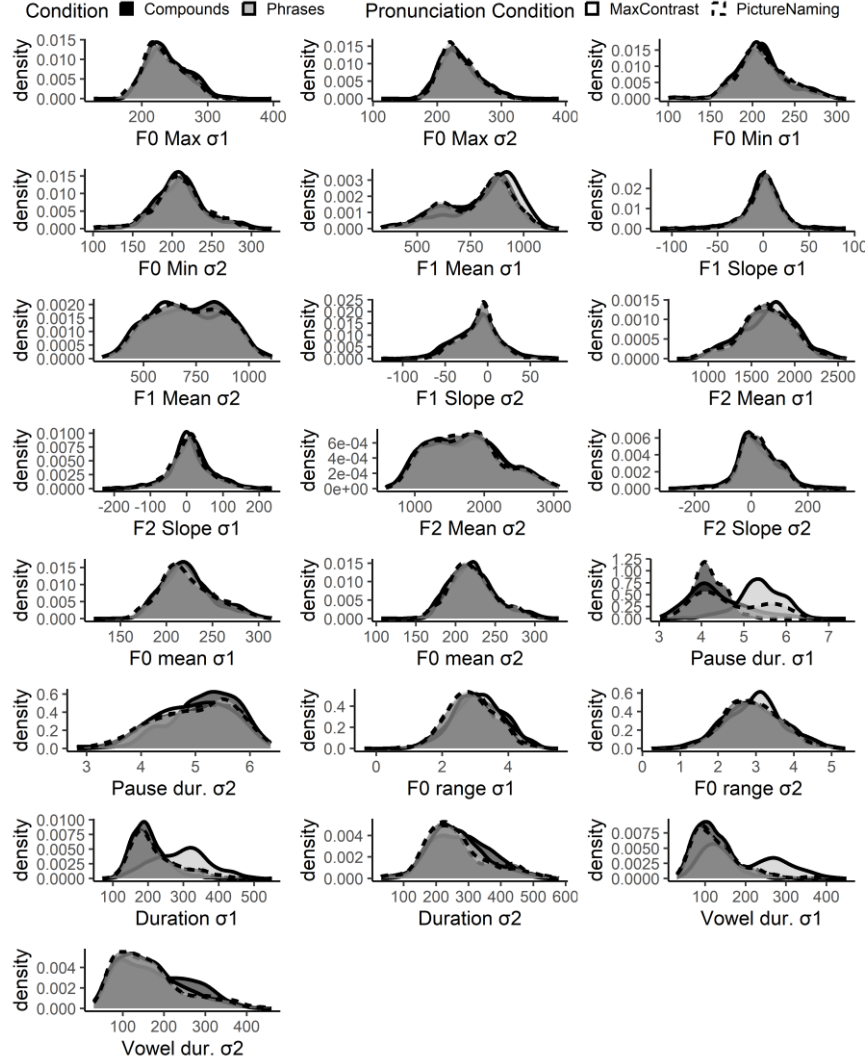


Figure 2. Distributions of raw values of all phonetic correlates, separated by Condition and Pronunciation condition. Values for Pause duration and F0 range were log transformed due to their naturally skewed distributions.

2.4 Analysis

We use a Random Forest Classification Algorithm (Breiman 2001) in R (R Core Team 2023; Breiman and Cutler 2016; Paluszynska et al. 2020), to model the accuracy with which the two conditions can be predicted from phonetics alone. The model comprises an ensemble of separately built classification trees, each based on a random subset of data and a random subset of variables, preventing data overfitting. The output of the model furthermore provides a ranking of importance of all variables and the dependence of the model on their different values, the latter of which can be used to understand their classification cut-off points. Perhaps analog to redundancy in phonetics, highly correlated features will have an equal but reduced importance in the random forest output, reflecting the maintained accuracy of the model when one correlate's function can be replaced by another.

We build separate models of the Maximal Contrast and Neutral Pronunciation condition. Each model is run on a training set of 70% of the data, after which it is tested on a test set of 30% of the data from the same condition. Then, as a third test, the model trained on the Maximal Contrast Pronunciation condition is used to predict both classes in the Neutral Pronunciation condition. This analysis serves as a model of how high-quality input might help to classify reduced (neutral) daily speech, analog to what can be proposed to happen in a human listener who may encounter clearer enunciations at early stages of language learning than at later, expert, stages. Each model is based on 500 random trees and 8 randomly selected variables are used at each split.

3. RESULTS

3.1 Maximal Contrast Pronunciation

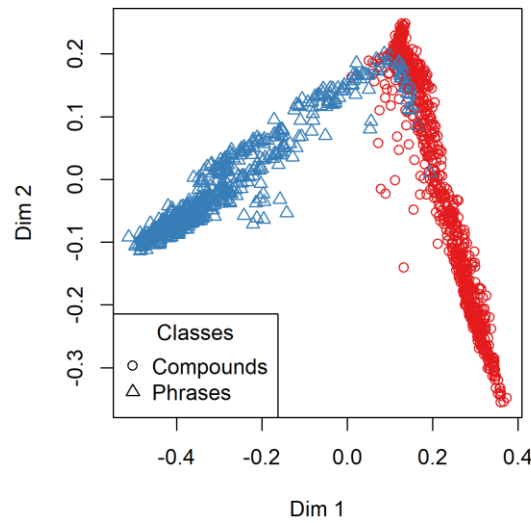


Figure 3. Proximities of observations' shared terminal nodes in the random forest classification for the Maximal Contrast Pronunciation condition, projected onto a plane (Dimensions 1 and 2) in a Multidimensional Scaling Plot (Kruskal's stress = 5.90)

Modeling the Maximal Contrast Pronunciation condition, we find a high classification accuracy for both the Compound (0.936) and Phrase (0.82) condition, with a higher accuracy for the former. Figure 3 makes the distance between the cases in the two classes immediately visible with a multidimensional scaling plot (MDS). An MDS projects a multidimensional distance matrix onto only two dimensions while preserving the relative distances between all points to the maximum extent possible. The axes represent the relative distances after this projection (analogous

to when the earth's globe is projected onto a Mercator map, which inevitably distorts some distances)

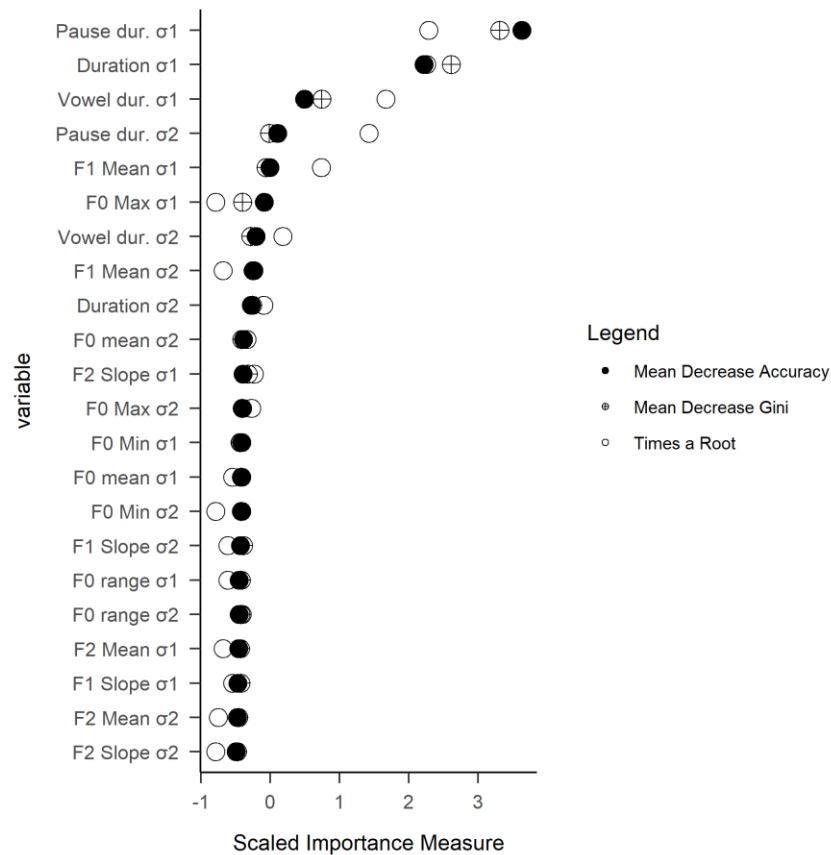


Figure 4. Ranked importance plot for phonetic features in the classification of Compounds vs. Phrases when pronounced under Maximal Contrast conditions. Importance is based on the number of times a correlate is selected as a root node, the decrease in end node purity (Gini) if a correlate were removed from the model and the decrease in accuracy of the model if a correlate were removed.

Figure 4 shows the ranking of the most important variables for this classification by three different importance measures. Each of these measures was z-normalized to allow for a combined plot. Hence, high values on the x-axis represent a higher importance for each variable for the model. Variables on the y-axis are ranked to ease interpretation.

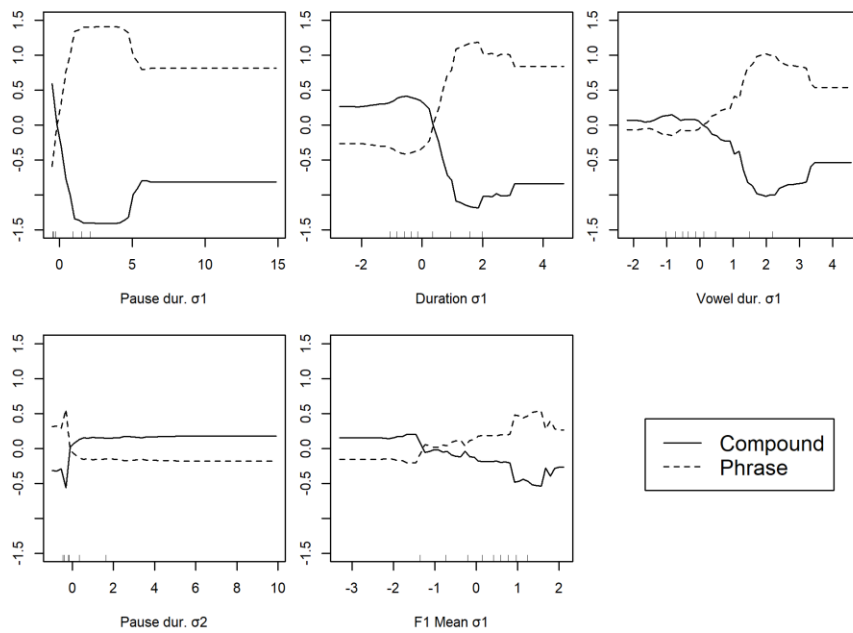


Figure 5. Partial Dependencies for the most important phonetic features in the Compound vs. Phrase classification when pronounced under Maximal Contrast conditions

Lastly, Figure 5 shows the cut-off points for the five highest ranked variables (cf. Figure 4) which have a normalized importance of more than 0 for each of the importance measures. These partial dependence plots show the influence of each variable on the correct classification of each observation.

Starting at the top left, longer pauses after Syllable 1 are more likely to be predictive of Phrases (partial dependencies for the dashed line go up), similarly for the overall duration of Syllable 1 (top center) and the vowel

duration of Syllable 1 (top right). Conversely, longer pauses after Syllable 2 are predictive of compounds (bottom left; partial dependencies for the continuous line go up). Lastly, a higher mean F1 on Syllable one is again indicative of phrases (bottom center).

These results replicate the findings of Nguyen and Ingram (2007), with one exception: we find a role for the pause after Syllable 2, a correlate that was not measured by Nguyen and Ingram (2007).

Using the trained model on the test data, we find an overall accuracy of 0.842 (95% CI = [0.81,0.871], $p < 0.0001$), with low specificity (0.752), relatively low precision (0.777) and high recall (0.94). Compounds are more often correctly predicted (94%) than Phrases (75.2%), a visualization of which can be found in Figure 9.

3.2 Neutral Pronunciation

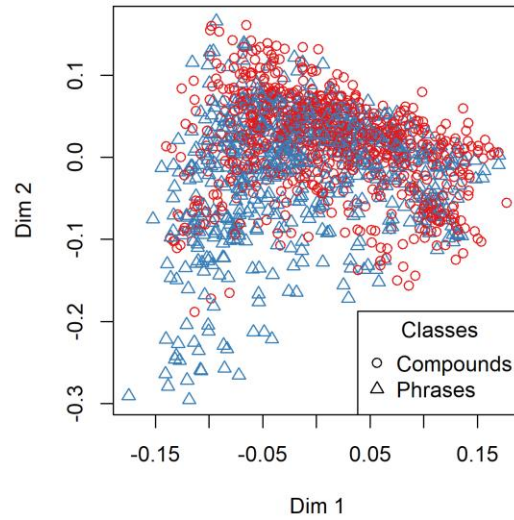


Figure 6. Proximities of observations' shared terminal nodes in the random forest classification for the Neutral Pronunciation condition, projected onto a plane (Dimensions 1 and 2) within a Multidimensional Scaling Plot (Kruskal's stress = 25.57)

Modeling the Neutral Pronunciation condition, we find a low classification accuracy for the Compound condition (0.541) and an even lower one for the Phrase condition (0.403). Figure 6 illustrates the distance between the two classes on a multidimensional scaling plot.

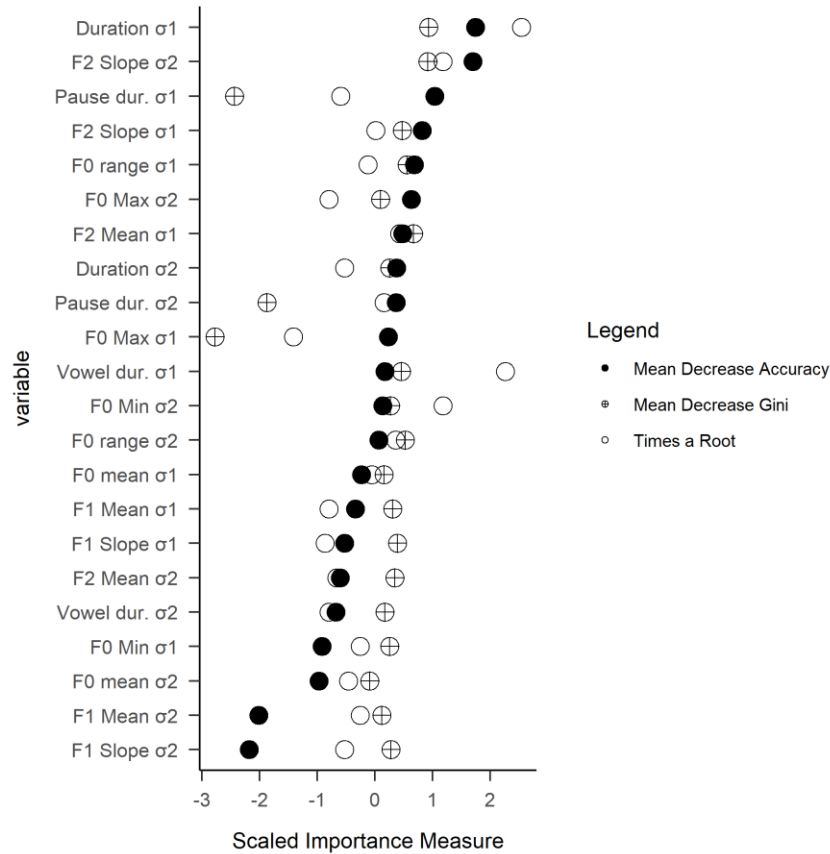


Figure 7. Ranked importance plot for phonetic features in the classification of Compounds vs. Phrases when pronounced under Neutral Pronunciation conditions. Importance is based on the number of times a correlate is selected as a root node, the decrease in end node purity (Gini) if a correlate were removed from the model and the decrease in accuracy of the model if a correlate were removed.

Figure 7 shows the ranking of the most important variables for this classification. In this model, only two variables had a normalized importance of more than 0 for each of the importance measures.

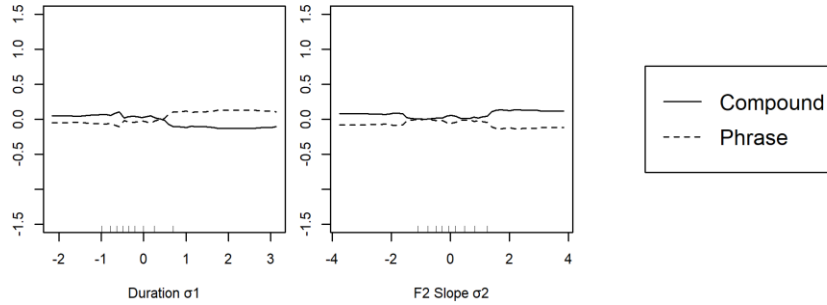


Figure 8. Partial Dependencies for the most important phonetic features of the Compound vs. Phrase classification under Neutral pronunciation conditions

Lastly, Figure 8 shows the cut-off points for the two highest ranked variables. We see an important role for syllable duration of Syllable 1 and the F2 slope for Syllable 2. The cut-off point for the former variable is similar to that of the Maximal Contrast model. The latter variable is not an important variable in the Maximal Contrast model.

Using the trained model on the test data, we find an overall accuracy of 0.502 (95% CI = [0.461,0.543], $p = 0.925$), with low specificity (0.43), low precision (0.475) and low recall (0.583). Compounds are more often correctly predicted (58.3%) than phrases (43%), as seen in Figure 9.

3.3 Predicting Neutral Data with Maximal Model

We entertain the possibility that a model based on the Maximal Contrast is more successful at classifying Neutral Pronunciation data than a model based on Neutral Pronunciation itself, when the two Conditions show a minimal acoustical difference. Both models show an important role for syllable duration of Syllable 1, with a similar cut-off point. We test the Neutral Pronunciation test set with the Maximal Contrast model. This test can be seen to represent the disambiguation of neutral speech from previous experience with speech produced under the maximal contrast condition.

Using the model trained on maximal contrast data to classify the neutral pronunciation test data, we find an overall accuracy of 0.515 (95% CI= [0.474,0.556], $p = 0.783$), with low specificity (0.223), low precision (0.491) and high recall (0.845). Compounds are more often correctly predicted (84.5%) than phrases (22.3%) (Figure 9).

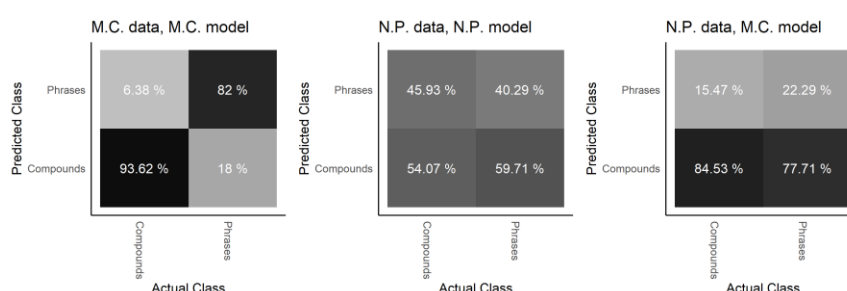


Figure 9. Confusion matrices for Maximal contrast (M.C.) test data predicted by the Maximal Contrast model (left) and Neutral Pronunciation (N.P.) test data predicted by the Neutral model (middle) and Maximal Contrast model (right).

4. DISCUSSION

4.1 Findings

With the classification of phonetic contrast between Vietnamese compounds and phrases, we show to what extent they can be classified from acoustic cues alone, which phonetic features can be presumed to be important for perception, and what their cut-off points are. We furthermore show to what extent a model trained on clearly contrasted data can help to classify neutral, daily speech. Lastly, through the comparison with the results of Nguyen and Ingram (2007), we show that a model based purely on phonetics has a similar behavior to human listeners, both in terms of accuracy and bias, and with the use of new data.

We find that under conditions of Maximal phonetic contrast, there is a relatively high accuracy for both Compounds (~90%) and Phrases (~80%)

when we model the training data, and this accuracy is higher for the model than for the participants in Nguyen and Ingram (2007) (~70% overall). When we classify Maximal Contrast test data with the Maximal Contrast model, we again find a higher accuracy (0.84, 95%CI = [0.81, 0.87]) than what was found for human listeners. Examining the model, we find that this classification is for the largest part based on the following juncture marking features: pause after the first syllable, duration of the first syllable, duration of the first vowel and the mean F1 of the first syllable. This is exactly in line with previous findings. As previously discussed, in among others by Nguyen and Ingram (2007), these features are akin to phrasal prosody, including final lengthening and pausing. The mean F1, too, is a consequence of the longer duration of the syllable, allowing more time to fully realize the vowel.

The duration of the pause after the second syllable is a novel feature we found in this study, with a longer duration indicating a higher likelihood of compound perception. Rather than indicating a boundary between two words, as the pause after the first syllable arguably does, the pause after the second syllable signals the end of a ‘chunk’. This potential use of pausing has implications for the presumed levels of chunking that occur in Vietnamese. Under conditions of Maximal Contrast, speakers employ pausing and lengthening to demarcate relations between syllables, not just on the phrasal level but also on the compound level. Further research into this use of pausing and lengthening may elucidate how native Vietnamese speakers cognitively chunk syllables on different levels.

Under neutral pronunciation, on the other hand, classification is near chance, both when modeling training data and when classifying test data. There are furthermore few important features contributing to the classification, and importance measures are less correlated in the Neutral Pronunciation Model than in the Maximal Contrast model, further underlining a low classification success. Nevertheless, the Neutral Pronunciation model has a compound bias, with a higher classification as compounds in both the actual compounds and the actual phrases. The compound bias in this case is weaker than the one found in human listeners in Nguyen and Ingram (2007). However, when modeling the Neutral Pronunciation data with the Maximal Contrast model, we find an even

stronger compound bias than the one found in the human listeners in Nguyen and Ingram (2007).

Our model simulates the behavior of an ideal human listener who could exploit all phonetic information available in the data on a perception task. The Maximal Contrast model attempting to classify neutral pronunciation data shows a clear compound bias, confirming that the unmarked pronunciation of these disyllables is close to the Maximal Contrast pronunciation of compounds. In other words, speakers use phrasal prosodic cues such as lengthening and pausing to explicitly mark a juncture if asked to do so, but the unmarked pronunciation is a connected disyllable, much like a compound. This underlines that the perceptual compound bias in Vietnamese could be purely phonetically informed.

The ranked importance of the modeled variables gives new insights into the underlying strategies listeners can employ in this classification task. Beyond replicating earlier findings on the lengthening of and pausing after the first syllable when pronouncing the phrasal disyllable, we further show that speakers have a potential chunking strategy at their disposal for maximizing contrasts, namely a long pause at the end of the disyllabic compound. All in all, Vietnamese speakers can potentially use phonetic juncture cues to differentiate compounds and phrases under conditions of maximal contrast. This may tempt the conclusion that the two conditions are prosodically different, but this would be premature. On one hand, speakers may be adopting a strategy from a different linguistic level to perform an experimental task. A similar observation was reported in a recent analysis of Vietnamese intonation (Pham and Brunelle 2022). This study shows that while speakers use intonational disambiguation strategies in read speech, these same patterns do not surface in spontaneous speech. The authors argue that spontaneous speech likely contains sufficient and better (morphosyntactic) measures to realize the difference between for instance interrogation and declaration, and that only artificial speech necessitates pitch manipulation to enhance contrasts. Similarly, in our study we may speculate that speakers use morphosyntactic measures in spontaneous speech to realize the difference between compounds and phrases, while in the lab they adapt phrasal prosody to fit the artificial purpose of acoustic differentiation at a lower prosodic level. Even though our speakers were not reading, we did

intentionally invite them to maximize a contrast. On the other hand, speakers use the same strategy across studies to realize the acoustic difference between compounds and phrases. This consistency and replicability invites further investigation of the role of final lengthening and pausing in compound/phrase perception as well as a larger-scale analysis of prosodic boundary strength production in more spontaneous Vietnamese speech. All in all, our results once more question the existence of a word level in Vietnamese.

4.2 Limitations

The current analysis is based on speech productions of six speakers from Hanoi and generalizations must be made with caution. Yet, the fact that the results replicate earlier results does offer reassurance in terms of the robustness of these patterns and the paper focuses on exemplifying some possibilities of classification analyses for phonetic data.

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Telling Vietnamese compounds and phrases apart

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區分越南語中的複合詞和短語。隨機森林分類法

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越南語是一種孤立語，具有豐富的複合詞生產能力，但沒有存在形態句法、音位佈局或音韻學的證據來假設其音節與短語之間存在一個語言層面（Schiering et al. 2010）。我們利用隨機森林分類器模擬一個人工聽眾，以研究複合詞與短語在語音上的可區分性，這項研究遵循了 Nguyen 和 Ingram（2007）的方法。這種機器學習演算法展現了系統僅憑語音學特徵區分這兩個類別的最大潛力。此外，它還對每個語音相關因素在區分這些類別中的重要性進行了排序，使我們能夠解釋不僅包括特定語音維度上是否存在差異，還包括這種差異的重要性。結果證實，這兩個類別只能在最大對比條件下透過語音來分離，且最大對比是透過接縫標記實現的。進一步地，我們展示了即使在最大對比條件下，這兩個類別也不能完美分離。而且從語音資料中也產生了複合詞偏見，即使隨機森林分類器是基於最大對比資料進行訓練的。

關鍵字：語音學、隨機森林分類、韻律層級、語言輸出、分塊、音韻學

MAXIMALITY AND GENERALIZED ADDITIVITY: *ĐỀU* AND *CŨNG* IN VIETNAMESE*

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ABSTRACT

This study investigates the functions of two “quantificational” elements in Vietnamese, *đều* and *cũng*. Drawing inspiration from Giannakidou and Cheng’s 2006 and Xiang’s 2008 analyses of *dou* in Mandarin, we argue that *đều* ‘all’ in Vietnamese is a maximality operator, which differs from Tran’s (2008) proposal that it is a distributor. In addition, we propose that the additive particle *cũng* ‘also’ only has the additive meaning. The universal interpretation of the wh-element arises when it co-occurs with *cũng* due to a specific property of *cũng* in Vietnamese: its ability to presuppose an open alternative set. When *cũng* associates with a non-specific noun, such as a wh-indefinite, the presupposed alternative set encompasses all potentially possible individuals, leading to a universal reading. Contrary to Tran’s 2009 analysis, *cũng* itself is not a universal quantifier. We also examine the syntactic positions of *đều* and *cũng*. Our analysis indicates that both *đều* and *cũng* adjoin to T’, as they must precede tense markers and can freely appear before or after temporal adverbs.

Keywords: Maximality, quantification, additivity, Vietnamese, *đều*, *cũng*

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1. INTRODUCTION

This work discusses two “quantificational” elements in Vietnamese, *đều* ‘all’ and *cũng* ‘also.’ Tran 2008 argues that *đều* is a distributor and functions as a universal quantifier with a disclosure operator because it appears to have the ability to assign distributivity to the noun it associates with, as shown in (1).

- (1) a. Mọi học sinh làm một cái bánh.¹
 every student make one CL cake
 ‘Every student made a cake (together).’
 b. Mọi học sinh **đều** làm một cái bánh.
 every student all make one CL cake
 ‘Each student made a cake.’

However, this work argues that *đều* is neither a distributor nor a universal quantifier. We point out problems in Tran’s analysis. First, *đều* is not like a true distributor. In Vietnamese, *đều* is compatible with symmetric predicates, which is not possible for a genuine distributor such as *each* in English. Second, the NP that *đều* associates with can assume a holistic reading, or be modified by a non-universal quantifier. This indicates that *đều* is not a universal quantifier, because it is not always associated with a universal reading. Inspired by the theory of Giannakidou and Cheng 2006 and Xiang 2008, we propose that *đều* functions as a maximality operator, as defined in (2).

- (2) $\| \text{đều} \| = \lambda P [P \iota (\lambda x. P(x) \wedge (|x| \subseteq |P \iota (\lambda x. P(x))|)]$
 Maximize the application of VP to DP, to the extent that the
 quantity of DP set by the semantics of quantificational D is met.

Tran 2009 also discusses the element *cũng* and argues that it is a focus-sensitive particle located in the head of Focus phrase (FocP) and associates with a focused NP on its left, as shown in (3). When a wh-indefinite is the

¹ Abbreviations used in the glosses are: CL = classifier, PST = past tense marker, COP = copular, POSS = possessive marker, PERF = perfective aspect marker, FUT = future tense marker, DEM = demonstrative, NEG = negation.

focused element in a *cũng* sentence, it obtains a universal reading, as shown in (4). Tran (2009) argues that *cũng* in (4) functions as a universal quantifier over sets of proposition alternatives.

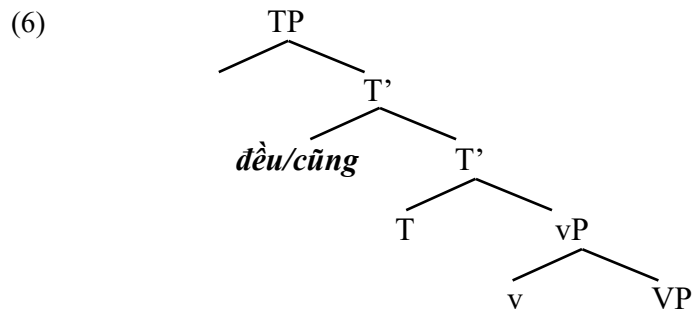
- (3) Tân **cũng** giúp Hoàng.
 Tân also help Hoàng
 ‘Tân also helps/helped Hoàng.’
 (Tran 2009:112)

- (4) Ai **cũng** đã giúp Tân.
 who also PST help Tân
 ‘Everyone helped Tân.’
 (Tran 2009:114)

However, we show that *cũng* is not a universal quantifier. We point out problems with Tran’s proposal and propose that *cũng* only has the additive meaning. The universal reading of the wh-indefinite in (4) derives from the special ability of *cũng* to presuppose an open set. When *cũng* associates with a non-specific nominal, such as a wh-indefinite, the presupposed set encompasses all potentially possible individuals, resulting in a universal reading. The semantic representations of (3) and (4) are as in (5a) and (5b) (supposing that the focused element in (3) is the subject *Tân*).

- (5) a. $cũng [Tân^F giúp Hoàng] = 1$ iff
 $giúp Hoàng (Tân) = 1 \wedge \exists Y [Y \neq Tân \wedge giúp Hoàng (Y) = 1]$
 b. $cũng [ai^F đã giúp Tân] = 1$ iff
 $\forall s [C(s) \rightarrow$
 $đã giúp Tân (ai_s) = 1 \wedge \exists Y_s [Y_s \neq ai_s \wedge đã giúp Tân (Y_s) = 1]]$

Lastly, we examine the syntactic positions of *đều* and *cũng*. We propose that both *đều* and *cũng* adjoin to T’, as shown in (6). This proposal is supported by the observation that both of them must precede tense markers and are flexible in their distribution relative to temporal adverbs, which also adjoin to T’.



The remainder of this work is organized as follows. Section 2 introduces Tran’s analyses of *đều* and *cũng*. In section 3, we point out problems with Tran’s analysis of *đều* and propose that *đều* is a maximality operator. Section 4 addresses the problems with Tran’s analysis of *cũng* and presents our proposal, namely that *cũng* is a generalized additivity operator. In section 5, we examine the syntactic positions of *đều* and *cũng*. Section 6 is the conclusion.

2. TRAN’S THEORY OF ĐỀU AND CŨNG

The elements *đều* and *cũng* in Vietnamese have been discussed in certain works (Nguyễn 1997; Tran 2008, 2009, and others). While most of the previous literature provides only descriptive introductions, Tran’s work offers substantial theoretical analyses. In this section, we present a brief overview of Tran’s analyses of *đều* and *cũng*.

Tran (2008) claims that *đều* is a distributor because it contributes a distributive meaning and never co-occurs with a singular subject, as shown in (7)–(8) (example (8) taken from Tran 2008:121).

- (7) a. Mọi học sinh làm một cái bánh.
 every student make one CL cake
 ‘Every student made a cake (together).’
 b. Mọi học sinh **đều** làm một cái bánh.
 every student all make one CL cake
 ‘Each student made a cake.’

- (8) *Tôi **đều** dùng chung một phòng tắm.
I all use together one bathroom

Tran proposes that *đều* functions as a universal quantifier with a disclosure operator or λ -abstractor; that is, $\text{đều} = \forall \lambda x_1$. According to Tran, this proposal accounts for the universal reading of sentences such as (9).

- (9) Ai này **đều** gặp Tân.²
everyone all meet Tân
'Everyone met Tân.'
(Tran 2008:121)

Tran says that the semantic denotation of (9) is as in (10), where *đều* is responsible for the generation of the universal reading.

- (10) a. $[\text{TopP } Ai \text{ này}] [\text{TP } t_j \text{ đều gặp Tân}]$.
b. $\forall (\lambda x_1 \exists x_1 [x_1 \text{ is a person}] \lambda x_1 [x_1 \text{ met Tân}])$
Existential Disclosure $\rightarrow$
c. $\forall x [x \text{ is a person}] [x \text{ met Tân}]$
(Tran 2008:121)

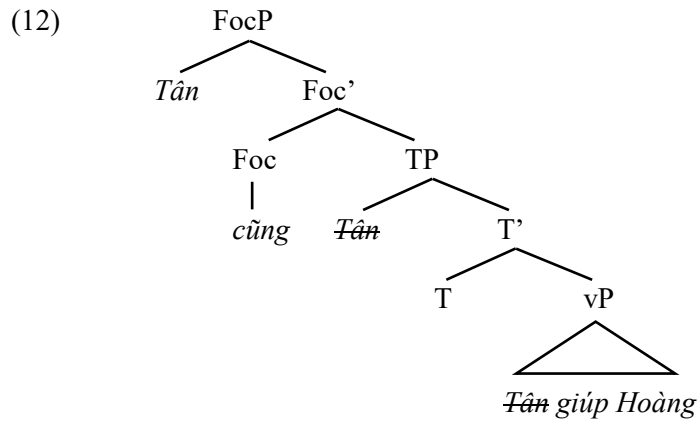
According to Tran, *ai này* is an existential quantifier. It undergoes movement from Spec, TP to Spec, TopP, as illustrated in (10a). Furthermore, a λ -abstractor is introduced to bind the trace resulting from the movement of *ai này*. Then, *đều* introduces a universal quantifier and a λ -abstractor, represented as $\forall \lambda x_1$, as shown in (10b). Through the process of Existential Disclosure, the existential quantifier is eliminated, leading to the presence of a universal quantifier, as shown in (10c).

Regarding *cũng*, Tran (2009) argues that it is a focus-sensitive particle and always associated with a focus-marked element on its left, as illustrated in (11). According to Tran's analysis, *cũng* is located in the head of Focus Phrase (FocP), as shown in (12) (Tran 2009:115). The

² *Ai này* is a compound word meaning 'everyone'. The first element *ai* literally means 'who'. The precise meaning of the second element *này* is not clear, though it appears to have the function to turn a wh-phrase into a universal quantifier.

focused element *Tân* raises to Spec, FocP.

- (11) [*Tân*]_F **cũng** giúp Hoàng.
 Tân also help Hoàng
 ‘Tân also helps/helped Hoàng.’
 [Presupposition: Someone other than Tân helps/helped Hoàng.]
 (Tran 2009:112)



In addition to being a focus-sensitive particle, Tran claims that *cũng* can also act as a universal operator when combined with a *wh*-element, resulting in a universal reading, as demonstrated in (13). In such instances, *cũng* undergoes movement from the head of FocP to a position above FocP at LF, where it operates as a universal quantifier over a set of proposition alternatives, as illustrated in (14).

- (13) Ai **cũng** đã giúp Tân.
 who also PST help Tân
 ‘Everyone helped Tân.’
 (Tran 2009:114)

- (14) LF: [*cũng* [_{FocP} *ai* [_{Foc'} 1 [_{TP} *đã* [_{VP} *giúp Tân*]]]]].

In summary, Tran in his 2008, 2009 works argues that *đều* is a distributor with a universal quantificational force, and *cũng* a universal operator. However, in our view, there appear to be problems with Tran's theory. In the following sections, we turn to those issues and present our analyses of *đều* and *cũng*.

3. THE MAXIMALITY OPERATOR ĐỀU

In this section, we point out problems with Tran's (2008) analysis of *đều* and present our proposal.

3.1 Problems with Tran's Analysis

Tran 2008 proposes that *đều* in Vietnamese is a distributor with a universal force. However, this proposal is problematic on several fronts.

First, *đều* may occur with symmetric predicates, which is unexpected for typical distributors, such as *each* in English (Lakoff and Peters 1969; Huang 1996). See (15).

- (15) a. *They are **each** alike.
 b. *They are **each** classmates
 (Huang 1996:5)

Symmetric predicates take plural individuals as arguments, such as 'be alike' and 'be classmates.' Distributors are typically not compatible with symmetric predicates, as shown in the above examples. However, *đều* in Vietnamese is compatible with symmetric predicates, as shown in (16). This observation suggests that *đều* is NOT a distributor.

- (16) a. Họ **đều** giống nhau.
 they all alike each other
 'They are alike.'
 b. Họ **đều** là bạn học (của nhau).
 they all COP classmate POSS each other
 'They are all classmates.'

Second, *đều* does not always contribute distributivity to the sentence where it occurs. Cheng (2009:59) points out that the fact that *dou* ‘all’ in Mandarin sentences is compatible with holistic meanings indicates that *dou* in Mandarin is not a distributive operator. Similarly, in Vietnamese, *đều* is compatible with holistic meanings, as illustrated in (17).

- (17) Cả cây cầu **đều** đã đổ sập.
 whole CL bridge all PERF collapse
 ‘The whole bridge collapsed.’

In this sentence, the use of *đều* does not imply that each individual part of the bridge collapsed. It is likely that a few bricks still remain intact. The presence of *đều* here serves to emphasize the entirety of the bridge rather than attributing the state of collapsing to each individual component.

Third, the use of *đều* ‘all’ does not always imply universality. Tran’s (2008) analysis fails to account for cases where *đều* occurs in a sentence with a subject containing a non-universal quantifier, as demonstrated in (18) and (19).

- (18) Hai phần ba số người Việt **đều**
 two part three number person Vietnam all
 thích Nhật.
 like Japan
 ‘Two thirds of Vietnamese like Japan.’

- (19) Hầu hết mọi người **đều** thích Nam.
 most every person all like Nam
 ‘Most people like Nam.’

The subjects of these sentences contain a non-universal quantifier, e.g., *hai phần ba số* ‘two thirds’ and *hầu hết* ‘most.’ They do not yield a universal reading, even though *đều* occurs in these sentences.³ Therefore, taking *đều* as a universal quantifier fails to account for these sentences.

³ Liu (1990) also points out that *dou* in Mandarin may occur with the subjects taking a non-universal quantifier.

In conclusion, the above phenomena argue against taking *đều* in Vietnamese as a distributor with a universal quantificational force. An alternative analysis is needed to account for those phenomena.

3.2 The “Maximality Operator” Approach

We propose that *đều* in Vietnamese is a *maximality operator*, adopting the analyses of *dou* in Mandarin by Giannakidou and Cheng (2006) and Xiang (2008).⁴ Two pieces of evidence support this proposal.

First, following Xiang’s (2008) theory of *dou* in Mandarin, we propose that *đều* imposes maximality on the nominal it is associated with. Consider (20a-b). Xiang (2008) observes that when *dou* appears, as in (20b), the subject NP must have a universal force and allows no exceptions. But when *dou* does not appear, as in (20a), a few exceptions (say, two or three

⁴ An anonymous reviewer raises a question about the possible differences between the Vietnamese word *đều* and the Mandarin quantifier *dou*. This question involves many interesting issues so that we cannot really go into a detailed discussion of this question. Briefly, *đều* and *dou* differ in at least the following respects. First, their meanings are different. It is known that *dou* can be used in the *lian...dou* focus construction and express a meaning much like *even* in English. But *đều* does not have this usage. See (ia-b).

- (i) a. Lian Zhangsan dou qu Meiquo le.
 even Zhangsan all go America PERF
 ‘Even Nam went to the US.’
 b. *Đến Nam đều đi Mỹ.
 even Nam all go America
 Intended: ‘Even Nam went to the US.’

Second, according to Xiang (2008), *dou* can assume a scalar use, as in (iia). Again, *đều* does not have this usage. See (iib).

- (ii) a. Dou ba dian le.
 all 8 o’clock PERF
 ‘It’s already eight o’clock.’
 b. *Đều tám giờ rồi.
 all 8 o’clock PERF
 Intended: ‘It’s already eight o’clock.’

There are still other differences. We will leave them for future research.

out of the total twenty) are permitted (see Xiang 2008:236).

- (20) a. Haizimen qu-le gongyuan
 children go- PERF park
 ‘The children went to the park.’
 b. Haizimen **dou** qu-le gongyuan
 children all go-PERF park
 ‘The children all went to the park.’

It turns out that *děu* exhibits the same pattern. As demonstrated in (21), when *děu* occurs, the sentence means that all dogs are outside with no exception. On the other hand, when *děu* does not occur, a few exceptions, say one or two dogs out of the total ten, are permitted. Thus, when *děu* appears in the sentence, it exhibits a maximality function to the application of the predicate to the subject NP.

- (21) a. Chó ở ngoài đường.
 dogs at outside
 ‘The dogs are outside.’
 b. Chó **děu** ở ngoài đường.
 dogs all at outside
 ‘The dogs are all outside.’

Second, *děu* presupposes a non-empty domain. Giannakidou and Cheng (2006) argue that *dou* in Mandarin is a maximality operator, and that it presupposes the existence of a non-empty domain. Giannakidou and Cheng (2006) formulate the maximality function of *dou* as in (22) (Giannakidou and Cheng 2006:176):

$$(22) \parallel dou \parallel = \lambda P_{\langle s, et \rangle} \iota (\lambda w \lambda x. P(x)(w))$$

Note that in this formulation, *dou* amounts to an iota operator on the subject argument *x* of the predicate *P* (note that *x* is within the scope of ι , but *P* is not). It is known that an iota operator on NP, for instance the definite article *the* in English, presupposes that the reference of the NP is

a maximally non-empty set.⁵ This is why Giannakidou and Cheng (2006) argue that *dou* presupposes a non-empty set for the subject argument.

Similarly, the presence of *đều* guarantees a non-empty set. This can be seen in the following examples. The quantificational determiner *nhiều* ‘many’ allows for ambiguity, as its interpretation can be based on either the subject or the predicate.⁶ For instance, (23a) can be understood as either (A) many participants out of the total number of participants to the seminar are cooks, or (B) many cooks out of the total number of cooks participated in the seminar. Sentence (23b), which differs minimally from (23a) by the appearance of *đều*, can only be interpreted in the (B) meaning, namely, that many cooks out of the total number of cooks participated in the seminar.

- (23) a. Nhiều đầu bếp tham gia sự kiện này.
 many cook participate seminar DEM
 ‘Many cooks came to this seminar (Reading A or B).’
 b. Nhiều đầu bếp **đều** tham gia sự kiện này.
 many cook all participate seminar DEM
 ‘Many cooks came to this seminar (Reading B).’

This phenomenon indicates that the presence of *đều* entails a non-empty domain for the subject NP, to which the maximality function of *đều* applies. As a result, the presence of *đều* leads to the “subject-based” reading of (A), instead of the reading (B).

3.3 *Đều* as a Maximality Operator

The above discussions provide support for the proposal that *đều* is a

⁵ This is the Russellian concept of definite descriptions (Russel 1905). Russel observed that a definite description presupposes a set that is non-empty and is exhaustive; e.g., the expression *the boys* in English maximally denotes all the boys in the relevant context. In formal terms, $\|the F\| = \{x: x \in F \ \& \ \forall y(y \in F \rightarrow y \leq x)\}$ (Ludlow 2023). Since *đều*, in a sense, can be seen as an “adverbial version” of the definite article *the* (namely an iota operator), we assume that it also exhibits the property of maximality as the English definite article *the* does.

⁶ See Cohen 2001 for a discussion of the quantifier *many* in English and the ambiguity that arises.

maximality operator. We therefore propose a maximality account of *đều* as follows. (for simplicity, we omit the world argument w).⁷

- (24) $\| \text{đều} \| = \lambda P [P \iota (\lambda x. P(x) \wedge (|x| \subseteq |P \iota (\lambda x. P(x))|)]$
 Maximize the application of VP to DP, to the extent that the
 quantity of DP set by the semantics of quantificational D is met.

In our formulation, we keep the core proposal of Giannakidou and Cheng’s (2006) theory; shown in the first part of the formula (“... $P \iota (\lambda x. P(x))$ ”). Furthermore, we add a restriction that represents the semantic effects of the quantificational determiner of the subject argument (“... $(|x| \subseteq |P \iota (\lambda x. P(x))|)$ ”). Briefly, we propose that when a *đều* sentence contains a quantificational subject (such as those standard and non-standard quantificational determiners), the application of the maximality function of *đều* is restricted to the total quantity denoted by the quantifier. We will come to the details in the following discussion.⁸

In the following, we provide case-by-case accounts for the *đều* sentences and explain how the maximality approach works.

⁷ A reviewer reminds that Xiang (2020) suggests a modification of Xiang’s (2008) theory and treats *dou* as a special kind of exhaustifier, which presupposes that the prejacent p has at least one sub-alternative in the domain C while asserting the truth of p and the falsehood of exhaustification of each sub-alternative q , as shown in (i).

(i) $\|dou\| = \lambda p \lambda w : \exists q \in \text{SUB}(p, C) . p(w) = 1 \wedge \forall q \in \text{SUB}(p, C) [\text{Oc}(q)(w) = 0]$
 (Xiang 2020:183)

The reviewer suggests that Xiang’s (2020) approach could be useful to the analysis of *đều* in Vietnamese. Many interesting questions arise in this regard (e.g., cross-linguistic comparisons, theoretical implications of different approaches, etc.); we would not be able to go into those questions here. However, we do believe that Xiang’s (2020) approach is compatible with the analysis of *đều* that we propose in this work.

⁸ Giannakidou and Cheng (2006) have not explicitly mentioned how the *dou* sentences with holistic expressions and non-standard quantifiers should be treated. The addition of the second part of the formula in (24) is meant to resolve questions in this regard.

- (25) a. Plural nominals
Họ **đều** làm một cái bánh.
 they all make one CL cake
 ‘They all made a cake.’
- b. Nominals with a non-standard quantifier
Hai phần ba số / hầu hết / nhiều
 two part three number most many
 người Việt **đều** thích văn hóa Nhật .
 person Vietnam all like culture Japanese
 ‘Two third of / most / many Vietnamese likes Japanese culture.’
- c. Universal quantifiers
Ai này **đều** thích bóng đá.
 everyone all like football
 ‘Everyone likes football.’
- d. Holistic expressions
Cả cây cầu **đều** đã đổ sập.
 whole CL bridge all PERF collapse
 ‘The whole bridge collapsed.’

In (25a), the predicate *làm một cái bánh* ‘made a cake’ is maximally applied to the denotation of *họ* ‘they’, applying the predicate ‘made a cake’ to each individual in the denoted set. Thus, it has the reading “Each of them made a cake”. In (25b), the predicate *thích văn hóa Nhật* ‘like Japanese culture’ is maximally applied to *người Việt* ‘Vietnamese’ to the extent that the quantity denoted by ‘two thirds’, ‘most’, or ‘many’ is reached. In (25c), the predicate *thích bóng đá* ‘like football’ is maximally applied to the universal quantificational subject *ai này* ‘everyone’, such that each member of this denoted universal set is applied the predicate ‘like football.’⁹ In (25d), the predicate *đổ sập* ‘collapse’ is maximally

⁹ We do not take *ai này* ‘everyone’ as a wh-indefinite as Tran 2008 does, because it does not behave like a wh-indefinite. For example, the wh-indefinite *ai đó* ‘someone’ in (i) cannot be replaced by *ai này*.

applied to the subject denotation ‘bridge’, to the extent that the wholeness of the subject cannot be maintained anymore.¹⁰ Note specially that the additional clause in (24), namely “... $|x| \subseteq |P \iota (\lambda x.P(x))|$,” provides a universal force to the application of the maximality function of *đều*. In the theory of Generalized Quantifier (see Barwise and Cooper 1981, among others), universal quantification is represented as set inclusion. For example, *all* in English can be expressed as follows (taken from Westerståhl 2019; M is a world variable):

$$(26) \text{ all}_M(A, B) \Leftrightarrow A \subseteq B$$

The added clause, in effect, guarantees that the total quantity of the subject argument generated by the semantics of the quantificational determiner is subject to the application of the maximality function of *đều*. In this way, the maximality approach accounts for the grammatical behavior of *đều* in different quantificational contexts.

In conclusion, *đều* in Vietnamese is neither a distributor nor a universal quantifier. It is a maximality operator, following the theory of Giannakidou and Cheng 2006. This proposal nicely accounts for the array of phenomena about the uses and functions of *đều*, which we have shown above.¹¹

(i)	Tôi	đã	gặp	ai đó /	*ai này	ở	công viên.
	I	have	meet	someone	everyone	at	park
	‘I met someone at the park.’						

¹⁰ Note that the notion of “wholeness” must be defined independently, which does not have a direct bearing on the function of *đều*. See Moltmann 2005 for discussion of part and whole structures in natural languages.

¹¹ An anonymous reviewer asked if our proposal could account for the ungrammaticality of (8), which is mentioned in Tran 2008. On this question, we adopt Xiang’s (2008:237) theory and simply assume that *đều* presupposes some sort of “plurality condition.” That is, the subject NP that *đều* is associated with must be plural in content. There are actually interesting questions that surround the “plurality” of *đều* (and *dou* as well), for example the availability of the holistic reading, e.g., sentences involving *cả* ‘whole’ in Vietnamese and *zheng* ‘whole’ in Mandarin, which is compatible with *đều* and *dou*. We leave these questions to another research.

4. THE GENERALIZED ADDITIVITY OPERATOR CŨNG

Next, we turn to *cũng*. We will first point out problems with Tran’s theory, and then present our analysis. In our theory, *cũng* is a “generalized” additivity operator.

4.1 The Problems with Tran’s Analysis of *Cũng*

Tran’s theory claims that *cũng* is a focus-sensitive particle with a universal force. But this theory faces at least two problems.

First, Tran proposes that *cũng* must be associated with a focus element to its left. However, the focused element that *cũng* is associated with can actually be on its right. For example, in (27), there are three possible candidates - a, b, or c - that can serve as the focus associate to *cũng*, and each of them results in a grammatically acceptable focus sentence.¹²

- (27) [Nam]_a cũng [gặp [Lan]_b]_c.
 Nam also meet Lan
 ‘Nam also met Lan.’

¹² An anonymous reviewer asks if it is possible to replace the subject of sentence (27) with an indefinite NP while maintaining the focus association between *cũng* and the element to its right. The following examples show that such focus association is unacceptable:

- (i) a. *Có một người cũng gặp Lan.
 have one person also meet Lan
 Intended: ‘It is also that there is one person who met Lan.’
 b. *một số người cũng gặp Lan.
 some people also meet Lan
 Intended: ‘It is also that some people met Lan.’

As to the question why such sentences are unacceptable, we assume that an indefinite subject in a Vietnamese sentence represents a case of existential quantification (e.g., ‘there is a man such that...’). This existential quantification is itself a focused element (see Partee 1995, where it is argued that focus is also a special type of quantification). On the assumption that a sentence only permits one instance of focus, the unacceptability of sentences like (ia-b) is naturally explained.

When the focus is the subject *Nam*, the sentence presupposes that someone other than Nam met Lan. When the focus is the object *Lan*, the sentence presupposes that Nam met someone other than Lan. Finally, when the focus is the VP *gặp Lan* ‘meet Lan’, the sentence presupposes that Nam did other things in addition to meeting Lan.

If the focused element that *cũng* is associated with is not always on its left, Tran’s theory fails to explain why a wh-element must consistently appear on the left of *cũng* to generate a universal interpretation.

Second, Tran’s theory does not provide a clear explanation on why *cũng*, which, in its original function, is an additivity particle meaning ‘also’, takes on the role of a universal quantifier when it appears with a wh-element. Tran suggests that *cũng* functions as a universal quantifier ranging over propositional alternatives. However, the cause and reason for the change of *cũng*, an additivity particle, to a universal quantifier in this context remains unclear.

These problems show that Tran’s theory of *cũng* as a focus particle with a universal force is not completely satisfactory. In what follows, we present an alternative analysis, according to which *cũng* can function as a “generalized” additivity operator.

4.2 *Cũng* as a “Generalized” Additivity Operator

We argue that *cũng* is not a universal quantifier. Instead, we propose that it is a “generalized” additivity operator. The universal reading of the wh-element when *cũng* appears is generated through a “generalized” additive function of *cũng*. Remember that the original meaning of *cũng* is ‘also’ or ‘too’. The examples we gave are (3) and (4), here repeated as (28) and (29).

- (28) Tân **cũng** giúp Hoàng.
 Tân also help Hoàng
 ‘Tân also helps/helped Hoàng.’
 (Tran 2009:112)

- (29) Ai **cũng** đã giúp Tân.
 who also PST help Tân
 ‘Everyone helped Tân.’
 (Tran 2009:114)

Suppose that the original semantic function of *cũng* is as shown in (30), where *cũng* takes a propositional scope. X^F represents the focused element in the sentence.

- (30) *cũng* [$P(X^F)$] = 1 iff
 $P(X) = 1 \wedge \exists Y[Y \neq X \wedge P(Y) = 1]$

Let us consider the sentence in (28) and its semantic interpretation, shown in (31). Suppose that the focused element is the subject *Tân*, which is X^F . The sentence *Tân cũng giúp Hoàng* ‘Tân also helped Hoàng’. is true if and only if that Tân helped Hoàng is true (*giúp Hoàng (Tân)* = 1) and there is another person Y that is distinct from Tân ($Y \neq Tân$) and the proposition that Y helped Hoàng is true (*giúp Hoàng (Y)* = 1). See (31) for a demonstration.

- (31) *cũng* [$Tân^F$ giúp Hoàng] = 1 iff
 $giúp Hoàng (Tân) = 1 \wedge \exists Y[Y \neq Tân \wedge giúp Hoàng (Y) = 1]$

Next, we consider the universal interpretation of sentence in (29). We propose that *cũng* has the ability to presuppose an *open alternative set*. As an additivity particle, *cũng* presupposes an alternative set of propositions where the focused element is the variable item. Typically, however, the alternative elements, i.e., Y in (30), is specific and determined by the context. Therefore, the alternative set is a specific set. However, we propose that *cũng* has the ability to take indefinitely many alternative elements into account and thereby form an open set with its additivity function.

To implement this idea, we propose that *cũng* has the ability to trigger universal situation quantification, into which the original additivity function of *cũng* is embedded. This is represented in (32).

$$(32) \text{ cũng } [P(X^F)] = 1 \text{ iff} \\ \forall s [C(s) \rightarrow P(X_s) = 1 \wedge \exists Y_s [Y_s \neq X_s \wedge P(Y_s) = 1]]$$

This formula essentially says the following: for every situation s , if s is contextually relevant (namely $C(s)$), then the *cũng*-sentence is true of a specific element X in s (i.e. X_s) and, furthermore, there is (at least) a specific element Y in s (i.e. Y_s) of which the *cũng*-sentence is true. And since there are infinitely many s 's, the alternative set constituted by those possible Y 's becomes an open set.¹³ In this way, the additivity function of *cũng* remains intact, and the universal quantification over the relevant situations provides the required universal or generic quantificational force to the sentence.¹⁴ Adopting this theory, the sentence (29) will be analyzed in the way shown in (33).¹⁵

$$(33) \text{ cũng } [ai^F \text{ đã giúp Tân}] = 1 \text{ iff} \\ \forall s [C(s) \rightarrow \\ \text{đã giúp Tân } (ai_s) = 1 \wedge \exists Y_s [Y_s \neq ai_s \wedge \text{đã giúp Tân } (Y_s) = 1]]$$

The sentence *Ai cũng đã giúp Tân* ‘Anyone would help Tân’ is true if and only if some specific X in a relevant s helped Tân, and all Y 's in all relevant s 's distinct from the X 's also helped Tân.¹⁶ The universal reading

¹³ This is possible because the wh-element (e.g. *ai* ‘who’ in (29)) does not have a fixed reference. It is indefinite, but it can have a potentially different referent in different situations. This is a key factor in the universal reading of *cũng*.

¹⁴ Tran (2009) also mentions situation quantification in his discussion of the universal reading of *cũng*. But Tran’s theory is not based on the additivity of *cũng*. So there is still a substantial difference between Tran’s theory and ours. We will not go into a detailed comparison of the two approaches.

¹⁵ We assume that *ai* ‘who’ here takes an indefinite reading. Consequently, this formula means something like: “For an (arbitrary) indefinite individual, every other individual is *also* P.” This derives the universal reading of *cũng* directly from its additivity.

¹⁶ Note that when a wh-element occurs with *cũng* and assumes a universal reading, it must be on the left of *cũng*. If it is an object, it must move to the left of *cũng*. We have shown that *cũng* can focalize an element on its left or right; thus, the reason that the wh-element must precede *cũng* is not *cũng* itself, but some other factor(s). An important fact in this regard is that the wh-element in front of *cũng* can optionally take the element *bất kỳ* ‘no matter’, as shown in (i).

of the wh-element is thus obtained through *cũng*'s ability to have its additivity function generalized to a universal set of relevant situations, which is an open set, in relation to the referent of the wh-indefinite.¹⁷

In summary, we propose that *cũng* has one core sense, namely the additive meaning. *Cũng* is not a universal quantifier itself. It is its ability to generate an open alternative set through the universal quantification of situations, shown in (32), that gives rise to the universal interpretation of the wh-indefinite in (29).¹⁸

-
- (i) (Bất kỳ) ai cũng có hai tay.
no matter who also have two hands
'Anyone has two hands.'

We assume that the left-occurrence (or movement) of the wh-element with respect to *cũng* in Vietnamese results from the requirement of this element *bất kỳ* 'no matter', which needs to immediately precede a wh-element. If there is not an overt occurrence of *bất kỳ*, we assume that there is a covert version of it. Therefore, it is (the overt or covert version of) *bất kỳ* that is responsible for the left-occurrence of the wh-element in relation to *cũng*. This explanation is adopted from Cheng and Giannakidou's (2013) analysis of the *dou* constructions and the element *wulun* 'no matter' in Mandarin.

¹⁷ An anonymous reviewer asks if it is possible to negate a universal sentence with *cũng*, and, if so, how is the reading derived. The example in (i) is such a sentence, where the negator *không* 'not' is present in the sentence.

- (i) Ai cũng không giúp Tân.
who also NEG help Tân
'Everyone didn't help Tân.' ('every' > 'not', *'not' > 'every')

Our analysis can account for the reading of this sentence straightforwardly. What needs to be done is simply substituting *P* by a negated sentence. This is shown below.

- (ii) $cũng [ai^F không giúp Tân] = 1$ iff
 $\forall s [C(s) \rightarrow$
 $không giúp Tân (ai_s) = 1 \wedge \exists Y_s [Y_s \neq ai_s \wedge không giúp Tân (Y_s) = 1]$

¹⁸ An anonymous reviewer asks what are the differences among the Vietnamese word *cũng*, the English adverb *even*, and Mandarin *shenzhi* / *lian... dou* 'even' construction. Since this question goes beyond the possible scope of this paper, we can only briefly provide the following observations. The word *cũng* does not have the meaning of 'even', but it can be used with the element *đến* to form the construction *đến... cũng*, which is similar in meaning to the Mandarin *lian... dou* construction, as in (i).

5. THE SYNTACTIC POSITIONS OF *ĐỀU* AND *CŨNG*

In this section, we propose that both *đều* and *cũng* adjoin to T', because they must precede tense markers, and they can freely appear before or after temporal adverbs, which also adjoin to T'.

First, *đều* and *cũng* must precede tense markers, as shown in the following examples. Let us examine the case of *đều* first. When *đều* occurs with the future tense marker *sẽ* or the past tense marker *đã*, it must precede them, as shown in (34) and (35). The reverse order is ungrammatical, as shown in (34b) and (35b).

- (34) a. Tất cả học sinh **đều** sẽ đi Hà Nội.
all students all FUT go Hanoi
'All students will go to Hanoi.'
- b. *Tất cả học sinh sẽ **đều** đi Hà Nội.
all students FUT all go Hanoi
- (35) a. Tất cả học sinh **đều** đã đi Hà Nội.
all students all PST go Hanoi
'All students went to Hanoi already.'

-
- (i) a. Lian Zhangsan dou qu xuexiao le.
even Zhangsan all go school PERF
'Even Zhangsan went to school.'
- b. Đến Nam cũng đi học.
even Nam also go study
'Even Nam went to school.'

On the other hand, Vietnamese has an independent expression *thậm chí* for the meaning of 'even'; see (ii) (adopted from Hole 2017:395).

- (ii) Nam thậm chí đến pho mát cũng ăn.
Nam even even cheese also eat
'Nam eats even cheese.'

We leave a full comparison of these elements in the different languages to future study.

- b. *Tất cả học sinh đã **đều** đi Hà Nội.
all students PST all go Hanoi

Now let us turn to the case of *cũng*. Similarly, *cũng* must occur before *sẽ* and *đã*; the reverse order is ungrammatical. See (36a-b) and (37a-b).

- (36) a. Nam **cũng** sẽ đi Hà Nội.
Nam also FUT go Hanoi
'Nam will also go to Hanoi.'
b. *Nam sẽ **cũng** đi Hà Nội.
Nam FUT also go Hanoi
- (37) a. Nam **cũng** đã đi Hà Nội.
Nam also PST go Hanoi
'Nam also went to Hanoi.'
b. *Nam đã **cũng** đi Hà Nội.
Nam PST also go Hanoi

The future marker *sẽ* and the past tense marker *đã* are analyzed as the head of TP by many scholars (e.g., Thompson 1965; Trinh 2005; Duffield 2007, 2013; Phan 2013).¹⁹ We follow this analysis of *sẽ* and *đã* and assume that they are in T⁰. Since *đều* and *cũng* must precede *sẽ* and *đã*, they must be higher than T⁰.

Next, we compare the syntactic positions of *đều* and *cũng* with temporal adverbs. *Đều* and *cũng* can occur before or after the temporal adverb *ngày mai* 'tomorrow,' as shown in (38) and (39).

- (38) a. Tất cả học sinh ngày mai **đều** đi Nhật.
all student tomorrow all go Japan
'All the students will go to Japan tomorrow.'
b. Tất cả học sinh **đều** ngày mai đi Nhật.
all student all tomorrow go Japan
'All the students will go to Japan tomorrow.'

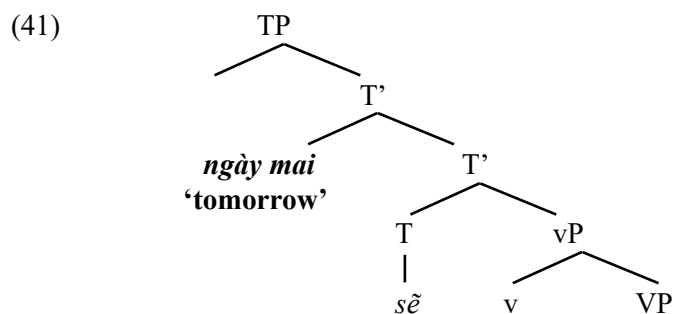
¹⁹ *Đã* could function as an aspect marker or a tense marker, according to Phan 2013. Phan 2013 argues that *đã* is located in the head of AspP and raises to the head of TP if there are no barriers between Asp⁰ and T⁰.

- (39) a. Nam ngày mai **cũng** đi Nhật.
 Nam tomorrow also go Japan
 ‘Nam will also go to Japan tomorrow.’
 b. Nam **cũng** ngày mai đi Nhật.
 Nam also tomorrow go Japan
 ‘Nam will also go to Japan tomorrow.’

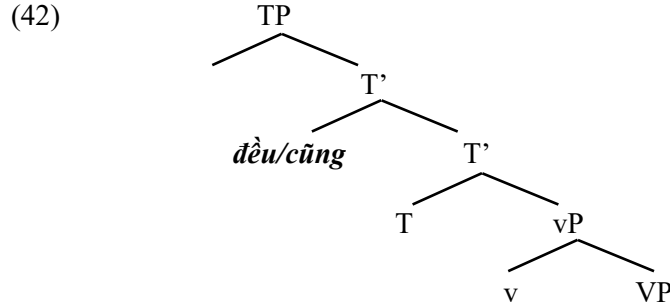
The temporal adverbs in Vietnamese must precede the tense markers. For example, the future marker *sẽ* must follow the temporal adverb *ngày mai* ‘tomorrow,’ as shown in (40).

- (40) a. Nam **ngày mai** sẽ đi học.
 Nam tomorrow FUT go school
 ‘Nam will go to school tomorrow.’
 b. *Nam sẽ **ngày mai** đi học.
 Nam FUT tomorrow go school

Suppose that the temporal adverbs in Vietnamese are adjoined to T’, licensed by the head T⁰, as shown in (41).



Since *đều* and *cũng* can freely alternate with the temporal adverbs in position, we propose that they adjoin to T’ as well. This is shown in (42).



Incidentally, we observe that when *đều* and *cũng* co-occur in a sentence, the word order is fixed, namely *cũng đều*, as shown in (43)-(44). The reverse word order *đều cũng* is unacceptable.²⁰

- (43) a. (Mọi người đều mệt.)
 every people all tired
 ‘Everyone is tired.’
 Mọi người **cũng** **đều** đói.
 every people also all hungry
 ‘Everyone is also hungry.’
- b. *Mọi người **đều** **cũng** đói.
 every people all also hungry
- (44) a. Ai **cũng** **đều** đói.
 who also all hungry
 ‘Everyone was hungry.’
- b. *Ai **đều** **cũng** đói.
 all all also hungry

We tentatively assume that this word order arises because of the modificational property of *đều*. According to earlier discussion, *đều* is an adverbial modifying the predicate, assigning the maximality function to it.

²⁰ Some informants from northern and central Vietnam reported that both the orders *cũng đều* and *đều cũng* are acceptable to them. We are not sure if this variation is due to dialectal differences or other factors. Further research is needed. For now, we leave the relevant questions open.

Cũng, on the other hand, has a propositional scope (see (30)) and (32)). We suggest that the different scope properties of the two elements determine their relative word order: *đều* is an adverbial modifier to the VP predicate, and hence needs to be adjacent to the VP predicate; *cũng* takes the propositional scope, and need not be adjacent to the VP predicate. Thus, the word order *cũng-đều* is derived.

6. CONCLUSION

This work explores the functions of *đều* ‘all’ and *cũng* ‘also’ in Vietnamese. Drawing inspiration from Giannakidou and Cheng’s 2006 and Xiang’s 2008 analyses of *dou* in Mandarin, we argue that *đều* is a maximality operator, rather than a distributor or a universal quantifier, contrary to Tran’s 2008 proposal. Also, we propose that *cũng* is a “generalized” additivity operator. The universal interpretation of the wh-element that occurs with it arises because of its ability to presuppose an open alternative set, though *cũng* itself is not a universal quantifier. Furthermore, we examine the syntactic positions of *đều* and *cũng* and propose that both of them adjoin to T’, as evidenced by their placement before tense markers and their flexible positions with respect to temporal adverbs.

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極大性與泛義加性：越南語 *đều* 和 *cũng*

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本研究探討了越南語中兩個「量化」成分 *đều* 和 *cũng* 的功能。我們採納 Giannakidou and Cheng 2006 及 Xiang 2008 有關漢語 *dou* 的理論分析，主張越南語中的 *đều* 是一個「極大化運符」。此理論與 Tran (2008) 認為 *đều* 是一個分配運符的主張不同。此外，我們認為助詞 *cũng* 只有加性意義。當 *cũng* 與一個非特定名詞（例如表存在意的 wh-疑問詞）相連結時，由於 *cũng* 能預設一個開放性的替代集合，因此 wh-疑問詞的全稱解釋就會出現。這與 Tran (2009) 的分析相異。我們認為 *cũng* 本身並不是一個全稱性量詞，如 Tran (2009) 所主張。我們還測試了 *đều* 和 *cũng* 的句法位置。我們的分析顯示：*đều* 和 *cũng* 都加接到 T'，因為它們必須出現在時態成分之前，並可以自由出現在時間副詞之前或之後。

關鍵字：極大化、量化、加性、越南語、*đều*、*cũng*

**VIETNAMESE POST-VERBAL *ĐƯỢC*:
ASPECTUALITY, MODALITY, PREDICATION,
AND SPEAKER COMMITMENT**

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ABSTRACT

This study first argues that Vietnamese *được* (lit. ‘gain, acquire, come to have’) indicates only dynamic readings in the capacity of a post-verbal modal auxiliary. If a post-verbal *được* is not interpreted dynamically, it does not serve as a modal auxiliary, but is either an aspectual marker of telicity, an evaluative predicate, or a pragmatic marker. We then address the syntactic and interpretive properties of post-verbal *được*, adopting the view that *được* heads a functional projection below VP when encoding either Aktionsart or dynamic modal meaning. In sentences with a denial illocutionary force, sentence-final *được* is analyzed as a commitment marker (Krifka 2015, 2023; Wiltschko and Heim 2016) communicating the speaker’s public endorsement of the denial of a previous utterance.

Keywords: post-verbal *được*, aspectuality, modality, predication, speaker commitment, syntax-pragmatics interface

1. INTRODUCTION

Vietnamese *được* has many faces. As a lexical verb it roughly means ‘gain, acquire, come to have’, having cognates in many Sinitic varieties and mainland Southeast Asia languages (see Simpson 2001; Enfield 2003). As a modal auxiliary, *được* ‘can’ either precedes or follows the main verb (V), albeit with an interpretative difference: post-verbal *được* as in (1a) yields a dynamic reading, while pre-verbal *được* in (1b) is construed deontically.¹ Pioneering studies on *được* (e.g. Duffield 1999; Simpson 2001) already notice that this post-verbal position is unexpected considering how other modal elements in the language are systematically pre-verbal. This linear ordering is illustrated with deontic *phải* ‘must’ and *nên* ‘should’ in (2).

- (1) a. *Tí vật được con trâu đó.*
 Tí wrestle DUOC² CL buffalo that
 ‘Tí is able to wrestle that buffalo.’ [dynamic]
 b. *Tí được vật con trâu đó.*
 Tí DUOC wrestle CL buffalo that
 ‘Tí is permitted to wrestle that buffalo.’ [deontic]

¹ A quick note on terminologies. We adopt Portner’s (2009) categorization of sentential modality into three classes: epistemic, priority, and dynamic. Epistemics are modals generally concerning the speaker’s evaluation and judgment in light of her knowledge. Deontics belong to the class of priority modals, pertaining to what is necessary as well as possible given a set of moral principles or a body of law (von Stechow 2006). (Volitional) dynamic modals concern how (internal/external) circumstances impact the actions of a volitional individual. The two types of dynamic readings relevant to this study are ability (related to the stable properties of the subject) and opportunity (concerning “accidental or stable properties of the utterance situation” (Hackl 1998:26)).

² The abbreviations are glossed as follows: ASP = aspect; ANT = anterior; CL = classifier; COP = copula; FUT = future; HON = honorific; MP = modal particle; NEG = negation; PL = plural; PRT = particle; SG = singular; SFP = sentence-final particle; TOP = topic marker. Certain original glosses have been modified to align with the stylistic conventions used in this paper.

- (2) *Tí phải/nên vật con trâu đó.*
 Tí must should wrestle CL buffalo that
 ‘Tí must/should wrestle that buffalo.’

Other dynamic modals in the language, whether still in use or not, are also restricted to a pre-verbal position. Phan (2024a) claims that a group of now-obsolete modal verbs of dynamic possibility, including *hay*, *khá/khả*, and *kham*, are only attested pre-verbally, see (3) for illustration. Note that post-verbal *được* in (3) is assumed to have an aspectual reading, a point to which we will return briefly. Phan (2024a) further postulates that even *được* once functioned pre-verbally as an opportunity modal, as illustrated in (4). *Có thể* ‘can’, generally regarded as the canonical dynamic modal in Present-Day Vietnamese, also precedes the verb, see (5).

- (3) *Ai hay cóc được, mới óc là đã.*
 who can understand with.success only say COP complete
 ‘Only those who can successfully understand it are said to be complete.’ (*Cư trần*, 13th c.) (Phan 2024a:169)

- (4) *tôi [...] thấy thầy Thiêm đọc một tờ lý đoán*
 1SG see catechist Thiêm read one CL judgment
phạt Đức Cù trong ấy nói nhiều lời tôi
 punish HON elderly in there say many word 1SG
chẳng được thuộc hết
 NEG DUOC memorize exhaust
 ‘I [...] saw Mr. Thiêm the catechist read a judgment specifying the punishment of The Honorable in which it mentioned many things I could not memorize in their entirety’ (*Thư* 18, 1759) (Phan 2024a:184)

- (5) *Tí có thể vật con trâu đó.*
 Tí can wrestle CL buffalo that
 ‘Tí can wrestle that buffalo.’

To account for its curious position, Phan (2024a) suggests that post-verbal *được* is diachronically derived from *được* as a resultative marker

(meaning roughly ‘successfully, with success’), marking inner aspect. With this reading, *được* heads a functional projection (mnemonically dubbed RP) selected by V. See (3) above for an example of this use, and Section 3 for more discussions on its aspectual nature. To derive its modal reading, Phan (2024a) proposes that *được* first raises to a secondary Modal Phrase (ModP) below VP before being reanalyzed as the head of this projection at a later stage of its diachronic development. This ModP is licensed by a canonical modal projection above VP (realized as *có thể*) via *Agree*, in compliance with the consensus that a hierarchical arrangement is established universally where functional structures c-command a lexical projection (cf. Cinque 1999).

Although the modal function remains the most intriguing aspect of a post-verbal *được*, we find it worthwhile to show that this element can serve other functions corresponding to diverse structural positions and featural make-ups. With this intention in mind, the current work is structured as follows. Section 2 proposes that *được* as a modal verb always has a dynamic reading post-verbally. Section 3 focuses on scrutinizing the syntax and interpretive properties of post-verbal *được*, both as an aspect marker of telicity and as a secondary modal auxiliary. An explanation is then provided for the compulsory incorporation of a result component X to modal *được*, resulting in the formation of a V-X-*được* sequence to yield a potential reading. The section additionally suggests that *được* also exhibits a predicative use in the presence of a sentential subject. Section 4 highlights the hitherto overlooked use of *được* as a sentence-final particle exclusively found in denial contexts with clause-initial *wh*-adverbs. We claim that this instantiation of *được* has no modal interpretation and is better analyzed as a marker of public commitment (Krifka 2015, 2023), typically accentuating the speaker’s commitment to a refute to a previous utterance. Section 5 as a conclusion provides a brief remark on the hitherto undiscussed V-*được*-X sequence.

2. POST-VERBAL MODAL *ĐƯỢC* IS EXCLUSIVELY DYNAMIC

Duffield (1999, 2001) and Enfield (2003) claim that *được* expresses both dynamic and epistemic possibility post-verbally. Duffield (1999) further remarks that *được* has a stronger preference for abilitative reading, and its epistemic reading is coerced by *có thể*. Our position is that, as a modal verb, post-verbal *được* only allows dynamic construals. In other words, the epistemic reading (6ii), quoted from Sybesma 2008, is in fact not plausible (see also Phan 2013 for a similar judgment).

- (6) *Anh ấy kiếm việc được.*
 3SG look.for work DUOC
 i. ‘He can find/look for a job.’ [ability]
 ii. ‘It is possible that he will find/look for a job.’ [epistemic]
 (Sybesma 2008:253)

To express epistemic possibility, Vietnamese typically resorts to the pre-verbal *có thể*. In the presence of *có thể*, (7) can be interpreted either abilitatively or epistemically. Assuming that modal elements have distinct interpretations according to their syntactic height (cf. Tsai 2015a), with epistemic modal (ad)verbs merged in Rizzi’s (1997) Split-CP and dynamic modals projecting immediately above VP (Phan 2023, 2024a, b), we predict that the use of certain TP-level elements like tense marker *sẽ* ‘will’ or temporal adverb *ngày mai* ‘tomorrow’ as delimiters can tease apart these readings (see also Duffield 1999). This prediction is borne out, since *có thể* is strictly epistemic when preceding *sẽ* and *ngày mai* (8a), but is exclusively dynamic if the order is reversed (8b).

- (7) *Anh ấy có thể kiếm việc.*
 3SG can look.for job
 i. ‘He can look for a job.’ [dynamic]
 ii. ‘It is possible that he will look for a job.’ [epistemic]
- (8) a. *Anh ấy có thể ngày mai sẽ kiếm việc.*
 3SG can tomorrow FUT look.for job
 ‘It is possible that he will look for a job tomorrow.’ [epistemic]

- b. Anh ấy ngày mai sẽ **có thể** kiếm việc.
 3SG tomorrow FUT can look.for job
 ‘Tomorrow he will be able to look for a job.’ [dynamic]

Now that our intuition is sharpened, let us go back to *được*. If post-verbal modal *được* is exclusively dynamic as previously claimed, then we can make two further predictions. First, the co-occurrence of *được* with the higher *có thể* must yield both a dynamic reading and an epistemic reading (with the latter scoping over the former); the dynamic reading comes from *được*, and the epistemic reading is contributed by *có thể*. On the contrary, the presence of *được* alongside the lower *có thể* must bring about a single dynamic reading. These predictions are indeed borne out, see (9a) and (9b) respectively. Notice also how the temporal adverb and tense marker take scope over *được* in both cases. This is anticipated if post-verbal *được* indeed merges low in the structural spine and is c-commanded by Tense, which is impossible for epistemic modals considering their base position within the CP domain.

- (9) a. Anh ấy **có thể** ngày mai sẽ kiếm việc **được**.
 3SG can tomorrow FUT look.for job DUOC
 ‘It is possible that he will be able to look for a job tomorrow.’
 [epistemic > dynamic]
 b. Anh ấy ngày mai sẽ **có thể** kiếm việc **được**.
 3SG tomorrow FUT can look.for job DUOC
 ‘From tomorrow he will be able to look for a job.’ [dynamic]

This interpretive restriction sets *được* apart from Present-Day Mandarin cognate *de*, given that the latter expresses both epistemic possibility and ability (Tsai 2001; Wu 2004), see (10). In this respect, *được* however patterns with other Sinitic cognates like Early Mandarin *de* (11a) and Cantonese *dak* (11b), both of which do not yield an epistemic interpretation post-verbally. For ease of exposition, we will use DE to refer to these cognates of *được* when no fine-grained distinction is required.

- (10) *Lisi kan-de-dao zhe-ke shu.* [Mandarin]
 Lisi chop-DE-fall this-CL tree
 ‘Lisi can chop the tree down.’
 (= ‘It is possible for Lisi to chop the tree down.’
 or ‘Lisi is able to chop the tree down.’)
 (Wu 2004:272, with minor modifications)
- (11) a. *Yīn yáng shì qī wǔxíng shì zhì yǒu zhè*
 Yin Y ang COP qī five.elements COP substance have this
zhì suǒyǐ zuò dé wùshì chūlái [Early Mandarin]
 substance therefore do DE thing emerge
 ‘Yin and Yang are *qī*, the five elements are substance; because
 they have this substance, they can (= are able to) make things
 emerge.’ (Zhuzhi yulei, 1)
- b. *keoi lo-dak-hei li-seung syu* [Cantonese]
 3SG take-DE-up this-box book
 ‘s/he can [i.e., will manage to] lift this box of books’
 (Cheng and Sybesma 2004:420)

Second, we suggest that *được* needs to appear pre-verbally for a deontic reading of the permissive subtype to emerge, see (12). Permissive modality pertains to permissions given by some social authority. Portner (2009) uses the cover term *priority modals* to refer collectively to deontic, bouletic, and teleological modal expressions. The term ‘priority’ alludes to the speaker’s preference of one possibility over the others (as it is better or having a higher priority) in view of certain circumstances, i.e. rules (deontic), desires (bouletic), or goals (teleological). When it is post-verbal as in (13), modal *được* does not exhibit a permissive reading, although a dynamic reading of the ‘opportunity’ subtype (in the sense of Portner 2009) is possible (alongside an ability reading). To foreshadow, we will argue later that (13) might allow an alternative reading along the lines of ‘That Tí looks for a job is okay’ if *được* is construed as a predicate meaning ‘okay’ or ‘acceptable’; this is still not a permissive reading, however. All in all, we contend that the orderings of *được*-VP and VP-*được* do not freely alternate.

- (12) *Anh ấy được kiếm việc.*
 3SG DUOC look.for job
 ‘He is permitted to look for a job.’ [deontic]
- (13) *Anh ấy kiếm việc được.*
 3SG look.for job DUOC
 ‘(The circumstances are such that) he is able to look for a job.’
 [dynamic]

Adopting Portner’s (2009) terminologies, we view post-verbal *được* in (13) as a circumstantial modal verb. In this capacity, *được* expresses possibilities in view of circumstances concerning the outside world and falls under a non-priority category, given its lack of connection to priority ranking. It is therefore reminiscent of the English *can* as in (14), which Kratzer (1991) describes as a pure circumstantial modal characterized by a circumstantial modal base but an empty ordering source. Accordingly, post-verbal *được* with the opportunity reading is distinct from pre-verbal *được*, a typical priority modal with a deontic ordering source.

- (14) a. *Hydrangeas can grow here.* (Kratzer 1991:646)
 b. *You can see the ocean from here.* (Portner 2009:135)

The previous semantic distinction is confirmed with the syntactic test in (15) (cf. Wu 2004; see also Trinh 2017). Specifically, given that only pre-verbal *được* has a permissive reading, it is the only one embeddable under a permissive predicate like *cho phép* ‘permit’, see (15a). Post-verbal *được* and pre-verbal *có thể* are both disallowed in such an embedding configuration, see (15b, c).

- (15) a. *Tèo cho phép Tí được kiếm việc.*
 Tèo allow Tí DUOC look.for job
 ‘Tèo permits Tí to look for a job.’
- b. **Tèo cho phép Tí kiếm việc được.*
 Tèo permit Tí look.for job DUOC
 Int: ‘Tèo permits Tí to look for a job.’

- c. *Tèo cho phép Tí **có thể** kiểm việc.
 Tèo permit Tí can look.for job
 Int: 'Tèo permits Tí to look for a job.'

Similarly, a prohibitive predicate like *cấm* 'prohibit' licenses *không được* 'cannot', the negated form of *được*, only pre-verbally (16a) but never post-verbally (16b). Such a predicate is also incompatible with *không thể* 'cannot', the negated form of *có thể*, see (16c). These tests further substantiate the claim that, in contrast to pre-verbal *được*, post-verbal *được* and pre-verbal *có thể* do not have a deontic reading. Instead, they convey a dynamic reading of opportunity.

- (16) a. Tèo cấm Tí không **được** kiểm việc.
 Tèo prohibit Tí NEG DUOC look.for job
 'Tèo prohibits Tí from looking for a job.'
 b. *Tèo cấm Tí kiểm việc **không được**.
 Tèo prohibit Tí look.for job NEG DUOC
 Int: 'Tèo prohibits Tí from looking for a job.'
 c. *Tèo cấm Tí **không thể** kiểm việc.
 Tèo prohibit Tí cannot look.for job
 Int: 'Tèo prohibits Tí from looking for a job.'

Although opportunity *được* and ability *được* are presumed to have the same merge position, they can be distinguished in terms of interpretation. The former focuses on the external situation in which the subject finds himself, while the latter conveys the subject's intrinsic physical or intellectual capacities. Such capacities are understood as internal circumstances concerning, for example, the strength of the body, character, or intellect (cf. Kratzer 2012). Still, ability reading and opportunity reading are closely related and often grouped under the umbrella term of *dynamic modality* (Palmer 2001; Portner 2009). Rightward modal *được* of any possible reading neatly matches Portner's (2009) description of *dynamic modal* as a non-priority, non-epistemic element. It can be interpreted neither deontically nor epistemically.

It is important to note that the modal reading of circumstantial possibility is not the only plausible interpretation for post-verbal *được* in

(13). More specifically, it can also be read as an independent predicate, conveying a meaning roughly equivalent to ‘okay’ or ‘acceptable’ (cf. Hoàng 2006; Sybesma 2008; Enfield 2003) when the sequence immediately before *được* is construed as forming a constituent. In the capacity of a predicate, *được* does not express a permissive reading, but simply conveys the speaker’s personal evaluation with respect to the proposition represented by the subject. We take predicate *được* to be on a par with adjectival evaluative predicates (in the sense of Lasersohn 2005; Stephenson 2007). A permission-like interpretation might still be implied in (13), but this interpretation is necessarily in the form of a pragmatic implicature, not encoded as part of the denotation of *được*.³ In this scenario, the constituent preceding *được* forms a sentential subject of which *được* is predicated. There are at least two syntactic facts supporting this claim. First, the subject-predicate configuration naturally allows for the optional realization of topic marker *thì*, as shown in (17). Second, negative marker *không* ‘not’ in (18a) does not take scope over *được* (see also Sybesma 2008). To negate *được*, *không* must immediately precede it, see (18b).⁴

- (17) [Subject *Tí kiếm việc*] (*thì*) *được*.
 Tí look.for. job TOP DUOC
 ‘That Tí looks for a job is okay/acceptable.’ [predicative]

- (18) a. [*Tí không kiếm việc*] *được*.
 Tí NEG look.for. job DUOC
 ‘That Tí doesn’t look for a job is okay/acceptable.’ [*được* > NEG]
 NOT: ‘Tí cannot look for a job.’ [*NEG > *được*]
 b. [*Tí kiếm việc*] *không được*.
 Tí look.for. job NEG DUOC
 ‘That Tí looks for a job is not okay/acceptable.’

³ We thank an anonymous reviewer for urging us to clarify how the predicative meaning of *được* differs from a permissive reading.

⁴ See Duffield (1999, sec. 4) for an early sentential subject analysis of the constituent preceding *được*. Our views differ in that Duffield treats *được* there as an abilitative modal, while for us it is a predicate with no modal reading.

What about Cantonese *dak* as in (19), which evidently displays a deontic (permissive) interpretation post-verbally? Despite its apparent similarity with post-verbal *được* in terms of linear order, Cheng and Sybesma (2004) claim that *dak* ends up linearly succeeding the verb only because the verb is raised to attach to its left. This operation is mandatory given that *dak* is considered defective as a bound morpheme, rendering it unable to function as a freestanding modal verb.

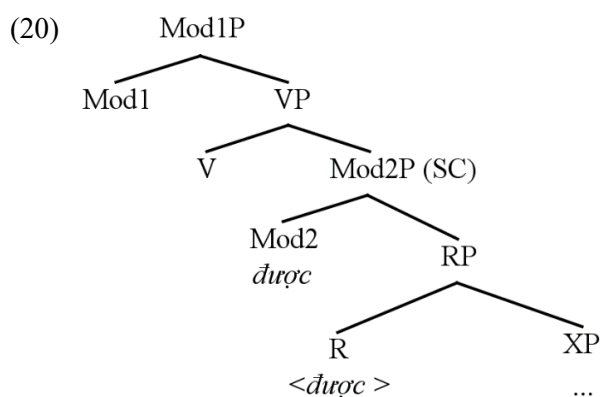
- (19) *keoi5 zaal-dak1 li1-gaa3 cel.*
 3SG drive-DE this-CL car
 ‘S/he can [i.e., is permitted to] drive this car.
 (Cheng and Sybesma 2004:420)

A similar analysis for *được* is untenable for several reasons. First, such a verb movement would not derive the right linear order, leaving the surface position of the DP *việc* ‘job’ in between the main verb and *được* in (13) unaccounted for. Second, the sequence preceding *được* would not form a constituent, so the topicalization of this sequence should be ruled out, contrary to what is observed in (17). Third, that negation does not scope over *được* in (18a) would be puzzling. Finally, such a raising would be optional (cf. permissive *được* in pre-verbal position in (12)), which is conceptually undesirable given that syntactic operations should be motivated to achieve an optimal solution in the Minimalist Program. For Cantonese, the movement of the verb is mandatory and well-motivated.

All in all, we maintain that post-verbal *được* in the capacity of a modal verb has neither an epistemic nor a deontic interpretation but must be construed dynamically. When rightward *được* does not express a modal reading, it is either a resultative marker or an evaluative predicate (or a pragmatic marker, see Section 4). The next section discusses at length Phan’s (2023, 2024a) syntactic analysis of rightward *được* to see how it fares with new data featuring a secondary predicate.

3. POST-VERBAL *ĐƯỢC*: BETWEEN ASPECTUAL, MODAL, AND PREDICATIVE INTERPRETATIONS

Phan (2024a) suggests that post-verbal modal *được* is diachronically derived from resultative marker *được* (one of the post-verbal result-denoting particles in Phan 2013), which itself evolves from a second transitive verb in a V-V construction, presumably via an intermediate stage as an intransitive verb.⁵ We illustrate the diachronic derivation of modal *được* from resultative *được* in (20).



(adapted from Phan 2024a:178)

Specifically, after the initial reanalysis of the fully verbal *được* as a resultative marker heading RP, *được* was raised to Mod2P in overt syntax to check modal features. A subsequent reanalysis then allows the previously moved *được* to be construed as base-generated in Mod2P. The proposed path of development fits the description of a standard ‘upwards’ reanalysis along the functional structure in the sense of Roberts and Roussou (2003), given that RP with inner aspect features is assumed to be structurally lower than Mod2P. This hierarchy is consistent with how the clausal functional spine is standardly assumed: dynamic modality as part of the TP zone always scopes over and is

⁵ This proposed intransitivization is attributable to a loss of argument structure typical of a grammaticalization process (see Roberts and Roussou 2003).

structurally higher than VP-internal inner aspect (cf. Cinque 1999; see also Phan 2013; Ramchand and Svenonius 2014, a.o.).⁶

Before continuing with the analysis of modal *được*, let us make a detour and examine in more details the so-called resultative *được* and its aspectual nature. *Được* as a resultative marker has previously been treated as a past tense achievement marker (Duffield 1999), an aspectual element indicating that “the action denoted by the verb has been brought to a successful conclusion” (Sybesma 2008:240), and an aspectual achievement marker assuring the completion of the depicted situation (Phan 2013). In other words, a factual realization of the resultant state of V is often ascribed to resultative *được*, and in its presence, the event is viewed as completed. Empirical data however appears to cast doubt on this characterization: resultative *được* is, in fact, perfectly acceptable in future and irrealis contexts, see (21a) and (21b) respectively, where the actual realization of the event is unconfirmed (see also Section 5).⁷ Note that *được* is infelicitous with a modal reading in these instances.

⁶ The postulation of RP is inspired by Ramchand’s (2008) *resP* (result projection), one of the three components making up the traditional V, within the framework of first phase syntax. Incidentally, Tsai (2024) advocates for a “second phase syntax” to account for the fact that result projection is structurally distinct from V in Chinese, reflecting the robust analyticity of the language (see also Tsai 2015b). We find it uncontroversial to assume that Vietnamese, another radical analytic language, also naturally permits a result(ative) projection that is distinct from and c-commanded by V.

⁷ We find a similar pattern to post-verbal *được* in the uses of Dongying Mandarin *liu* (a cognate of Standard Mandarin *liao/le*, lit. ‘finish’). Ke (1995) and Song (2016) claim that Dongying Mandarin has two *liu*’s, one telic marker and one modal element denoting the ability to realize the event in V. In (i) the first *liu* marks the depicted event as telic, while the second *liu* as a modal conveys the subject’s ability to realize the event. Modal *liu* is taken to be derived diachronically from *liu* as an Aktionsart marker, repeating the path of grammaticalization from Aktionsart reading to dynamic modal reading proposed for *được* (and its cognates across (South)east Asia). More interestingly, aspectual *liu* is also reported to occur in future and irrealis contexts (Song 2018), highlighting its non-realized nature. Aspectual *liu* heads a VP-internal projection encoding telicity (Song 2018), similar to RP in the case of *được*.

- (i) *Te qu liu liu æ.*
 he go LIU LIU SFP
 ‘He is able to get there.’ (Song 2018:286)

- (21) a. *Nhất định em sẽ tìm được anh.*⁸
 definitely 1SG FUT look.for DUOC 2SG
 ‘I definitely will find you.’ [resultative]
 NOT: ‘I definitely will be able to look for you.’ [*dynamic]
- b. *Chúng ta đều muốn tìm được một đại lý đáng tin cậy.*⁹
 we all want look.for DUOC a agency
 worth trust
 ‘We all want to find a trustworthy agency.’ [resultative]
 NOT: ‘We all want to be able to look for a trustworthy agency.’
 [*dynamic]

We concur with Duffield (1999) and Phan (2013) that resultative marker *được* is aspectual and heads a VP-internal aspectual projection akin to Travis’s (2010) Inner Aspect Phrase. We however want to emphasize that the contribution of *được* is confined to the realm of telicity-marking only; that is, it defines the terminal point of the event in V without denoting its actual realization. The completion reading often associated with resultative *được* is either encouraged by other tense/aspect markers or simply implied by context.

Now returning to modal *được*. Phan (2023, 2024a) treats rightward *được* with abilitative reading as a defective modal verb heading a functional projection below VP. This projection is licensed by a higher dynamic modal phrase optionally realized with *có thể* in the canonical functional position via *Agree*. The postulation of this higher licensing position aligns with Duffield’s (1999) insight that *có thể* is in the canonical modal position and rightward *được* is “parasitic” on the presence of this projection.¹⁰ We propose that opportunity *được*, another instance of dynamic modality as discussed in Section 2, behaves in a

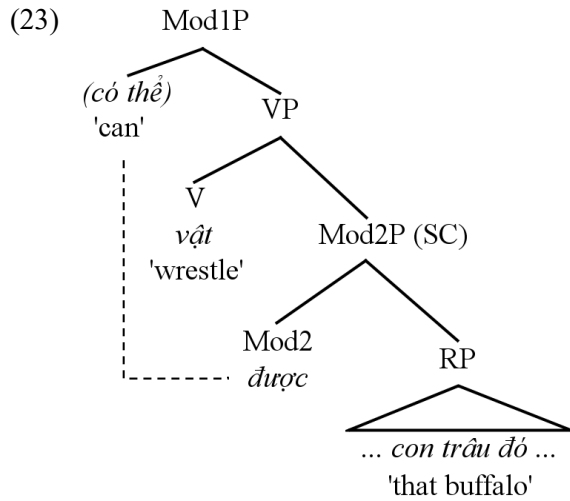
⁸ <https://vnexpress.net/nhat-dinh-em-se-tim-duoc-anh-4333355.html>

⁹ <https://www.msig.com.vn/vi/cuoc-song/5-meo-giup-ban-tim-duoc-dai-ly-du-lich-dang-tin-cay>

¹⁰ Duffield’s (1999) analysis however does not explicitly address the merge position of *được* and the syntactic mechanism(s) through which *được* is licensed. It also treats *được* as an adverbial. Given its diachronic development, we prefer to view *được* as a modal verb.

similar fashion syntactically. The dependency between *có thể* and *được* in a sentence like (3), repeated here as (22), is roughly illustrated in (23).

- (22) *Tí có thể vật được con trâu đó.* (= (3))
 Tí can wrestle DUOC CL buffalo that
 ‘Tí can wrestle that buffalo.’



This analysis largely follows Cheng and Sybesma (2003, 2004): the constituent that V selects is viewed as a small clause (SC), and post-verbal *được* heading a Mod2P enters into an *Agree* relation with the higher dynamic projection Mod1P.¹¹

Alternatively, such a dependency can be achieved by assuming an LF movement of *được* to the higher projection for feature-checking

¹¹ An anonymous reviewer questions how a sentence like (9) can be derived, considering that *được* appears linearly after the object. It is possible that we are dealing with a different configuration here: the object in this case might well be base-generated in spec,VP, acting as the antecedent controlling a PRO within the small clause (cf. Huang 1992; Zhang 2001, i.a.); the linear placement of V with respect to the object is subsequently derived through a V-to-v movement across this noun phrase. It is constructive to note that the object here is not (fully) referential, and the expression *kiếm việc* (lit. ‘seek job’) simply denotes a job-seeking activity (cf. Huang 2006). A definitive answer to this question, however, must await additional research.

purposes (see Wu 2004 for Mandarin). The intuition that there is a tight-knit relationship between *được* and the licensing modal projection is captured with either of the operations, as long as locality is obeyed. That is, regardless of whether it is *Agree* or LF movement, an intervener should be prohibited between the two modal projections. Phan (2023) shows that intervention effects occur in the presence of the manner/method *wh*-adverbial *(làm) sao* ‘how’. (24a) demonstrates that the same applies to the alternative form *thế nào* ‘how’. As VP-adjuncts, *(làm) sao* and *thế nào* are potential interveners between VP-external Mod1P and VP-internal Mod2P. When *được* is absent, we assume no such dependency is established, thus the grammaticality of (24b) is straightforward. The same effect is confirmed with manner adverbs like *một cách triệt để* ‘thoroughly’ or *một cách nhanh chóng* ‘quickly’, see (25).

- (24) a. **Tí (có thể) giải quyết chuyện này được (làm) sao/ thế nào?*
 Tí can handle matter this can how how
 Intended: ‘In which manner can Tí handle this matter?’
 (adapted from Phan 2023:159)
- b. *Tí có thể giải quyết chuyện này (làm) sao/ thế nào?*
 Tí can handle matter this how how
 ‘In which manner can Tí handle this matter?’
- (25) a. **Tí (có thể) giải quyết chuyện này được một cách triệt để/*
 Tí can handle matter this can thoroughly
nhanh chóng.
 quickly
 Intended: ‘Tí can handle this matter thoroughly/quickly.’
- b. *Tí có thể giải quyết chuyện này một cách triệt để/*
 Tí can handle matter this thoroughly
nhanh chóng.
 quickly
 ‘Tí can handle this matter thoroughly/quickly.’

We follow Wu 2004 (inspired by Ernst 1995 and Cinque 1999) in treating manner adverb(ial)s as *head adjuncts*. These adverb(ial)s are

intrinsically quantificational and can, therefore, affect other quantificational operations, in contrast with non-quantificational *argument-like adjuncts*. Head adjuncts behave like quantifiers and can disrupt the dependency between the two modal projections in (24a) and (25a). See Cheng and Sybesma 2003 and Wu 2004 for similar tests targeting the licensing of Cantonese *dak* and Mandarin *de* respectively.

Now that the syntactic analysis for post-verbal *được* is laid out, let us explore how it can be extended to account for cases where a resultative component X, like *ngã* ‘fall (down)’ in (26), is overtly realized. When a predicate X is present, as in (26a), *được* communicates dynamic potentiality: here it is X and the potential of reaching the denoted result/goal that are highlighted (cf. Sybesma 2008). Note that *được* must remain to the right of the V-X sequence. The alternative ordering with *được* sandwiched between V and X is ill-formed in (26b) with the intended reading (but see Section 5).

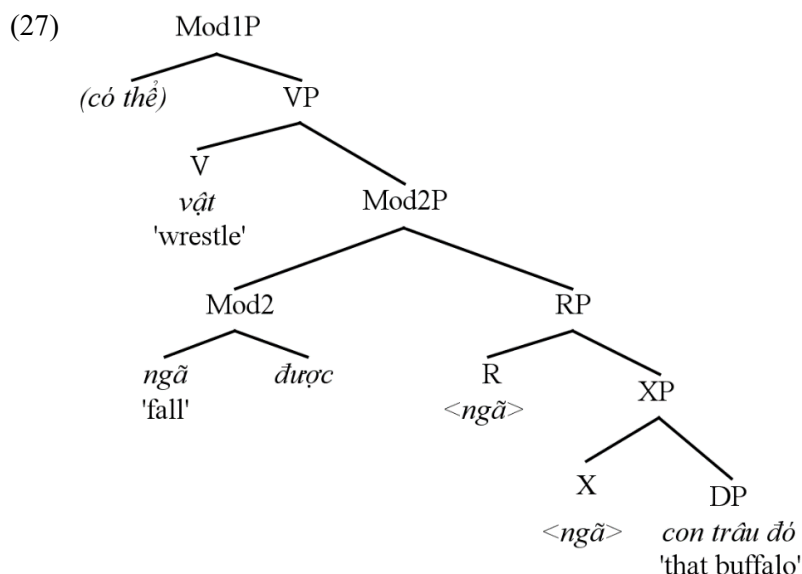
- (26) a. *Tí vật ngã được con trâu đó.*
 Tí wrestle fall DUOC CL buffalo that
 ‘Tí can wrestle down that buffalo.’
 b. **Tí vật được ngã con trâu đó.*
 Tí wrestle DUOC fall CL buffalo that
 Int: ‘Tí can wrestle down that buffalo.’

Building on the assumption that V selects for modal *được*, which, in turn, selects for an RP denoting telicity, we position X immediately below RP.¹² As the derivation goes, X raises to attach to *được* via R to check Aktionsart features, deriving the right order. See (27) for an illustration.¹³ Raising of X is necessary as *được* is inherently defective: it is unable to independently act as probe for a probe-goal agreement with X. Recall that *được* syntactically depends on a higher modal projection

¹² An RP inside SC is assumed even when no overt marker is present (cf. Cheng and Sybesma 2004).

¹³ This movement is reminiscent of the raising of resultative *được* to Mod2P to check modal feature before it was reanalyzed as base-generated in this designated secondary ModP (Phan 2024a; see also Meisterernst 2024).

for its dynamic interpretation. After the raising of X, the sequence X-*được* is successfully licensed by Mod1P.



Note that in terms of relative ordering of X and *được*/DE, Vietnamese differs from Chinese varieties like Mandarin and Cantonese as the latter always have X following DE, see (28). Cheng and Sybesma (2004) claim that Cantonese *dak* (as well as the Hakka cognate *tet*) is partially defective, meaning that X only checks features with DE through adjacency. In other words, feature checking occurs only when the two heads are adjacent, close enough for the checking process to take place. It appears that *Agree* through adjacency is not an option for *được*: the only way X can check its modal feature is by incorporating itself to *được*, as *được* is defective and cannot function as a probe.

- (28) a. *Lisi kan-de-dao zhe-ke shu.* [Mandarin] (= (10))
 Lisi chop-DE-fall this-CL tree
 'Lisi can chop the tree down.'

- b. *keoi5 lo2-dak1-hei2 li1-seung1 syu1*. [Cantonese] (= (11b))
 3SG take-DE-up this-box book
 ‘S/he can [i.e., will manage to] lift this box of books.’

In brief, we have shown that by maintaining a small clause analysis where *được* merges VP-internally as the head of either an (inner) aspectual phrase or a modal phrase (with the latter merging above the former), we can straightforwardly account for the curious post-verbal position of *được*. The analysis is also capable of dealing with cases where a result component is overtly realized. Given that Vietnamese is a radical head-initial language, for post-verbal *được* to syntactically merge above VP (see, for example, Duffield 1998; Simpson 2001), we will have to assume a raising of VP as the complement of *được* across it to derive the right order. Arguments about empirical difficulties facing this predicate-raising analysis can be found in Duffield 1999. We add that such an analysis also needs to account for the structural position of *có thể* when both *có thể* and *được* co-occur and jointly express a single dynamic construal. Namely, assuming that *có thể* occupies Spec,ModP, there is no longer an available landing site for VP if this is where it is moved to. If VP is raised to the specifier of a higher functional projection, it should precede *có thể*, deriving the wrong linear order.

The next section investigates a special case of *được* in a sentence-final position in a particular type of non-canonical interrogatives. We will show that this instantiation of *được* exhibits none of the above-mentioned readings, but is best characterized as a pragmatic element reflecting speaker’s public commitment.

4. TYING UP A LOOSE END: SENTENCE-FINAL *ĐƯỢC* AS A MARKER OF COMMITMENT

We proposed previously that the rightward modal *được* is not derived by movement of its complement, but simply reflects its base position in a VP-internal projection. It is however untrue to assume a low merge position for every occurrence of post-verbal *được*. Sentence-final *được* in (29) is a case in point. To foreshadow, it will be treated as a pragmatic

sentence-final particle (SFP) base-generated above the traditional CP. We will show that this SFP does not convey any of the readings previously ascribed to post-verbal *được*, but instead publicly expresses the speaker's commitment to denying a previous utterance deemed untrue or incredible. To the best of our knowledge, this particular use of *được* has not been addressed in the existing literature.

- (29) *Sao/ gì/ đâu mà Tí có tiền được?!*
what what where MP Tí have money DUOC
'It's not the case Tí has money! (*I don't believe he does.*)'

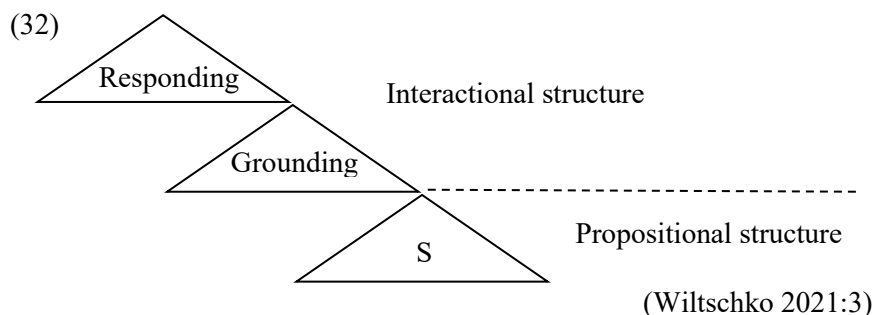
With this pragmatic import, *được* is typically found in non-canonical interrogatives marked with sentence-initial adverbs (with *wh*-word origin) like *sao/gì* 'what' and *đâu* 'where', which Phan and Tsai (2022) refer to as a type of Surprise-Denial Questions (SDQs). These interrogatives signal the speaker's dismissal of an utterance as untrue or incredible (typically accompanied by a confrontational tone), given an incompatibility between the proposition expressed by the utterance and the information state of the speaker.¹⁴ SDQs thus differ from standard information-seeking questions where the featured *wh*-words simply represent the inquired information. The exclusive presence of SFP *được* in these SDQs is suggestive of its sensitivity towards the content of its prejacent: *được* appears to be compatible only with statements in the form of a denial. Phan and Tsai (2024) discuss several phenomena of a similar nature. For instance, SFPs *đâu* and *cơ* as commitment markers are exclusively compatible with statements that are, respectively, a contradiction and a correction (in the sense of Asher and Gillies 2003).¹⁵ The compatibility of different types of statements with distinct commitment particles is illustrated with (30-31).

¹⁴ Phan and Tsai (2024) assume that these CP-level adverbs in SDQs are associated with an illocutionary operator of denial, effectively turning the host sentence into an objection to a previous utterance.

¹⁵ A correction is understood as a verbal disagreement with affirmative polarity, while a contradiction is a disagreement with wide-scope negation (Phan and Tsai 2024).

- (30) a. *Tí đâu có tiền đâu/*có/*được!* [contradiction]
 Tí NEG have money SFP SFP DUOC
 ‘It is untrue that Tí has money! (*I am telling you he does not!*)’
 b. *Tí có tiền *đâu/ có/ *được!* [correction]
 Tí have money SFP SFP DUOC
 ‘What is true is that Tí has money! (*I am telling you he does!*)’
- (31) *Sao/ gì/ đâu mà Tí có tiền *đâu/*có/ được?!* [denial]
 what what where MP Tí have money SFP SFP DUOC
 ‘I deny it that Tí has money! (*I do not believe he does.*)’

Phan (2024b) suggests that Vietnamese SFPs with a pragmatic import (i.e. those anchored to the speech participants) are merged in what Wiltschko and Heim (2016) (et seq.) dub the *interactional domain*, see (32) for illustration. This separate domain materializes the highest structural layers of the functional spine of an utterance and is concerned with how a propositional content is publicly negotiated between the speech participants before it enters their shared common ground (see Stalnaker 1978; Farkas and Bruce 2010). The Responding layer (roughly corresponding to Speech Act Phrase in Phan 2024b) hosts elements marking the interaction between the speech participants. The Grounding layer either encodes or modifies the speaker’s public commitment towards a proposition, which generally overlaps with Krifka’s (2015, 2023) Commitment Phrase. We adopt Krifka’s label, suggesting that SFP *được* heads a Commitment Phrase highlighting the speaker’s own commitment to a denial to a previous utterance, given the conflict between the proposition expressed and the speaker’s doxastic state. The utterance hosting SFP *được* therefore effectively forms an objection to the addressee’s proposal to integrate a proposition into the shared common ground.

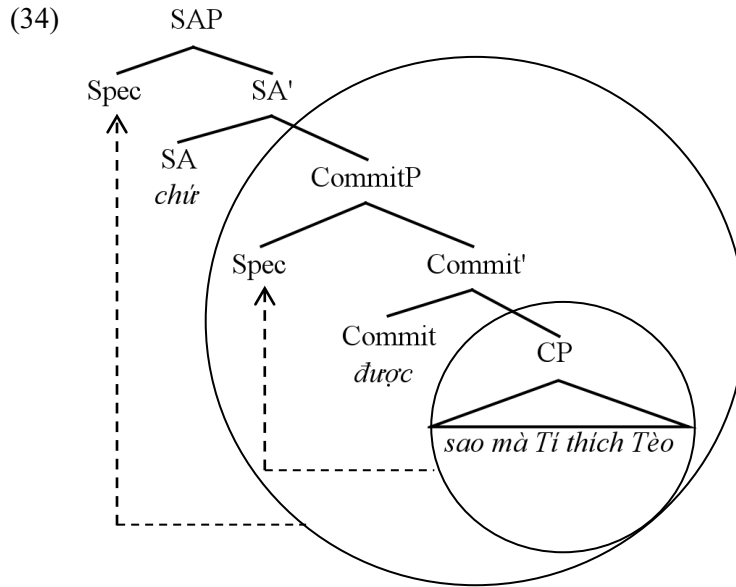


But could we just take *được* in (29) to be an epistemic modal verb that simply scopes under sentential negation to derive something like “It cannot be the case that...”? We reject this possibility based on three arguments. First, Section 2 already shows that post-verbal *được* does not have an epistemic reading. Second, sentence-final *được* has a *use-conditional* meaning (following Recanati 2004; see also Gutzman 2015) and is omissible without affecting the truth-conditions of the host sentence. *Được* as an SFP is in apparent contrast with modal *được*, which is required to guarantee the modal reading in the absence of the higher *có thể*. Third, if SFP *được* was an epistemic here, it had to merge at the lower end of CP and was scoped over by sentential negation at the upper end of CP. This low position should have no impact on how CP interacts with higher pragmatic layers. This is however not the case: SFP *chứ*, for example, is unable to occur in the SDQ in a sentence like (33a) unless *được* precedes it, see (33b). In syntactic terms, we postulate that *chứ* can only select for a phrase headed by *được* in this denial context, assuming that a rightward SFP scopes over a leftward SFP and linear order is derived through a Kaynian “roll-up” movement.¹⁶ See (34) for the derivation of (33b).

- (33) a. **Sao/ gì/ đâu mà Tí thích Tèo chứ?!*
 what what where MP Tí like Tèo SFP
 Int: ‘It is not the case Tí likes Tèo! (*I do not believe it. Please respond.*)’

¹⁶ But see Phan 2024b for an overview of a competing analysis where no movement is assumed.

- b. *Sao/ gì/ đâu mà Tí thích Tèo được chứ?!*
 what what where MP Tí like Tèo DUOC SFP
 ‘It is not the case Tí likes Tèo! (*I do not believe it.*
Please respond.)’



We assume, following Phan (2024b), that *chứ* in (33) realizes a Speech Act Phrase (the higher part of the interactional domain). Its pragmatic import is a *call on address* (à la Beyssade and Marandin 2006) to take up the speaker’s utterance and respond to it. In this capacity, *chứ* is unable to directly select for a denial, which does not typically ask for the addressee’s response. The inclusion of *được* turns a bare denial into a speaker’s commitment; this allows *chứ* to engage the addressee, urging him to take up the speaker’s stance and agree with it.

Cross-linguistically, the affinity between SFP *được* and SDQ contexts appears to have quite a mirror image in Cantonese, see (35). Note that sentence-initial *mat1* ‘what’ here should impose an emphatic, maximal wide-scope negation reading along the lines of ‘it’s not the case that...’ (comparable to Vietnamese *gì/sao* and Mandarin *shenme* ‘what’),

and should not be taken simply as an injection expressing surprise or disbelief as shown in the translation. The use of *me1* here “explicitly commits S[peaker] to believing not *p*” (Heim et al. 2016:121), *p* being the discourse-prominent proposition. In other words, *me1* induces a paraphrased reading of ‘I do not believe it’ as a marker of public commitment to a disagreement, just like in the case of SFP *được*.

- (35) a. *mat1 ngo5 san1 joeng5 zo2 zek3 gau2 me1?*
 what 1SG new keep ASP CL dog PRT
 ‘What, I have a new dog?! (But I don’t!)’ (Heim et al. 2016:121)
- b. *mat1 lei5 m4-zil ge3 me1?*
 what 2SG NEG-know PRT PRT
 ‘What, you don’t know?!’ (Matthews and Yip 1994:311)

5. CONCLUDING REMARKS

This paper focuses on instances of *được* which appear to the right of a main verb, showing that *được* in this linear position does not always correspond to a modal auxiliary, but can also serve as an aspectual marker, an evaluative predicate, or a pragmatic particle. We argue that post-verbal *được* as a modal element does not exhibit deontic or epistemic readings. In the capacity of a modal auxiliary, it primarily communicates the subject’s intrinsic ability; nevertheless, it can also denote (external) circumstantial factors enabling the subject’s action, or solely focus on a result component X and the potential of it being realized. If a sentence-final *được* is not interpreted dynamically, it can serve as either a main predicate meaning roughly ‘okay’ or ‘acceptable’, an aspect marker marking telicity, or a commitment-marking device publicly committing the speaker to a denial. By maintaining that *được* can head a secondary modal projection (as well as an inner aspectual projection) below VP, we offer a coherent account for the otherwise perplexing linear placement in which *được* must always follow the main verb.

Regarding word orders involving a result component X, a remark is necessary here. We have learned previously that X raises to attach to

được for feature-checking purposes. If no raising happens, ill-formedness ensues, see (26b), repeated here as (36).

- (36) **Tí vật được ngã con trâu đó.* (= (24b))
 Tí wrestle DUOC fall CL buffalo that
 Int: ‘Tí can wrestle down that buffalo.’

A somewhat similar observation is made by Phan (2013): specifically, resultative *được* always follows completive particles like *ra* ‘out’, rendering the reverse order ungrammatical, as seen in (37). Our approaches nevertheless differ in how the VP-internal hierarchy of telic-related elements is presented. Phan (2013) assumes an extended Inner Aspect domain where a Completive projection (headed by completive particles like *hết* ‘end’ or *xong* ‘finish’) merges above a Resultative projection (headed by resultative particles like *được*). That is, their linear order is claimed to reflect their structural hierarchy.

- (37) **Họ đã tìm được ra cách chữa bệnh AIDS*
 3PL ANT find DUOC out way treat disease AIDS
 Int: ‘They have found the cure for AIDS.’ (Phan 2013:112)

Interestingly, we observe that a V-*được*-X ordering is deemed acceptable, but only within a hypothetical context. In this scenario, X is interpreted as a mere projected endpoint or result state of V, and the non-realization of the event(uality) X denotes is highlighted. In (38a), the prospect of the ‘falling’ event being realized is treated as highly unlikely. In (38b), the event is viewed as untrue or incredible. In (38c), the event is a goal to be achieved. Similarly, *được* can in fact legitimately precede completive particles in irrealis contexts like (39).

- (38) a. *Nếu [Tí vật được ngã con trâu đó], tao cho*
 if Tí wrestle DUOC fall CL buffalo that 1SG give
nó một triệu đô.
 3SG one million dollar
 ‘I’ll give him a million dollars if he could wrestle down that buffalo.’

- b. Gì mà [Tí vật **được** ngã con trâu đó]!
 what PART Tí wrestle DUOC fall CL buffalo that
 ‘It is not the case Tí could wrestle down that buffalo!’
- c. Để [Tí vật **được** ngã con trâu đó] thì nó
 for Tí wrestle DUOC fall CL buffalo that CONJ 3SG
 phải khỏe bằng ba người thường.
 must strong equal three person regular
 ‘For Tí to wrestle down that buffalo, he must grow as strong as
 three regular men.’

- (39) Nếu tìm **được** ra lời giải cho câu hỏi hóc búa này [...] ¹⁷
 if look.for DUOC out solution for question tough this
 ‘If you can find the solution for this tough (math) problem [...]’

For reasons of space, a thorough discussion of this reverse ordering must await future research. For now, we simply suggest a connection between the post-*được* position of telic elements with their strict non-realization. One possible extension to our current analysis is to hypothesize that *được* in (38-39) materializes some kind of mood/aspect marker endowed with, say, [+unrealized] feature. Telic elements then agree with *được* through adjacency, eliminating the need for raising. It remains to be seen how Phan’s (2013) postulation of the fixed hierarchy of telic particles reconciles with these apparent counterexamples.

Two final notes are in order. First, this use of *được* is distinguished from its Aktionsart use: the latter syntactically marks the telicity of the V-event but says nothing about whether an endpoint has been reached, while the former explicitly highlights the resultant state as non-realized/hypothetical. Second, this “non-realized” interpretation of *được* is in fact not so extraordinary given that the V-X-*được* and the V-*được*-X ordering both communicate some sort of irreality. Their distinction is quite reminiscent of von Prince et al.’s (2022) split of the *irrealis domain* into the potential and the counterfactual: we have the potential interpretation when X precedes *được* and the counterfactual

¹⁷ <https://cafebiz.vn/giai-duoc-5-bai-toan-hoc-bua-nay-chuyen-ban-tro-thanh-ti-phu-do-la-chi-con-la-thoi-gian-2016121910313748.chn>

interpretation when X follows *được*. We hope to return to this issue in a future project.

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越南語動詞後的「được」：
表達體貌、情態、謂詞及說話者承諾的用法

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首先，本文主張越南語中的「được」（字面意義為「獲得、取得、得到」）只有在作為動詞後情態助動詞時能表達能願模態意。動後「được」若沒有此解讀，則不是情態助動詞，而是作為終點性（telicity）的體貌標記、評價性謂詞（evaluative predicate）或語用標記。接著，我們探討了動後「được」的句法和解釋特性，且採納「được」在表達動相（Aktionsart）或能願模態意時是動詞組內部（VP-internal）功能投射的看法。在具有否決念力（denial force）的句子中，句末的「được」被分析為一種承諾（commitment）標記（Krifka 2015, 2023；Wiltschko、Heim 2016），用來表達說話者對先前話語的否決。

關鍵字：動後「được」、體貌性、情態性、謂語性、說話者承諾、句法-語用介面

SOME DIFFERENCES BETWEEN ENGLISH AND VIETNAMESE WITH RESPECT TO NPI LICENSING*

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ABSTRACT

The cross-linguistic research on “negative polarity items” (NPIs) not only reveals what constraints are imposed by semantics on the output of syntax but also provides insights into how individual languages differ with respect to the way they satisfy these constraints. This note makes a small contribution to this enterprise: it discusses some differences in distribution between NPIs in English and their counterparts in Vietnamese. The discussion is preluded by a brief introduction to background concepts and assumptions. The Vietnamese data are presented as a challenge which motivates further thought and investigation. A sketch of an approach is provided at the end.

Keywords: NPI, question words, Vietnamese, English, syntax-semantics interface

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1. INTRODUCTION

Negative Polarity Items (NPIs) are indefinites whose syntactic distribution is subject to semantic constraints. What is meant by the “syntactic” distribution of NPIs is the set of environments where these expressions can occur without causing “ill-formedness”. The fascinating fact about NPIs is that this set must be characterized in terms of the logical properties of the expressions involved (Chierchia 2013; Abrusán 2019; Del Pinal 2022). To illustrate, let us consider the prototypical case of NPIs: DPs headed by *any*.

- (1) a. no one read a book
b. no one read any book
- (2) a. someone read a book
b. *someone read any book

Intuitively, (1a) and (1b) say the same thing: no person x is such that there is a book y such that x read y . Thus, *a book* and *any book* are arguably equivalent (Kadmon and Landman 1993; Gajewski 2008). And clearly, (2a) is the negation of (1a). So why is (2b) not accepted as the negation of (1b)? Note that the feeling about (2b) is not that it expresses some weird meaning, but that it is ill-formed: the words don’t fit, so to speak (Linebarger 1980). Note, also, that it is hard to pinpoint a syntactic difference between (1b) and (2b) which could explain the contrast. These sentences differ with respect to the subject, which is a singular DP in both cases. As far as syntax is concerned, *no one* and *someone* are identical. But semantically, they are different (Barwise and Cooper 1981; Heim and Kratzer 1998).

- (3) a. $[[\text{no one}]](P) = 1$ iff $P \cap \{x: x \text{ is a person}\} = \emptyset$
b. $[[\text{someone}]](P) = 1$ iff $P \cap \{x: x \text{ is a person}\} \neq \emptyset$

What relates the semantic difference between *no one* and *someone* to the contrast in well-formedness between (1b) and (2b) is the condition in (4).

(4) NPI-Licensing (first version, to be revised)

A DP headed by *any* causes ill-formedness unless it is contained in a sentence S which is downward-entailing (DE) with respect to the NP complement of *any*

A constituent X is said to be DE with respect to its subconstituent Y iff strengthening of Y leads to weakening of X (Ladusaw 1979). Take (1a), for example. This sentence is DE with respect to the NP *book*. If we strengthen *book* to, say, *long book*, the result would be the sentence *no one read a long book*, which is weaker than (1a).¹

What (4) predicts is this: whenever *any book* can occur grammatically in a sentence S, replacing *book* with *long book* will result in a sentence entailed by S. This prediction seems correct.

- (5) a. no one read any book
 $\implies$ no one read any long book
- b. John does not read any book
 $\implies$ John does not read any long book
- c. few students read any book
 $\implies$ few students read any long book
- d. at most three students read any book
 $\implies$ at most three students read any long book

The condition in (4) also predicts that if replacing *book* with *long book* is not weakening, the sentence is unacceptable. This prediction is borne out too, although it is a bit more difficult to see. Because the sentences involved are all deviant, the intuition we are after is that to the extent we can interpret them under the assumption that *any book* is equivalent to *a book*, the inferences do not go through. Thus, I will present the ill-formed sentence with *any book*, and then show that the inference does not go through with the equivalent sentences containing *a book*.

¹ Assuming denotations to be sets, we can say that expression A is stronger than expression B iff $[[A]] \subseteq [[B]]$. We thus have $[[long\ book]] \subseteq [[book]]$, since everything which is a long book must also be a book, and $[[no\ one\ read\ a\ book]] \subseteq [[no\ one\ read\ a\ long\ book]]$, since every world in which no one read a book must also be a world in which no one read a long book.

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- (6) a. *someone read any book
 someone read a book
 $\neq \Rightarrow$ someone read a long book
 b. *John read any book
 John read a book
 $\neq \Rightarrow$ John read a long book
 c. *many students read any book
 many students read a book
 $\neq \Rightarrow$ many students read a long book
 d. *at least three students read a book
 at least three students read a book
 $\neq \Rightarrow$ at least three students read a long book

Thus, (4) does good work. However, as it turns out, the condition is not adequate in its current form. Consider (7).

- (7) only John read any book

Intuitively, (7) is well-formed. Now, suppose I learn that only John read a book, can I conclude that only John read a long book? Of course not! How do I know that the book John read is not a short book? Thus, replacing *book* with *long book* is not guaranteed to be weakening.

- (8) only John read any book
 $\neq \Rightarrow$ only John read any long book

Can we fix (4) to deal with (7) as well as with the cases we have considered? The answer is yes (von Stechow 1999; Crnič 2019).

- (9) NPI-Licensing (final version)
 A DP headed by *any* causes ill-formedness unless it is contained in a sentence S which is Strawson-downward-entailing (Strawson-DE) with respect to the NP complement of *any*

S Strawson-entails S' iff S together with the presupposing of S' entails S' (von Fintel 1999). Thus, S is Strawson-DE with respect to NP if replacing NP in S with a stronger expression results in a sentence Strawson-entailed by S. Let us now look at the case of *only* again.

- (10) a. only John read any book
 - (i) presupposition: John read a book
 - (ii) assertion: no one but John read a book
- b. only John read any long book
 - (i) presupposition: John read a long book
 - (ii) assertion: no one but John read a long book

Assuming the standard analysis of *only p* as presupposition *p* and asserting that alternatives of *p* not entailed by *p* are false (Horn 1969), we have the situation in (10). We can see that (10a) Strawson-entails (10b). Specifically, if (10a) is true and the presupposition of (10b), (10b-i), is also true, then (10b) has to be true too. This means that (10a) is Strawson-DE with respect to *book*. Given NPI-Licensing as formulated in (9), we predict the sentence to be well-formed, as observed.

Note that (9) is more “inclusive” than (4). If A entails B then A Strawson-entails B. Thus, if S is DE with respect to NP, then S is Strawson-DE with respect to NP. This means that (9) includes all cases of well-formedness predicted by (4) and more. It turns out that upgrading (4) to (9) is crucial, as the latter is needed to capture many other occurrences of NPIs, for example NPIs in the restriction of *every* (11a), in *if* clauses (11b), under adversative predicates such as *regret* (11c), and in the scope of existential modals such as *allowed* (11d) (von Fintel 1999; Crnič 2022).

- (11) a. every student who read any book passed the exam
- b. if John reads any book, he will pass the exam
- c. John regrets having read any book
- d. John is allowed to read any book

To see how Strawson-DEness is required in these cases, replace *book* in (11a-d) with *ten thousand year-old book*. The result will be (12a-d).

- (12) a. every student who read any ten thousand year-old book passed the exam
b. if John reads any ten thousand year-old book, he will pass the exam
c. John regret having read any ten thousand year-old book
d. John is allowed to read any ten thousand year-old book

Suppose it is common ground, i.e. true in every world of the context set, that there are no ten thousand year-old books. There would then be nothing incoherent about accepting the sentences in (11) as true without accepting the sentences in (12) as true. This means that the former do not entail the latter, i.e. that these sentences are not DE with respect to the NP complement of *any*. Now, suppose that the presuppositions of (12a-d), presented in (13a-d) respectively, are satisfied.

- (13) a. there are students who read ten thousand year-old books
b. it is possible that John reads a ten thousand year-old book
c. John has read a ten thousand year-old book
d. there are ten thousand year-old books

We can see that while (11a) does not entail (12a), the conjunction of (11a) and (13a) does entail (12a), and similarly for the b- to d-sentences. Thus, the sentences in (11) does not entail, but does Strawson-entail, those in (12). That *any* is acceptable in these cases is evidence that (9) is the correct licensing condition.

2. THE VIETNAMESE CHALLENGE

Vietnamese is one of the languages where NPIs and question words show clear morphological affinity. In fact, the same expression is used in this language to express the meaning of ‘which book’ and ‘any book’ (Bruening and Tran 2006; Trinh 2020, to appear). Sentences such as (12) are thus ambiguous between an interrogative and an NPI reading.²

² The word *quyển* is the so-called “classifier” (CL) that goes with *sách* (‘book’).

- (14) Nam không đọc quyển sách nào
Nam not read CL book NAO
a. Interrogative reading: ‘which book did Nam not read?’
b. NPI reading: ‘Nam did not read any book’

In what follows, we will only be interested in the NPI reading. Well-formedness judgements will be understood as being relative to this reading. This means that sentences with *nào* which have only the interrogative reading will be marked as ill-formed, and I will gloss *nào* as ANY, using capitalization to distinguish the item in question from English *any*. An example is the non-negated counterpart of (12).

- (15) *Nam đọc quyển sách nào
Nam read CL book ANY

The contrast between (14) and (15) already suggest similarity between English *any* and Vietnamese ANY. Both are licensed in the scope of negation and deviant in plain non-negated sentences. What about the rest of *any*’s distribution? As it turns out, *any*’s distribution overlaps but does not coincide with ANY’s. Specifically, ANY’s distribution seems to be more restricted. Let us go through the facts.

First, ANY resembles *any* not only with respect to negated vs non-negated sentences, but also with respect to *no one* vs. *someone*, *few* vs. *many*, *if* clauses, and the restriction of *every*.

- (16) a. không-ai đọc quyển sách nào
no-one read CL book ANY
b. *ai-đó đọc quyển sách nào
someone read CL book ANY
- (17) a. ít-ai đọc quyển sách nào
few-people read CL book ANY
b. *nhiều-người đọc quyển sách nào
many-people read CL book ANY

- (18) nếu Nam đọc quyển sách nào, nó sẽ thi-đỗ
if Nam read CL book ANY he will pass-the-exam

However, unlike *any*, ANY is not licensed under *at most*, in the restriction of *every*, in the complement of *regret*, or in the scope of existential modals.

- (19) *nhiều-nhất ba sinh-viên đọc quyển sách nào
at-most three student read CL book ANY
- (20) *tất-cả-những-người mà đọc quyển sách nào đều sẽ thi-đỗ
everyone that read CL book ANY all will pass-the-exam
- (21) *Nam hối-hận là đã đọc quyển sách nào
regret that have read CL book ANY
- (22) *Nam được-phép đọc quyển sách nào
Nam is-allowed-to read CL book ANY

The empirical situation presented by Vietnamese is quite puzzling. The question facing us is how the environments that license ANY constitute a natural class. Are they sentences that are Strawson-DE with respect to the NP complement of ANY? No, because if they were, ANY's distribution should coincide with that of *any*, and all of (19)-(22) should be well-formed. What if ANY is subject to the stronger condition in (4) instead of the more inclusive one in (9)? In other words, can we say that ANY requires not Strawson-DEness but unqualified DEness? The answer, again, is no, because if (4) were the right condition on ANY, (19) should be well-formed and (18) should be ill-formed.

- (23) at most three students read a book
==> at most three students read a ten thousand year-old book
- (24) if John reads a book, he will pass an exam
=/=> if John reads a ten thousand year-old book, he will pass the exam

In a (realistic) context where there are no ten thousand year-old books, we still have to accept (23) as a valid argument, but it seems possible to accept the premise but not the conclusion of (24). Thus, (24) is valid only to the extent that it is possible for John to read a ten thousand year-old book, i.e. to the extent that the presupposition of the conclusion is satisfied. Assuming the Vietnamese translation of *at most* and *if* work just like their English counterparts, (19) is DE with respect to the NP complement of ANY, while (18) is not. If (4) is the right condition on ANY, we expect (19) to be natural and (18) to be odd. The facts, of course, are the opposite. Thus, (4) cannot be the right condition for ANY.

I just said “assuming the Vietnamese translation of *at most* and *if* work just like the English originals”. Should this assumption be made without justification? What if the translations are not faithful? Is it possible that ANY and *any* are both subject to the same condition, namely (9), and that the differences between them are due to the differences in meaning between the English items and their Vietnamese translations? More concretely, is it possible that what we have taken to be the Vietnamese equivalent of *at most*, *if*, *every*, *regret*, and *allowed* do not work in the same way as their English counterparts?

Let us now address this question. We will begin with the Vietnamese counterpart of *at most*.

- (25) a. nhiều-nhất ba sinh-viên đọc một quyển sách
at-most three student read one CL book
- b. nhiều-nhất ba sinh-viên đọc một quyển sách mười-ngàn-năm-tuổi
at-most three students read one CL book ten-thousand-year-old

Here's the fact: if (25a) is true, (25b) has to be true. Thus, we know that these sentences are DE, hence Strawson-DE, with respect to the noun *sách* ('book'), i.e. that there is no relevant difference between English *at most* and Vietnamese *nhiều nhất*, which we have assumed to be the translation of *at most*. Let us now consider *if*.

- (26) a. nếu Nam đọc một quyển sách, nó sẽ thi-đỗ
if Nam read one CL book, he will pass-the-exam
b. nếu Nam đọc một quyển sách mười-ngàn-năm-tuổi, nó sẽ thi-đỗ
if Nam read one CL book ten-thousand-year-old, he will pass-the-exam
c. it's possible that Nam read a ten thousand year-old book

The fact is that for Vietnamese speakers it is possible to accept (26a) as true without also accepting (26b) as true, for example in a context where it is clear that there are no ten thousand year-old books, hence it is clear that Nam could not have read one such book. However, if the speaker accepts (26a) and the fact in (26c), then she would have to accept (26b) as true. This shows that *nếu*, which we have used as the Vietnamese counterpart of English *if*, works just like *if* in the relevant respects. In other words, (24a) is Strawson-DE with respect to *sách*, just like (11b) is with respect to *book*. Let us turn to *every* next.

- (27) a. tất-cả-những-người mà đọc một quyển sách đều thi-đỗ
everyone that read one CL book all passed-the-exam
b. tất-cả-những-người mà đọc một quyển sách mười-ngàn-năm-tuổi đều thi-đỗ
everyone that read one CL book ten-thousand-year-old all passed-the-exam
c. there are people who read a ten thousand year-old book

It is possible for Vietnamese speakers to accept (27a) as true without accepting (27b) as true, for example in a context where it is clear that there are no ten thousand year-old books, hence that no one could have read such books. However, if the speaker accepts (27a) and the fact in (27c), then she would have to accept (27b) as true also. This shows that *tất-cả-những-người*, which we have used as the Vietnamese counterpart of English *everyone*, works just like *everyone* in the relevant respects. Specifically, (27a) is Strawson-DE with respect to *sách*, just like (11c) is with respect to *book*. Let us turn to *regret* next.

- (28) a. Nam hối-hận là đã đọc một quyển sách
 Nam regret that have read one CL book
 b. Nam hối-hận là đã đọc một quyển sách mười-ngàn-năm-tuổi
 Nam regret that have read one CL book ten-thousand-year-old
 c. Nam read a ten thousand year-old book

Again, it is possible for a Vietnamese speaker to accept (28a) as true without accepting (28b) as true too. However, if she takes (28c), which is the presupposition of (28b), to be a fact, then she would have to agree that (28b) is a necessary consequence of (28a). This shows that English *regret* and its Vietnamese counterpart, *hối-hận*, are identical as far as the properties of relevance to our discussion are concerned.

Last but not least, we come to the case of existential modals. Free choice reading of regular indefinites under these modals is possible in Vietnamese just as it is in English. For the sentences below, the intended reading is that Nam is free to choose the book that he is allowed to read.

- (29) a. Nam được-phép đọc một quyển sách
 Nam is-allowed-to read one CL book
 b. Nam được-phép đọc một quyển sách mười-ngàn-năm-tuổi
 Nam is-allowed-to read one CL book ten-thousand-year-old
 c. there are ten thousand year-old books

Vietnamese speakers may accept (29a) and at the same time reject (29b). However, once it is agreed that (29c) is a fact, then they will have to accept (29b) if they accept (29a). This shows that existential modals work the same way in English and Vietnamese with respect to the properties that are of concern.

The discussion above has admittedly not provided much in the way of interesting information. What we have learned is that English and Vietnamese have items that express the same meanings, namely those of *at most*, *if*, *every*, *regret*, and *allowed*. This is to be expected, given the assumption that universal grammar also includes an inventory of conceptual building blocks out of which lexical materials are constructed. What is surprising is that NPIs in Vietnamese, or at least, expressions in this language that resemble what we call “NPIs” in English, have a

different distribution than their English counterparts. The challenge posed by the Vietnamese facts is that this different distribution does not seem to be derivable from a straightforward revision of the condition of NPI-Licensing for English.³

I will not attempt to provide an analysis in this note. However, I will offer some speculation as to what an analysis could be based on. I do this in the next section.

3. SKETCH OF AN APPROACH

The sketch I am going to provide starts from asking what explains the principle which we have called “NPI-Licensing”, presented in (9) and repeated in (30) below.

(30) NPI-Licensing

A DP headed by *any* causes ill-formedness unless it is contained in a sentence S which is Strawson-downward-entailing (Strawson-DE) with respect to the NP complement of *any*

The derivation of (30) I will present here is basically that of Crnič (2014, 2019, 2022), which is itself based on insights from a family of well-known proposals (Heim 1984; Kadmon and Landman 1993; Lee and Horn 1994; Krifka 1995).⁴

These proposals share the assumption that *any* and *a* denote the same relation of having a non-empty intersection between sets. Note that *any* and *a*, just as other quantificational determiners, come with a resource domain D which is phonologically covert (von Stechow 1994).

$$(31) \quad [[\text{any}_D]](P)(Q) = [[a_D]](P)(Q) = 1 \text{ iff } D \cap P \cap Q \neq \emptyset$$

³ Note that we cannot say that *nao*-phrases correspond to “strong NPIs” in English such as *in weeks*: strong NPIs cannot occur in *if*-clauses (Chierchia 2013), whereas *nao*-phrases can, as evidenced by (18).

⁴ The presentation follows closely that of Trinh (2023).

The difference in distribution between *any* and *a* is then explained in terms of (i) the alternatives which are introduced by *any* and (ii) the condition which *any* imposes on these alternatives. Specifically, *any* introduces “subdomain” alternatives.

- (32) a. $\text{ALT}(\text{any}_D) = \{\text{any}_{D'} \mid D' \subseteq D\}$
 b. $\text{ALT}(\text{John read any}_D \text{ book}) = \{\text{John read any}_{D'} \text{ book} \mid D' \subseteq D\}$

The condition on alternatives of *any*-sentences is usually modeled in terms of an operator, call it MAX, which c-commands and associates with *any* and which presupposes that its prejacent is more informative than all of the alternatives induced by *any* (Crnič 2021).

- (33) MAX(S)
 (i) presupposes that S is more informative than its alternatives
 (ii) asserts that S is true

S is more informative than S' iff S entails S', given contextual information. In effect, this means that S is more informative than S' iff S Strawson-entails S', as Strawson-entailment means, essentially, entailment given that all the presuppositions involved are satisfied. We can thus reformulate the interpretation of MAX as (34).

- (34) MAX(S)
 (i) presupposes that S Strawson-entails its alternatives
 (ii) asserts that S is true

Let us see how the theory works. Consider (35).

- (35) MAX [John did not read any_D book]

Let D range over all books and $D' \subseteq D$ range over long books. What (35) presupposes is that (36a) Strawson-entails (36b). This presupposition, of course, is trivially satisfied.

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- (36) a. John did not read a book
b. John did not read a long book

Now consider (37).

- (37) MAX [John read any_D book]

The presupposition introduced by MAX in (37) is that (38a) Strawson-entails (38b).

- (38) a. John read a book
b. John read a long book

This presupposition, of course, cannot be satisfied. Thus, the deviance of **John read any book* can be explained as this sentence having an inconsistent presupposition.

The reader is invited to verify for herself that this account works for the other cases of English *any* also. What I want to point out here, however, is that the account involves a number of possible “parameters” on the basis of which we can hope to explain the differences between *any* and ANY. The first parameter is the meaning of the ANY vs. *any*. We have assumed they have the same meaning. However, this is not necessary. The second parameter is the alternatives introduced by *any* vs. ANY. We can pose the question whether ANY induced the same alternatives as *any* or, in fact, whether ANY introduced alternatives at all. In case we do say that ANY introduces alternatives, there is the question regarding the condition imposed by ANY on these alternatives. More concretely, we can ask whether the operator associated with ANY is the same MAX as defined in (34) or whether it is some other operator. To address these questions, more empirical and theoretical work is required. As I said, I will not make the attempt in this note. My hope was to present some data from Vietnamese which could give further stimulation to the cross-linguistic research on NPIs, and to provide a very brief sketch of what I think could be the starting point of an explanation of these data.

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英語和越南語否定極項允准條件的一些差異

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對「否定極項」(NPI)的跨語言研究不僅揭露了語義對語法輸出所施加的限制性，也顯現了關於各個語言對於如何滿足這些限制所展現的差異性。這篇文章試圖對這個主題做出些許貢獻：我們討論英語 NPI 和越南語 NPI 之間在分佈上的一些差異。我們的討論首先簡要介紹背景概念和假設。越南語的語料則挑戰了現有的理論，並激發進一步的思考。最後我們提供了一個如何解決這個問題的草案。

關鍵字：NPI、疑問詞、越南語、英語、句法語義介面