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Interdisciplinary Perspectives on Vietnamese Linguistics

Edited by
Nigel Duffield
Trang Phan
Tue Trinh

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Interdisciplinary Perspectives on Vietnamese Linguistics

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Volume 211

Interdisciplinary Perspectives on Vietnamese Linguistics
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Interdisciplinary Perspectives on Vietnamese Linguistics

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Preface

This volume has its genesis in a conference “Cao Xuân Hạo and Vietnamese Linguistics”, held in Ho Chi Minh city in December 2017. The conference was the brain-child of Prof. Hoàng Dũng and was organised by him on behalf of the Linguistics Association of Ho Chi Minh city. As the title makes plain, the meeting was intended to celebrate the lifetime achievements of Professor Cao Xuân Hạo, whose landmark work in many diverse areas of linguistics – phonetics, lexical-semantics, syntax, pragmatics and translation theory – established a bridge between traditional Vietnamese scholarship and contemporary theories of grammatical organisation. Following the success of the conference, the idea came about to produce a more enduring recognition of Prof. Cao’s work and influence, in the form of an edited volume. Three of the chapters contained in the present volume – those by Pham & Brunelle, Haida, Trinh & Luong, and Hoàng & Tran – were developed from papers presented at the conference. The other contributions were solicited from researchers in Vietnamese linguistics whose work is in the spirit of Professor Cao’s oeuvre: bringing theoretical tools and cross-linguistic considerations to bear on specific issues in Vietnamese, whilst at the same time showing how Vietnamese data can shed light on wider problems in grammatical theory.

Introduction

Vietnamese: A language of special scientific interest?

Nigel Duffield

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The claim that Vietnamese is special may be understood in several ways. Let us first dispense with a mundane, ‘unspecial’, interpretation. Just as every child is – or should be – especially dear to its parents, so every language variety is special to its speakers, and in particular to those for whom it is their first language; that is to say, to those who are misleadingly termed ‘native speakers.’¹ It is completely understandable that first language learners should feel that their language is special, given the myriad interconnections between language, memory, personal and social identity, and cultural experience – both in the course of acquisition and in retrospect. These same speakers may also consider their language to be understudied, especially if it has not been accorded much attention by foreign scholars.² However, this subjective view is no more valid in respect of languages than in respect of children. From a scientific perspective – be it developmental, cognitive or medical – some children are undeniably more special than others, in the sense that one can learn more from studying these particular children than from studying another child drawn at random from the general population. So it is with languages (language-particular grammars): whether one’s goal is to determine the universal properties underlying natural language grammars or to understand the scope of grammatical diversity,

1. *In utero* effects notwithstanding – see DeCasper & Spence (1986), Minai et al. (2017) – no child is born knowing a particular language; the equipotentiality of any language to become one’s native tongue lasts at least into the first year, probably longer.

2. If there were any positive relationship between the number of speakers of a language and its valuation in linguistics research, then indeed Vietnamese could be deemed understudied, since it ranks in the top twenty in terms of numbers of L1 speakers (#16), below German and Japanese but above French (#18), Italian (#23) and Dutch (#56), each of which has received considerably more attention in the Anglophone literature. See <[https://en.wikipedia.org/wiki/List_of_languages_by_number_of_native_speakers#Ethnologue_\(2019,_22nd_edition\)](https://en.wikipedia.org/wiki/List_of_languages_by_number_of_native_speakers#Ethnologue_(2019,_22nd_edition))>. That is not how things work, however; indeed, as Trudgill (2011) observes, there is often a negative correlation between numbers of speakers and the scientific value of a language, given that languages tend to simplify as they spread and contact other varieties. Cf. also Thomason & Kaufmann (1988).

the study of some languages will yield more valuable data than others. This may be because such languages are apparently very different from those with which we are already familiar, alternatively, because they are inherently special: *sui generis*, they would stand out regardless of the languages one had previously studied.

The first kind of specialness is almost entirely relative. For example, from the standpoint of English, the default perspective of most readers of this book, it is highly profitable to study Korean just as long as one does not already know Japanese, alternatively, to study Scottish Gaelic if one has no prior knowledge of Modern Irish – or *vice versa* for each of these pairs of languages. However, having once contrasted Korean (or Scottish Gaelic) and English, there is little extra to be gained from studying Japanese (or Modern Irish), at least from a scientific perspective; more telling evidence could be gleaned from a language variety that is typologically distinct from any of the previously studied combinations – for example, a polysynthetic language such as Mohawk or Cherokee (Baker 1996). But not *both* of these, unless of course one's interests are narrowly restricted to Iroquoian. Vietnamese grammar is special in this relativist sense: to an English-speaking researcher with no experience of South East Asia, Vietnamese presents an impressive number of theoretical contrasts with Western Indo-European languages, with respect to syllable structure, tonology, compounding processes, the use of noun classifiers rather than articles, verb serialization and transitivity alternations, and Topic (*vs.* Subject) prominence. But then so – for the most part – do Cantonese, Khmer, Thai, several Tibeto-Burman languages, as well as any of the other areally related language varieties that have co-evolved as part of the *Mainland Southeast Asian Linguistic Area*.³ This relative specialness makes Vietnamese *vis-à-vis* English worth studying, but not especially so: it would hardly justify a volume such as this, or its recent predecessor (Hole & Löbel 2013), given the much larger body of research available on better studied languages such as Mandarin Chinese; see for example, Wang & Sun (2015), Li, Tan, Bates & Tzeng (2006).

The main reason that Vietnamese is worth studying, however, is that it is inherently special, even among languages of its own kind. Vietnamese is not merely typical of tonal, isolating languages of the Mainland South East Asian area, it is an archetype of sorts: a 'perfectly imperfect' scientific specimen. In terms of morpho-syntax, much of this distinctiveness resides in its large inventory of functional particles, both pre- and post-verbal, signalling contrasts in Tense, Aspect, Mood (TAM), Transitivity and Force (contrasts that are typically expressed by affixal morphology in more familiar Western Indo-European languages, or omitted entirely in more analytic languages lacking these functional morphemes in their lexicon). Using an archaeological analogy, if studying Greek is like excavating a skeleton where many

3. <https://en.wikipedia.org/wiki/Mainland_Southeast_Asia_linguistic_area>

of the bones have been fused together and re-arranged, studying Mandarin is like studying a skeleton where some of the smaller bones are missing – *pace* Sybesma (2018), Song (2018) – then studying Vietnamese is like finding a skeleton where every bone is presented intact, separate and mostly in its expected location.

From a phonological perspective, Vietnamese varieties are especially rewarding to study, not only on account of the relatively distinct contrasts in tonal patterns among the major dialects, but also for the fact that other historically related varieties within the Vietic branch are atonal: it is this difference that first led Haudricourt to propose a theory of tonogenesis (Haudricourt 1953), which has been broadly accepted and further developed in the explanations of how ‘Asian-type’ tones evolved (Ratliff 2017).

Grammatically, too, Vietnamese is at once archetypal and exceptional. Take argument omission. As one might expect – in common with other isolating languages of the region – Vietnamese allows arguments (both subjects and objects) to go unpronounced in contexts where they would be obligatory in English, for example. Vietnamese is unusual, however, in having very few true pronouns: in obligatory contexts, 2nd and 3rd person referents are referred to by an extended set of kinship and status terms, indicating the referent’s gender, and their age and status relative to the speaker. The rules determining how these terms are used and when they may be dropped are thus more contextual and less purely grammatical than is observed in a ‘simpler’ topic-drop language such as Chinese.⁴ With respect to compositional semantics – notably, with respect to the interpretation of (in)definiteness and various kinds of quantification – Vietnamese once again distinguishes itself from Chinese and other article-less languages in signalling meaning distinctions among homophonous forms through alternations in word-order and the use of special classifiers and other particles. Whether these differences are essential – due to a fundamental parametric contrast, as proposed for instance, by Trinh (2011) for nominals, or Tran & Bruening (2013) for *wh*-indefinites – or whether the transparency of Vietnamese syntax merely reveals compositional semantic properties that cannot be probed in the same way in Chinese, is unclear; what is undeniable is that the investigation of Vietnamese allows for a sharper focus on these questions than would otherwise be available.

Thus, Vietnamese is special, not just relative to Continental Western Indo-European languages, but also by comparison with its own kind, where ‘its own’ may denote other varieties to which it is historically related (Vietic < Austroasiatic), areally related (Mainland Southeast Asian); or typologically related (where it may be grouped with English, on certain measures); interestingly, these are largely non-intersecting sets of languages. Lurking behind this research – especially more

4. <https://en.wikipedia.org/wiki/Chinese_pronouns>

traditional scholarship – are perennial questions about the extent of Chinese influence, and resistance to it. Given Chinese political and social domination of Vietnam over more than a millennium, it might be expected that the Vietnamese grammar would have been influenced as least as much as 12th–13th century English was influenced by the Norman Conquest. Yet the basic grammatical properties appear to have remained intact and distinct. Alves (1999), for instance, claims:

Based on comparative lexical, phonological, morphological, and syntactic evidence, the influence of Chinese, though lexically significant, is best viewed as structurally superficial [...] at each linguistic level, Chinese influence is primarily restricted to non-structural aspects of Vietnamese, and the various linguistic elements of Chinese have been fit onto a primarily Southeast Asian and Mon-Khmer linguistic template. (Alves 1999)

If Alves' claim is correct – and much hangs on the details behind 'significant' and 'superficial' – the obvious question is why and how: what are the inherent properties that allow Vietnamese to remain distinct, and how are these identified by learners in the course of first language acquisition. As generativist linguists have been aware at least since Chomsky (1981), proposals about parametric contrasts carry with them their own explanatory burden, namely, the need to explain how children can deduce parametric values from the primary linguistic data available to them. Hence, no story about Vietnamese exceptionalism is complete without some explanation of how these grammatical properties are transmitted from one generation of speakers to the next.

The papers collected in this volume offer a set of interdisciplinary approaches to the issues discussed in the previous paragraphs, and several others besides. Many of the articles are co-authored by Vietnam-based native speaker researchers, with a sound knowledge of traditional scholarship, working in conjunction with internationally trained researchers from a range of theoretical backgrounds, so allowing for a well-informed comparative perspective. In several cases, single authors embody both perspectives, being internationally trained native-speakers of Vietnamese. The volume is notionally divided into four thematic areas: (A) Phonetics and Phonology; (B) Morphology and Syntax; (C) Semantics; and (D) Language Acquisition and Use (Psycholinguistics). These are by no means rigid distinctions, as in many cases exactly the same phenomenon is treated from a different theoretical or experimental perspective, particularly with regard to Morphology/Syntax, Semantics, and Acquisition. For example, the papers by Phan & Duffield (B) and Bui (C) and Nguyễn (C) are all directly concerned with the proper analysis of pre-verbal TAM morphemes, especially, the aspectual morpheme *đã*. Similarly, the issue of definiteness is explored both from a grammatical point of view (Doan, Everaert & Reuland; Tsai & Quang (C)) as well as from the perspective of child

language acquisition (Le, Forsythe & Schmitt (D)). The contributions offer a useful balance of formal theoretical and experimental approaches, yielding complementary data sets: whereas some articles offer a purely formal analysis (e.g., Bui, Tsai & Quang (C)), and others a more thorough-going experimentalist approach (Pham & Brunelle (A), Haida, Trinh & Luong (D)), several of the authors seek to integrate competence and performance data, either drawing conclusions about competence from production data (Ngo, Kaiser & Simpson (D)), or by suggesting that grammatical phenomena (*wh*-islands), previously assumed to have a purely formal analysis, may be better handled in terms of a theory of parsing (Duffield (B)). The other contributions to the volume are largely concerned with lexical issues, from diachronic and sociolinguistic (variationist) perspectives (Pham (A), Hoang & Phan (D)).

In combination, these papers provide a detailed and wide-ranging overview of current work in Vietnamese linguistics, and make a persuasive argument for the singular importance of this language in contemporary linguistic research.

Finally, it should be noted that this book is interdisciplinary in a more far-reaching sense than is usually observed in edited volumes with similar titles, whose contributors tend to share core theoretical assumptions, and where the term ‘discipline’ is taken to denote sub-branches of linguistic inquiry – phonetics *vs.* phonology, for example – or differing methodological approaches (corpus studies *vs.* elicitation work). In contrast to that more conventional ‘in-house interdisciplinarity’, the studies presented in this volume reflect a significant and current tension in the field of Vietnamese linguistics, between those who promote more traditional lines of scholarship and those attracted to universalist – especially generativist – approaches to linguistic description. It is not our intention to gloss over, or necessarily to try to reconcile, these contrasting views. Instead, we wish to afford the opposing sides in this debate glimpses into the kinds of work that others are doing, whilst still providing insights within a familiar framework. By looking over the fence, our hope is that each may find new ways to cultivate and nurture their own special patch of earth.

Acknowledgements

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On a personal note, I take this belated opportunity to acknowledge Lê Hồng Phương, my friend and first teacher of Vietnamese: but for her help and advice on so many things more than twenty years ago, during our regular Monday afternoon meetings at *Bio Optimum* – some thirty metres from the McGill University main gate – this volume would almost certainly never have appeared. *Cám ơn chị nhiều lắm!*

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SECTION A

Phonetics and phonology

Intonation in southern Vietnamese interrogative sentences

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University of Ottawa, Canada

This study looks at the acoustic cues that characterize the intonation of questions in southern Vietnamese. We find a raised f_0 height and a rising contour in a third of interrogatives, but – with the exception of alternative (and some open) questions – we argue that these properties cannot distinguish interrogatives from other sentence types. The only cue systematically associated with questions is that they tend to have a faster speech rate. Our findings replicate recent studies conducted on northern Vietnamese showing that there are idiosyncratic differences in the realization of intonation and that intonation may not be as grammaticalized as in Western languages. Vietnamese interrogatives are marked with particles or inferred from context and their intonation plays an ancillary role.

Keywords: southern Vietnamese, spontaneous speech, interrogatives, intonation, acoustic study

1. Introduction

1.1 The tonal system of southern Vietnamese

Vietnamese has a complex tone system that combines features such as pitch, duration and voice quality. These tones vary considerably across dialects: see Thompson (1965), Đoàn (1977), Vũ (1981–1982), Brunelle (2009b), Phạm (2003), Kirby (2010). Southern Vietnamese (abbreviated as SVN) has five lexical tones that make no contrastive use of voice quality (Gsell 1980, Vũ 1982).¹ Table 1 and Figure 1 below illustrate the names and f_0 contours of the five tones in unchecked syllables and two tones found in checked syllables in SVN.

1. In this paper, the term “southern Vietnamese” refers to Vietnamese varieties spoken in Hồ Chí Minh city and the Mekong Delta.

Table 1. Southern Vietnamese tonal system

In unchecked syllables*			In checked syllables**	
A1 (<i>ngang</i>) level	B1 (<i>sắc</i>) rising	C1–C2 (<i>hỏi-ngã</i>) mid falling-rising	D1 (<i>sắc nhập</i>) checked rising	
A2 (<i>huyền</i>) falling	B2 (<i>nặng</i>) low falling-rising		D2 (<i>nặng nhập</i>) checked low	

* Unchecked syllables = open syllables and syllables closed by sonorants

** Checked syllables = syllables closed by obstruents

A closer look at the SVN tonal system reveals the following:

1. Tone A1-*ngang* (level) is a level tone. It begins just slightly higher than the mid-range.
2. Tone A2-*huyền* (falling) is a low falling tone. It starts quite low and falls smoothly toward the bottom of the pitch range.
3. Tone B1-*sắc* (rising) is a rising tone. It starts at mid-range, rises rapidly and ends up at the nearly highest part of the voice range.
4. Tone B2-*nặng* (low falling-rising) is a low falling-rising tone.
5. The orthographic tones C1-*hỏi* and C2-*ngã* are merged into a single mid falling-rising tone in spoken SVN (mid falling-rising).

It should also be noted that in contrast to their northern Vietnamese counterparts southern Vietnamese tones are not accompanied by contrastive voice qualities (Kirby 2010). A mild laryngealization occasionally surfaces when a tone hits the bottom of the pitch range, but this is not lexically specified; see Brunelle (2009a), Kirby (2010).

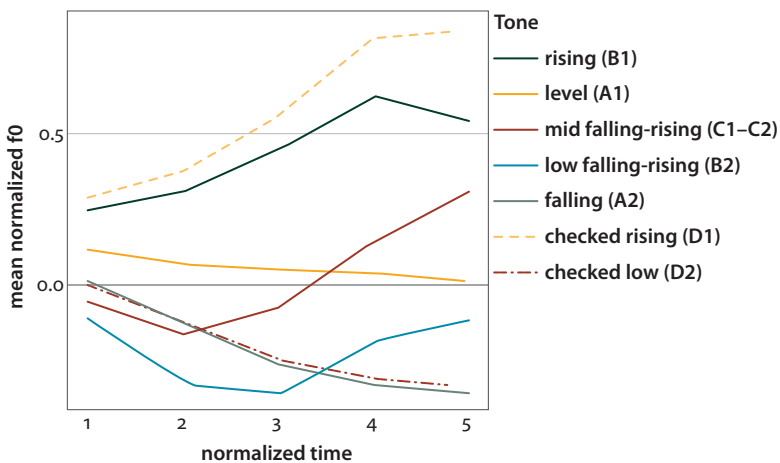


Figure 1. The tones of southern Vietnamese (mean speaker z-normalized f_0 obtained from a 4-hour corpus of spontaneous speech recorded from 8 speakers)

1.2 Cao Xuân Hạo's classification of Vietnamese interrogatives

According to Cao Xuân Hạo (2004), Vietnamese questions are of two main types: genuine and non-genuine. Genuine questions include the following five sub-types:

- (1) Special questions (*open questions*) are formed by adding question word(s) to a statement, e.g.:
Anh gặp Nam ở đâu?
 you meet Nam at where
 'Where did you meet Nam?'
- (2) General questions (*Yes-No questions*) require the answer *có/rồi* – 'yes' or *không/chưa* – 'no', e.g.:
Anh có gặp Nam không?
 you COP meet Nam Q
 'Did you meet Nam?'
- (3) Alternative questions offer a choice between alternatives – usually two – and require a specific answer, e.g.:
Anh gặp Nam ở Vinh hay ở Huế?
 you meet Nam at Vinh or at Huế
 'You met Nam in Vinh or Huế?'
- (4) Metalinguistic questions are structured as *Có phải* + statement + *không* and require the answer *phải* 'right/true' or *không phải* 'not right/not true' e.g.:
Có phải Nam đến đây không?
 COP true Nam come here Q
 'Nam came here, didn't he?'
- (5) Questions ending in *nha/nhì/nhé*, e.g.:
Tối mai em đi xem phim với anh nhé?
 Night tomorrow PRN go watch movie with PRN Q
 'Let's go to cinema tomorrow night, shall we?'

Non-genuine questions have an interrogative form but express moods and attitudes of speakers (exclamation, confusion, negation or affirmation, etc.) rather than a real interrogation. These types of questions do not require an informative answer. For example:

- (6) Imperative question:
Anh ngồi nhích vào một chút có được không ạ?
 You sit move enter one bit COP okay Q PART
 'Could you move a little bit?'

(7) Exclamatory question:

Trời hôm nay sao mà đẹp thế?
 sky today why REL beautiful Q
 ‘Why is the sky so beautiful today?’

Cao’s typology could of course be revised. For instance, as pointed out by a reviewer, *Yes-No* and metalinguistic questions might be grouped as polar questions. However, given the purpose of this volume, we will use his typology with only minimal modifications; these will be discussed at the beginning of the *Method* section.

1.3 Intonation in Vietnamese interrogatives

In Vietnamese, communicative functions and sentence types are primarily conveyed by a variety of sentence-final particles. This is not to say that intonation does not play a role – any student of Vietnamese can come up with anecdotal evidence of intonation overriding lexical tones – but the degree to which this is conventionalized as part of the grammatical system is unclear.

The study of Vietnamese intonation by linguists dates back from the 1960s. To our knowledge, it was first mentioned in *Tổ Ngôn ngữ – Đại học Tổng hợp* (Linguistics Group – University of Hanoi) (1961: 126–127) and in Thompson (1965). The first study provides a general overview of the functions of intonation in Vietnamese. It argues that in tone languages intonation makes only limited use of pitch changes because such changes would threaten tonal contrasts. According to the latter study, there are four different intonation types, which differ mainly in pitch range and pitch movement, and which mark different discourse functions in northern Vietnamese (henceforth NVN).

SVN intonation was first mentioned in Trần (1969), where it is claimed that intonation patterns co-occur with the basic tone system to add “shades of meaning” to the spoken utterances. Trần defined two general types of intonation contours in SVN: non-emotional contours and emotional contours. Non-emotional contours can be of three types, falling, sustained and rising contours, while emotional contours can either be rising or rising-falling. Figure 2 summarizes of Trần’s descriptions of SVN intonation contours accompanied by the pitch contour of the tone of the final syllable of the pause group. Note however that, as she relied on auditory impressions complemented with instrumental measurements (Trần 1969: 60–80), the representativeness of her descriptions is difficult to assess.

Although Trần was not always explicit about the contexts in which each type of intonation is used, SVN interrogative sentences were claimed to have a rising contour with co-occurring sustained intensity. In emotional questions, modulation of intonation was supposed to help reveal the speaker’s personal attitudes

NON-EMOTIONAL INTONATION CONTOURS							EMOTIONAL CONTOURS	
PITCH LEVEL 1: NORMAL PITCH				PITCH LEVEL 2: RAISED PITCH			RISING	RISING-FALLING
TONES	BASIC PITCH CONTOUR	FALLING	SUSTAINED	RISING				
				Rising + Sustained Intensity	Rising – Falling + Sustained Intensity	Rising – Falling + Decreases Intensity		
HIGH LEVEL (A1) /H L/								
LOW LEVEL (A2) /˘ ˘ /								
HIGH RISING (B1) /˘ ˘ /								
MID RISING /˘ ˘ / (C1-C2)	✓	✓	✓	✓	✓	✓	✓	✓
LOW RISING /˘ ˘ / (B2)								

Figure 2. Pitch contour of the last tone in each of the intonation contours (reproduced from Trần 1969: 257). The tone labels used in Figure 1 have been added to the first column

such as surprise, annoyance, vexation, protest, exasperation, threat, dissent, reprimand, etc.

Since Trần's work was published a large number of studies of Vietnamese intonation have been published both in Vietnam and abroad. An extensive review of those published in Vietnam can be found in Đỗ (2009). The conclusions reached in these studies of interrogative intonation are not always compatible and can be generally grouped into three major positions.

- i. *Intonation is always contrastive:* Intonation plays an important role in the processing of questions, especially during conversation (Hoàng 1980). Questions are described as having a rising intonation (Đoàn 1977), which starts relatively low and ends in the upper pitch range. This dramatic rise is treated as a contrastive feature of questions (Đỗ 2009).
- ii. *Intonation is contrastive when functionally necessary:* Declaratives and interrogatives marked by final particles or question words tend to have similar intonational properties. However, intonation tends to be much more prominent in interrogatives without particles or question words. These interrogatives have a high and *sắc* 'sharp' [sic] intonation on their focal element and no final declination (Diệp 1998).
- iii. *Intonation is not contrastive:* Interrogatives can have either a falling or a rising contour depending on the tones of interrogative words (Đoàn 2000; Mai et al. 2007). This f_0 contour is not intonation per se.

Regarding intonation in different types of questions, Đỗ (2009) makes two generalizations. He argues that questions containing interrogative pronouns (e.g. *ai, gì, đâu, bao nhiêu* – ‘who, what, where, how many/much’...) have a contrastive interrogative intonation with an extremely high final pitch level on the last syllable, independently of the position of the pronouns, and that alternative questions with the connective particle *hay* ‘or’ have an intonation that consists of two extremely high pitch level, occurring in the two syllables right before and after the word *hay*.

Unfortunately, few of these claims are backed up by supporting acoustic evidence. In fact, several of them are contradicted by experimental evidence collected in a number of experimental studies that explored the intonation of Vietnamese (mainly in the northern dialect). Most of these experimental studies conclude that intonation is realized through a combination of pitch, intensity, voice quality and duration (Đỗ et al. 1998; Nguyễn & Boulakia 1999; Vũ et al. 2006). Instrumental findings about the intonation of NVN interrogatives focus on three phonetic cues:

- i. *F0*: Interrogatives have been described as having a high overall *f0* range, higher than that of the corresponding declaratives; see Hoàng (1985), Đỗ et al. (1998), Nguyễn & Boulakia (1999), Vũ et al. (2006), Đào & Nguyễn (2018). Interrogatives have also been reported as having a final rise: Đỗ et al. (1998), Vũ et al. (2006), Hà & Grice (2010), Đào & Nguyễn (2018). “Rhetorical” questions are described with a rising contour and a higher overall *f0* than neutral questions; Đỗ et al. (1998). In alternative questions, the syllables before and after the particle *hay* ‘or’ have larger *f0* range and have a fuller tonal shape than the other syllables, according to Đào & Nguyễn (2018). Conversely, recent studies have also pointed out that the difference in *f0* range between questions and statements is quite small and often statistically insignificant, and that interrogative (and declarative) intonation patterns are variable and optional among speakers: see Brunelle et al. (2012), Cangemi et al. (2016).
- ii. *Duration*: Interrogatives have been reported as having a shorter duration than declaratives; see Đỗ et al. (1998), Nguyễn & Boulakia (1999), Vũ et al. (2006), Đào & Nguyễn (2018). Moreover, Đỗ et al. (1998) find that sentence-final syllables are longer in “rhetorical” questions than in neutral questions, while Đào & Nguyễn (2018) point out that final syllable in questions is longer than that in statements and that the syllables before and after the particle *hay* ‘or’ in alternative questions are lengthened.
- iii. *Intensity*: Nguyễn & Boulakia (1999) find that interrogatives have stronger intensity than declaratives. Additionally, Đào & Nguyễn (2018) claim that the intensity of the entire sentence is raised in questions.

As for the interaction between tone and intonation, experiments carried out on NVN have recently shown an influence of the lexical tone of the final syllable on

the overall intonation of the sentence (Vũ et al. 2006) or a merger of the lexical tone of the final syllable and the intonational target (analyzed as a boundary tone) used to express communicative functions (Hà 2012). Hà (2012) shows that in contexts where lexical tone has a weak functional role – this is the case for monosyllabic particles used in repair strategies and backchannels, such *vâng*, *ừ* and *đạ* – intonation is realized very strongly. Similarly, Brunelle’s (2016) study of SVN natural conversation reveals that intonation may surface more strongly in discourse markers where lexical tone plays a low functional role.

In general, most of the above studies suggest that overall f_0 level and f_0 range can convey sentence modalities, but that their use is quite variable and optional. Although studies were conducted with different types of data, most experimental work has so far been conducted with read-aloud speech in contexts where speakers were well-aware of the purpose of the study. Hence, it is difficult to compare the results of different studies and to assess the naturalness of their results.

1.4 Research questions

In this study, we look at interrogative sentences in SVN spontaneous speech and aim to answer the three following research questions.

- i. Do interrogatives have a higher overall f_0 than declaratives? Do they have different slopes?
- ii. Are interrogatives spoken at a faster speech rate than declaratives?
- iii. Are there any differences in f_0 slope or height between different types of interrogatives?

The remainder of our paper is organized as follows: Section 2 briefly describes the participants and the methods used to select spoken corpora and analyze data. Section 3 presents the main findings that are relevant to the above research questions. The results are then discussed in detail in Section 4. Section 5 offers a brief conclusion.

2. Method

In order to evaluate the prosodic properties of interrogative sentences in SVN, we analyzed a set of 618 interrogative intonational phrases (together with 3669 declarative phrases) extracted from a four-hour corpus of SVN spontaneous speech. (The corpus can be obtained from the second author, on request.) All interrogative and declarative intonational phrases found in the corpus were used, except

monosyllabic ones. For present purposes, intonational phrases correspond to syntactic clauses. They are different from sentences in that a complex sentence may include several clauses; in such cases, only the final clause was retained, with other clauses being treated as continuative intonational phrases.

Our SVN corpus consists of four natural conversations between pairs of same-age and same-sex native speakers. All of the speakers – four men and four women – were born between 1949 and 1992 and raised in Hồ Chí Minh city or the Mekong Delta; they all speak the southern dialect. Recordings were made using head-mounted Shure SM53 microphones. The speakers were recorded, by a native SVN- research assistant, using a Marantz PMD670 solid-state recorder on separate channels in stereo files. Speakers were instructed to make spontaneous conversation, with no restrictions on topic. The eight participants were coded as shown in Table 2.

Table 2. Coding details for the eight SVN speakers

Speaker	Code	Speaker	Code
1. Older male #1	OM1	5. Older female #1	OF1
2. Older male #2	OM2	6. Older female #2	OF2
3. Younger male #1	YM1	7. Younger female #1	YF1
4. Younger male #2	YM2	8. Younger female #2	YF2

All recordings were transcribed by native speakers and words were aligned with the recordings in Praat textgrids (Boersma & Weenink 2010). Interrogative sentences were then extracted and coded into five different types, given in Table 3 below. This classification is mainly based on the typology developed by Cao (2004) and discussed in Section 1.2 above. We depart from Cao's classification in excluding sentences ending in *nha/nhi/nhé* since we interpret them as mild imperatives. We also group all non-genuine questions in a single category.

Table 3. Coding and distribution of five different question types in SVN corpus

Types of SVN interrogative international phrases (IP)	Code	Number of IPs
Open question, e.g.: <i>[Em] đang học ngành gì?</i> PRN PROG study discipline Q 'What is your current discipline?'	OQ	115
Yes-No question, e.g.: <i>Em biết ngành đó không?</i> PRN know discipline DEM Q 'Do you know that discipline?'	YN	111

(continued)

Table 3. (continued)

Types of SVN interrogative international phrases (IP)	Code	Number of IPs
Alternative question, e.g.: <i>Con trai hay con gái?</i> CLF boy or CLF girl 'Boy or girl?'	AQ	15
Metalinguistic question, e.g.: <i>Hồng có quen biết gì với em hả?</i> NEG COP know what with PRN Q 'He doesn't know you, does he?'	ML	205
Non-genuine question, e.g.: <i>Phòng máy lạnh mà hút thuốc hả?</i> room air.cond CTRFCT smoke tobacco Q 'You smoke in an air-conditioned room?'	NG	172
Total		618

Each sentence in the corpus was segmented into syllables and a Praat script was used to extract the f_0 and duration of each syllable at five equidistant points. The acoustic data was then processed and analyzed in Excel and R.

In order to investigate possible differences in f_0 height and slope – between SVN questions and statements, as well as between different types of questions – the following measures were taken:

- i. *Overall f_0 level*: the average f_0 of entire intonational phrases. Mean f_0 was first calculated over five equidistant sampling points in the voicing portion of each syllable. The mean of these mean f_0 was then obtained for the entire phrase.
- ii. *Global f_0 slope*: the difference between the onset f_0 and offset f_0 of an intonational phrase.
- iii. *Local f_0 slopes*: the difference in f_0 between the onset f_0 and offset f_0 of the final syllable, and the difference between the mean f_0 of the final syllable and mean f_0 of the rest of the phrase.

3. Results

In this section, we present acoustic results that address the three research questions raised in Section 1.3 above.

3.1 Research question 1: Do interrogatives have a higher f_0 than declaratives? Do they have a different contour?

3.1.1 Overall f_0 level

As should be clear from Figure 3 below, the overall mean f_0 level of interrogatives is equivalent to – or even slightly lower than – that of declaratives. Two out of eight speakers (OF1, YF1) display a slightly higher mean f_0 in questions than in statements, but this difference occurs below 4.5 Hz, which may not be audible in natural environments. Five speakers (OM1, OM2, OF1, OF2 and YF2) have a significantly wider pitch range in statements than in questions: an average difference of 26 Hz.

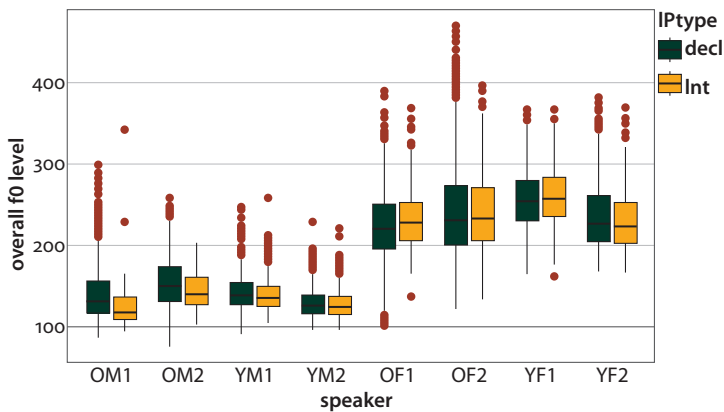


Figure 3. Overall f_0 level of SVN interrogatives and declaratives (horizontal bar: median, boxes: second and third quartiles, top and bottom lines: all observations falling within 1.5 interquartile ranges from the box, dots: outliers)

3.1.2 Global f_0 slope

The acoustic data presented in Figure 4 show that there is no clear and consistent evidence of a difference in global f_0 slope between interrogatives and declaratives in SVN. Interrogatives tend to have a narrower slope range, but this is likely due to their more limited prevalence in the corpus.

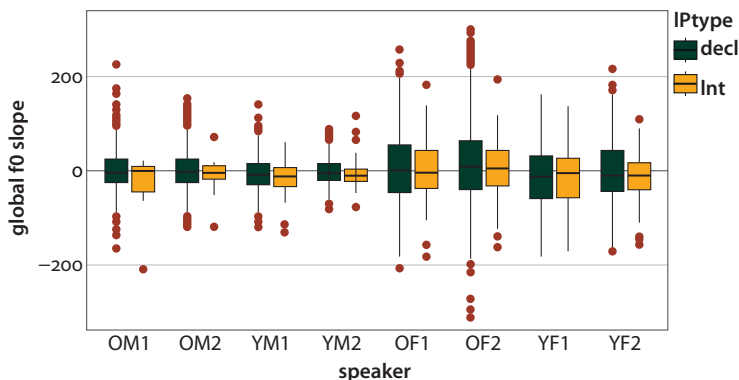


Figure 4. Global f_0 slope of SVN interrogatives and declaratives (horizontal bar: median, boxes: second and third quartiles, top and bottom lines: all observations falling within 1.5 interquartile ranges from the box, dots: outliers)

3.1.3 Local f_0 slope

In order to determine whether interrogatives have a final rising contour or not, we focus on two final interrogative particles *không* and *gi*. We focus exclusively on these two particles because (1) this allows us to control for the micro-prosodic effect of consonants and vowels, and (2) because these two particles are common enough to reveal possible patterns.

Two local slope measures were obtained from the 125 *không*-final intonational phrases that have more than 3 syllables in length: (1) the offset f_0 minus the onset f_0 of the final syllable *không*, and (2) the mean f_0 of final syllable *không* minus the mean f_0 of the rest of the sentence.

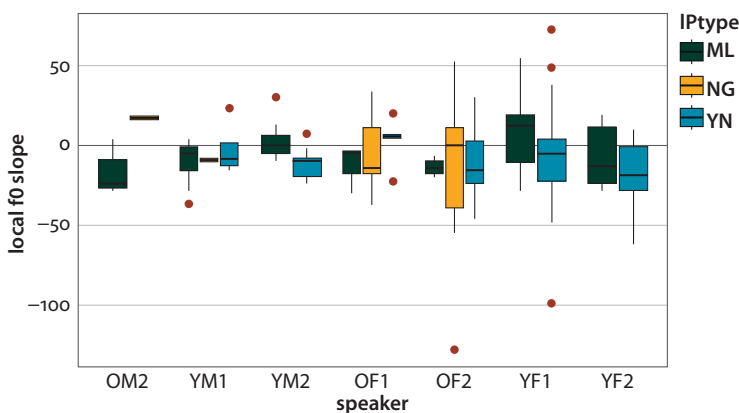


Figure 5. Local f_0 slope on the final particle *không* (horizontal bar: median, boxes: second and third quartiles, top and bottom lines: all observations falling within 1.5 interquartile ranges from the box, dots: outliers)

Results show that interrogative *không* only rises 24.4% of the time and that only 31% of *không*-final phrases have a higher mean f_0 on their final particle than that on the rest of the intonational phrase. The latter seems primarily due to the tonal make-up of the intonational phrase rather than to an intonational effect. Figure 5 illustrates the results obtained for the second type of local slope in more detail.

A break-down by speaker (Tables 4 and 5) further shows that even in *Yes-No* questions ending in *không*, speakers mostly exhibit f_0 declination.

Table 4. F_0 contour on final syllable *không* (the offset f_0 minus the onset f_0 of the final syllable *không*)

	OM1	OM2	YM1	YM2	OF1	OF2	YF1	YF2
Rise	NA	0	2	3	2	6	8	10
Fall	NA	4	20	14	16	11	14	15

Table 5. Local f_0 slope of *không*-final questions (the mean f_0 of final syllable *không* minus the mean f_0 of the rest of the sentence)

	OM1	OM2	YM1	YM2	OF1	OF2	YF1	YF2
Fall	NA	2	18	13	10	12	13	18
Rise (0–5 Hz)	NA	1	3	1	1	0	2	1
Rise (5–10 Hz)	NA	0	0	1	3	1	0	4
Rise (>10 Hz)	NA	1	1	2	4	4	7	2

Gì-final questions offer a more interesting contrast. Though there are only 24 *gì*-final open questions in the corpus, we found that 19 sentences (79.2%) have a level slope or a slight rise on the second half of the syllable *gì*, which goes against the falling contour of the lexical tone. Figure 6 is an example demonstrating the co-existence of intonation and the lexical tone of final interrogative particle *gì* in an open question; this is to be compared to the final *gì* in a declarative (indirect question), as shown in Figure 7.

The remaining five out of 24 sentences show a slight declination in *gì* but their offset f_0 does not fall as low as we would expect from a low-falling tone in isolation.

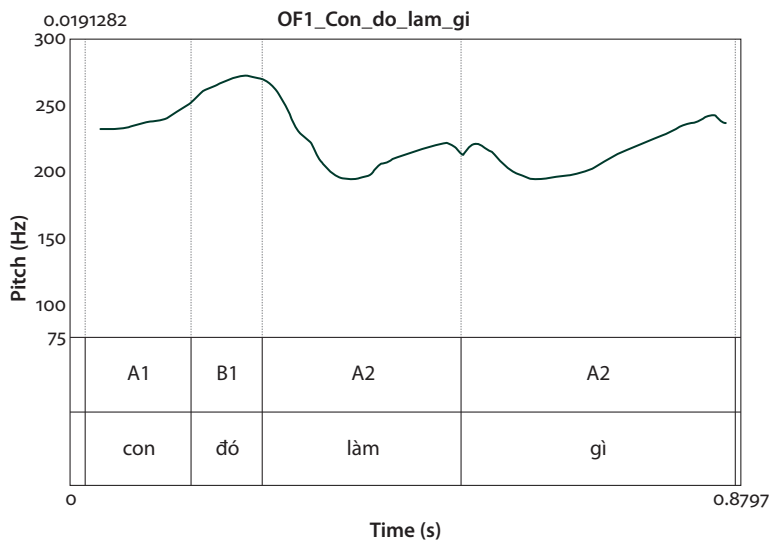


Figure 6. f_0 movement in question *Con đó làm gì?* ‘What does she do?’ from one older female speaker

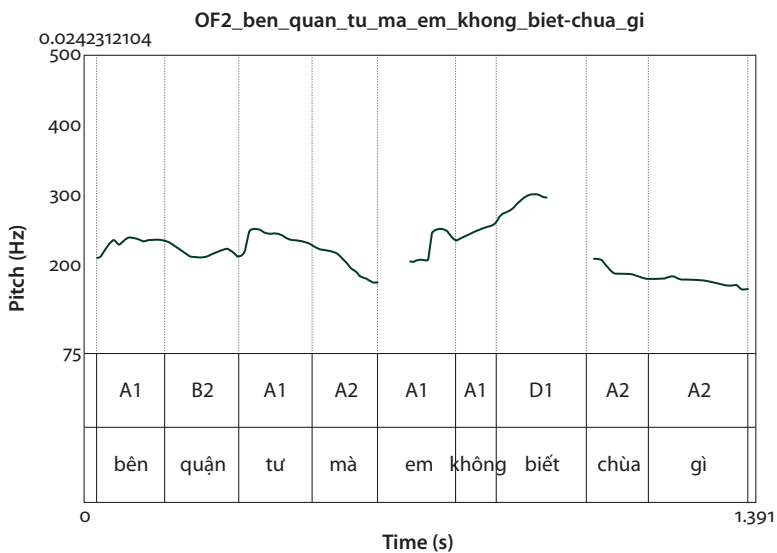


Figure 7. f_0 movement in the declarative utterance (*Chùa đó ở bên quận Tư mà em không biết chùa gì* ‘(That temple is situated) in district 4 but I don’t know its name’) from one older female speaker

3.2 Research question 2: Are interrogatives spoken at a faster speech rate than declaratives?

As displayed in Table 6, our data show that interrogatives have a shorter duration than declaratives: the average syllable duration in questions is between 0 and 13.1% shorter than that in statements, depending on the speaker.

Table 6. Average duration of syllables in interrogatives and declaratives (in seconds)

Speaker	Interrogatives (Int.)		Declaratives (Decl.)		Int. minus Decl.
	Mean	SD	Mean	SD	Diff. in means
OM1	0.169	0.05	0.173	0.07	-0.004 (2.3%)
OM2	0.189	0.06	0.193	0.06	-0.004 (2.1%)
YM1	0.137	0.04	0.145	0.05	-0.008 (5.5%)
YM2	0.126	0.03	0.145	0.05	-0.019 (13.1%)
OF1	0.162	0.05	0.178	0.06	-0.016 (9%)
OF2	0.166	0.04	0.172	0.05	-0.006 (3.5%)
YF1	0.164	0.05	0.182	0.07	-0.018 (9.9%)
YF2	0.195	0.05	0.195	0.06	0 (0%)

A first explanation for this phenomenon might stem from the fact that interrogative phrases contain a higher proportion of functional syllables than declaratives (45.3% of functional syllables in interrogatives *vs.* 37.7% in declaratives, after excluding monosyllabic phrases). Since function words have a shorter average duration than lexical words in Vietnamese (Brunelle et al. 2015), this could in itself account for the durational difference; *cf.* Cao (2007), for a similar observation impressionistically framed in terms of stress. However, as is shown in Table 7 below, the duration of lexical syllables is systematically longer in declaratives than interrogatives, irrespective of their position in the phrase, suggesting that interrogatives do have a faster speech rate.

Table 7. Average syllable duration of functional, lexical and other types of words in interrogatives and declaratives (ambiguous categories: positional nouns, pronominal kinship terms, deverbal prepositions)

Phrasal position	Function syllables		Lexical syllables		Ambiguous categories	
	Int.	Decl.	Int.	Decl.	Int.	Decl.
Final mean	0.197	0.200	0.264	0.296	0.213	0.257
<i>sd</i>	0.07	0.08	0.07	0.09	0.10	0.09
Non-final mean	0.133	0.132	0.166	0.183	0.132	0.151
<i>sd</i>	0.05	0.05	0.06	0.06	0.05	0.06

3.3 Research question 3: Are there any differences in pitch (height and contour) between different types of interrogatives?

3.3.1 Overall f_0 level

As can be seen from Figure 8 below, there are slight differences in overall mean f_0 between types of questions, but they do not necessarily go in the same direction across speakers. In some speakers (such as YM1 and OF2), alternative questions (AQ), metalinguistic questions (ML) and non-genuine questions (NG) tend to have higher f_0 level than yes-no questions (YN) or open questions (OQ), but categories still overlap and other speakers show reverse trends.

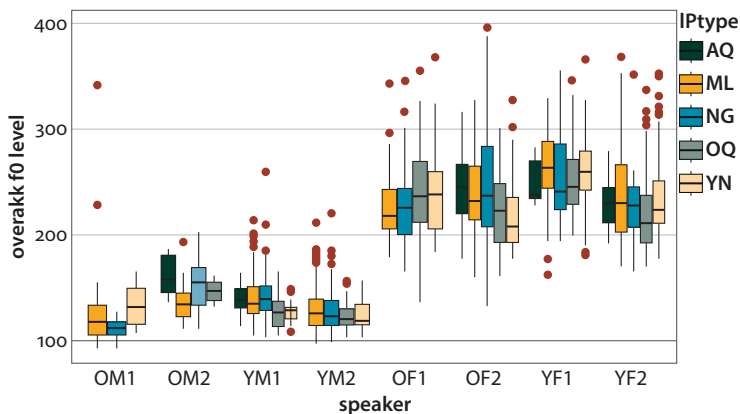


Figure 8. Overall f_0 level of different types of questions (horizontal bar: median, boxes: second and third quartiles, top and bottom lines: all observations falling within 1.5 interquartile ranges from the box, dots: outliers)

3.3.2 Global f_0 slope

Figure 9 shows that most speakers use a similar global f_0 contour in different question types. Again, differences between types of interrogatives are found at an individual level, but the direction of these differences vary across speakers and there is a significant amount of overlap between categories.

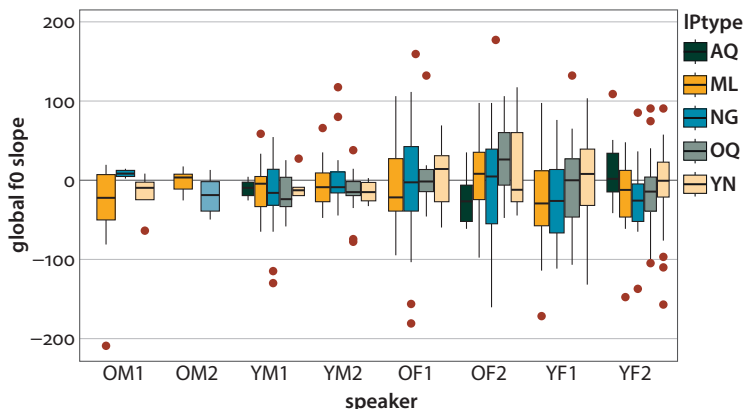


Figure 9. Global f_0 slope of different types of questions (horizontal bar: median, boxes: second and third quartiles, top and bottom lines: all observations falling within 1.5 interquartile ranges from the box, dots: outliers)

3.3.3 Local f_0 slope

Since it is difficult to filter out the influence of lexical tone from the intonation contour, we focused on final syllables that bear either a level or a falling lexical tone (for which we have the largest number of observations).

We first looked at final *không* in yes-no questions (YN), metalinguistic questions (ML) and non-genuine questions (NG). In Section 3.1.3, we showed that 31% of phrases ending in that particle have a higher mean f_0 than the rest of the sentence. Figure 10 shows that this proportion varies little across types of questions: the final rising contour is used slightly more frequently in non-genuine than in yes-no or metalinguistic questions (the percentages are 35.3%, 32.3% and 27.9% respectively).

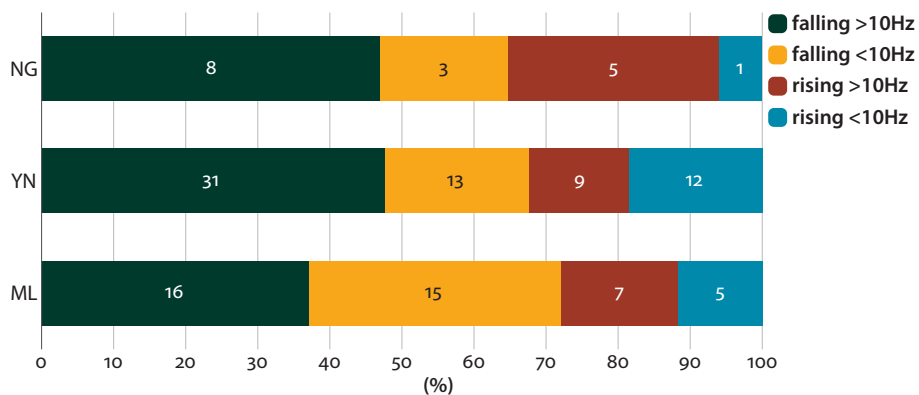


Figure 10. Distribution of local slopes (mean f_0 of *không* minus mean f_0 of the rest of the sentence) in different types of *không*-final questions (counts)

We then looked at alternative questions without final particles and ending in syllables bearing level or falling tones. We found that there is a final rise in the second half of the final syllable (7 out of 12 sentences ending in either level or falling tone have this final rise). We also looked at the f_0 contour of the first alternative (which comes before the connective particle *hay/hay là* ‘or’). As illustrated in Figure 11, there is good evidence that there is a rise from the mid-point of the final syllable of the first member of the alternative as well. However, since the number of alternative questions in the corpus (only 15) is too small for a statistical analysis, we will keep this for further investigation.

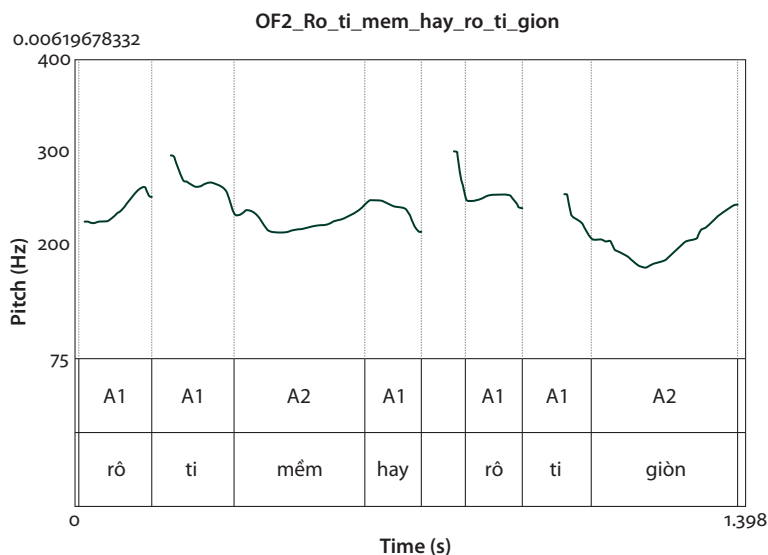


Figure 11. f_0 movement in alternative question *Rô ti mềm hay rô ti giòn?* ‘Roasted soft or crispy?’ from one older female speaker

Finally, we examined open questions (which usually contain interrogative words such as *ai, gì, nào, đâu* ‘who, what, which, where’...) and focused on the 24 sentences with final particle *gì* ‘what’, the 12 sentences with final particle *đâu* ‘where’ and the 10 sentences with final particle *nào* ‘which’. We found that: (1) 17 out of 24 *gì* sentences have a level or rising contour in the second half of syllable *gì*; (2) 3 out of 12 *đâu* sentences have a rising contour starting from the middle of the syllable *đâu*; and (3) 4 out of 10 *nào* sentences have a level or rising contour in the second half of syllable *nào*. There is too little data to make strong claims, but this suggests that some wh-words (like *gì*) maybe more subject to intonationally-conditioned modifications of their lexical tones than others.

4. Discussion

What kind of answers do our results shed on the three research questions? First of all, *Do interrogatives have a higher overall f0 than declaratives? Do they have a different contour?*, our findings about the overall height and slope of interrogatives seem to contradict previous findings reported for NVN. First, Hoàng's (1985) generalization that interrogatives have a higher overall f0 than declaratives is not supported (Section 3.1.1). Our results also appear to contradict Đổ's (1998) claims (i) that interrogative sentences have a rising contour (3.1.2) and (ii) that interrogative *không* always has a rising f0 pattern (3.1.3). Similarly, we were unable to replicate Vũ's (2006) finding that the differences between questions and statements come down to a difference in f0 slope (rising or falling) at the end of the sentence (second half of the last syllable).

Thus, while it is the case that intonational cues like a raised f0 height and a rising contour are occasionally present in interrogatives, they cannot distinguish interrogatives from other sentence types (such as declaratives) as their presence is at best optional: it is not even the dominant pattern in SVN. In fact, even contours running against expectations are commonly attested. Declaratives, for instance, are often rising: 140 out of 720 phrases ending in falling tones have a final rising intonation.

With respect to the second research question, *Are interrogatives spoken at a faster speech rate than declaratives?*, the answer is much clearer. Interrogatives tend to have a faster speech rate, for two reasons. They are made up of a larger proportion of function words, which tend to be shorter, and their lexical words are also shorter on average.

As for our third question – *Are there any differences in f0 contour or height between different types of interrogatives?* – this is the most difficult to address given the overall small number of each different type of questions in our four-hour corpus, but also the one that seems the most promising. Although overall f0 height (3.3.1) and global slope (3.3.2) do not seem to vary according to types of interrogatives, some of the distinctions made in Cao Xuân Hạo's typology appear to partly correlate with local f0 slope. Pitch, for instance, is frequently raised at the end of alternative questions and open questions, which one could attribute to phrase-final intonational targets. Similarly, the fact that *gi* 'what' has a rising contour in 17 out of 24 interrogative phrases that end in it, largely in open questions where a falling intonation would be expected in most Western European languages, could be explained by a type of intonational contour and would warrant further investigation.

In a nutshell, we would argue that intonational effects do not clearly distinguish interrogatives from declaratives, nor different types of interrogatives in SVN. However, slight (and relatively inconsistent) differences in f0 contour may play a role in alternative and open questions. If it were to be replicated, this finding would

be in line with Vĩ et al. (2006)'s argument that the rise of the interrogative is largely located towards the end of the sentence-final question particle, but given our small dataset, this is no more than a tentative proposal.

5. Conclusion

This study investigated intonation in southern Vietnamese interrogatives. Our results suggest that the difference in overall f_0 level between interrogatives and declaratives is not overall significant. There is an occasional final rise in southern Vietnamese questions, but it is only attested in one third of interrogatives and is also attested in a fourth of the declaratives. The shorter duration of lexical words in interrogatives confirms previous observations (Đỗ et al. 1998, Nguyễn & Boulakia 1999, Vĩ et al. 2006, Đào & Nguyễn 2018) that they have a faster speech rate, and may be a more reliable cue.

Our findings are in line with recent studies conducted on northern Vietnamese (Brunelle et al. 2012, Cangemi et al. 2016) showing that there are important idiosyncratic differences in the realization of intonation, and that intonation may not be as grammaticalized as in most Western languages (Brunelle 2017). In other words, intonation is unlikely to be used for contrasting sentence types in southern Vietnamese, even if it is optionally present. Furthermore, the evidence we have forces us to reject the hypothesis that it is only present when it is functionally necessary, as sentences that are syntactically unambiguous often have noticeable pitch movements.

The southern Vietnamese evidence presented here leads us to argue that, in that language, intonation effects, local or global, are not monotonically linked to communicative functions or sentence types. If this is the case, what is the function of the non-lexical pitch movements that one easily notices in Vietnamese spontaneous speech? As noticed in Trần (1969), parts of these intonational effects seem largely driven by emotions and attitudes. Although this is fairly uncontroversial, no typology or formalization of these effects in Vietnamese has yet been proposed. A second possible function of intonation would be pragmatic in nature and would have to do with a subtle management of information structure. Such effects have been demonstrated in work on repair intonation in northern Vietnamese (Hà & Grice 2017) and seem supported by partial evidence from southern Vietnamese (Brunelle 2016). Both of these functions could be indirectly correlated with sentence types, which could partly explain why there is such a gap between introspective and experimental research on Vietnamese intonation. Another reason for the very real differences between studies may lie in their different experimental protocols. Overall, it seems that data read from uncontextualized wordlists containing

minimal pairs yield stronger intonation patterns than contextualized wordlists, which in turn yield stronger intonation patterns than spontaneous speech. This could be attributed to the fact that in reading experiments, speakers are aware of the contrast between interrogative and declarative sentences and try to maximize it, along the lines of the differences between compounds and phrases reported in Vietnamese by Nguyễn & Ingram (2007).

In light of our results, it appears that Vietnamese interrogatives are mainly marked with question particles or inferred from context, and that their intonation plays an ancillary role at best. In further work, we intend to look at intonation from the point of view of perception. Given the difficulties involved in collecting controlled spontaneous data about Vietnamese intonation, perceptual experiments appear the best strategy to uncover its meaning and function, and to assess the extent of its contrastiveness.

Acknowledgements

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Vietnamese dialects

A case of sound change through contact

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Among Vietnamese dialects, the southern dialect of Quảng Nam is notable for its rimal peculiarities. These properties have not generally been reported for any other Vietnamese dialects. However, some features – in particular, the vowel [ɑ] and correspondence between [aw] and [o] – have recently been observed in small dialects of the north-central Hà Tĩnh region. The Thanh Hoá dialect, spoken in a province which lies between the northern and north-central regions of Vietnam, bears certain close similarities to Quảng Nam dialect, yet does not share the features in the same way as they are shared between Quảng Nam and the Hà Tĩnh subdialects. The paper argues for a link between these three non-standard varieties, Quảng Nam, Hà Tĩnh and Thanh Hoá dialects, each belonging to a different major dialectal group (and each geographically separated from one another). Through an examination of the similarities and differences between these dialects, focusing on the Hà Tĩnh subdialect, it is argued that historical migration is the cause of sound change in the Quảng Nam dialect. The paper claims that Quảng Nam dialect was based on the speech of migrants from Thanh Hoá province, and has subsequently integrated certain features from the speech of Hà Tĩnh migrants.

Keywords: Vietnamese, sound change, vowel chain shift, dialect contact

1. Introduction

The Quảng Nam dialect is spoken by about 1.5 million people in Quảng Nam province, as well as in some districts of Danang city (indicated by a rectangle on the map below). This dialect is known for having a rimal system very different from that of any other dialects of Vietnamese, especially with respect to correspondences relating to /a/ and /ǎ/ (Hoàng T. C. 1989). In fact, among sixteen correspondences of this type in the Quảng Nam rimes, eight involve /a/ and /ǎ/ (Phạm A. H. 2013). The Quảng Nam dialect contains a back, unrounded vowel [ɑ] that is not generally

reported in any other dialect of Vietnamese.¹ The phonemic and phonetic identity of this vowel is a topic of debate. The question of its origin, or the origin of other features unique to Quảng Nam, has never been raised. A vowel similar to Quảng Nam [a] was recently discovered in Hến and Kê Chay, two small hamlets of Hà Tĩnh province, north-central Vietnam.^{2,3} The term “north-central Vietnam” in this paper refers to the region from Nghệ An to Thừa Thiên (marked by triangles on the map).

In the literature on Vietnamese, the most frequently described varieties are those spoken in the cities of Hanoi and Ho Chi Minh (Saigon). These varieties represent the regional standards for northern and southern dialects, respectively. Non-standard regional dialects are complex and may provide insight into phonological change in Vietnamese and other Vietic languages, yet they are still under-examined, especially those in remote areas. Studies on subtle interactions between dialects are even more scarce. North-central Vietnam is well known as the home of many conservative dialects: Ferlus (1995) uses the term “heterodox” to refer to dialects with various irregularities which correspond to Middle Vietnamese, as described in de Rhodes’ 1651 dictionary. Studies that describe dialects spoken in the region have typically been concerned with features such as initial consonants,

1. Many peculiarities in Quảng Nam dialect, including the vowel [a], are also observed in the Quảng Ngãi dialect. Quảng Ngãi, bordering on Quảng Nam in the north, was a part of Quảng Nam until the 19th century when it became a separate province (Khâm Định Việt Sử Thông Giám Cương Mục, 1998, referred to as *Cương Mục*). Quảng Nam, as the name of an old region, includes Quảng Ngãi. The dialect spoken in northern modern Quảng Ngãi is very similar to Quảng Nam dialect; Nguyễn T. T. (2015), Trần T. T. A. (2015), Trương V. S. (1993).

2. Current Hà Tĩnh province was formerly a part of Nghệ An province, which was split from Nghệ An in 1831. See Cương Mục: 515, Đại Nam Thực Lục Chính Biên (2007: 229). In this paper “Hà Tĩnh” is used to refer to a region of Nghệ An before this split.

3. Hến and Kê Chay might not be the only dialects in the region with the low, back, unrounded vowel /a/. It might occur in some other small dialects of Nghệ An and Hà Tĩnh, and also vary in descriptions. For example, Võ X. Q. (1993) and Nguyễn H. N. (2002) report [a] in some Nghệ Tĩnh dialects, either accompanied by a rounded feature as a secondary articulation, i.e., [a^u], [a^ɔ], or as the low, back, rounded vowel [ɔ]. This account also reports [ɔ] in Nghi Loc dialect, but it is unclear if [a^u], [ɔ] and [ɔ], all are separate phonemes. There are also non-linguistic descriptions of a vowel in other villages of the Đức Thọ district, e.g., An Tiến village (Đức Hùng 2016), or of Nghi Lộc district (Vũ Toàn 2012). In these descriptions the vowel in question is said to correspond to Hanoi [a]. It could be that the vowel corresponding to Hanoi [a] appears in several sub-dialects from Nghệ An to Quảng Bình provinces. When Ferlus (1996) described Cao Lao Hạ and Phú Trạch, two dialects of the Quảng Bình province, south of Hà Tĩnh province, he used [ɔ], the symbol for the low, back, rounded vowel for the vowel corresponding to northern [a]. The sound files of Cao Lao Hạ dialect, stored in the OLAC record (Ferlus & Trần, 2015), confirm the presence of the vowel. The lower mid vowel [ɔ] was also included in Ferlus’ description, and it is unclear if [ɔ] phonemically contrasts with [ɔ].

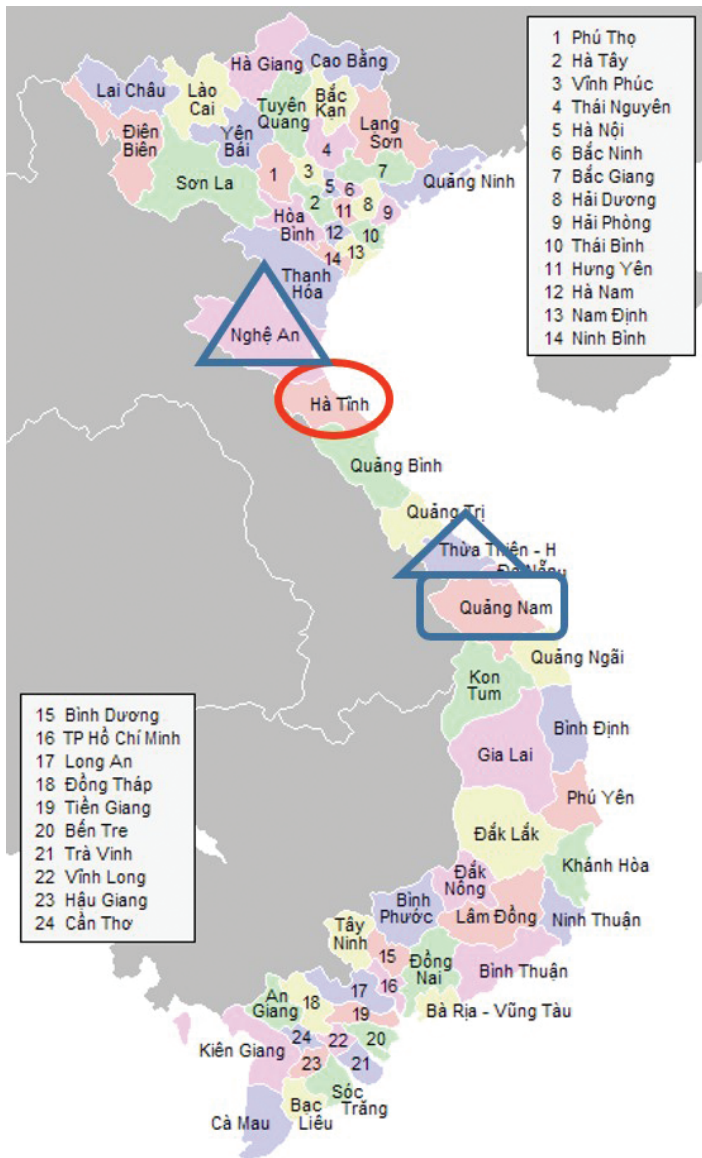


Figure 1. Administrative provinces of Vietnam

tones, and specific lexical items, and/or with how a given variety as a whole relates to other Vietic languages. Hoàng T. C. (1989, 2004), for example, provides a wide-ranging account of the interaction between dialects, mainly between northern dialects and those spoken in north-central Vietnam; however, her treatment lacks

detailed discussion of specific varieties. Ferlus (1995, 1996, 2001) describes the dialects of Cao Lao Hạ (Quảng Bình province) and Làng Lữ (Nghệ An province) to show the connection between these “heterodox” dialects and other Vietic languages; specifically, spirants in Làng Lữ were borrowed from Thổ dialect. Nguyễn V. L. (2009) examines the tone system of Cao Lao Hạ and argues for the influence of Cham on the Cao Lao Hạ dialect in the establishment of tones. Michaud et al. (2015) compares the initial consonants of the Phong Nha dialect (Quảng Bình province) and other Vietic languages: that paper emphasizes the important role played by dialects such as Phong Nha in historical reconstruction. In all of these comparative studies, however, the vowel system is rarely the focus of interest.

This paper addresses the question of how the Quảng Nam rime system came to have its current structure. It focuses on some of the peculiar correspondences in the Quảng Nam rimes, i.e. the vowel similar to Quảng Nam [a], and the systematic correspondence between [aw] and [o] in Quảng Nam dialect, both of which were recently found in Kẽ Chay, a subdialect of Hà Tĩnh province. These peculiarities are not reported in any other dialects. Quảng Nam and Hà Tĩnh dialects belong to two different major groups, and are geographically separated by three intervening provinces. Could the shared features between Quảng Nam, a southern dialect, and Hà Tĩnh, a dialect of north-central Vietnam, be a coincidence?

To tackle this question, the paper first discusses external evidence for the influence of Hà Tĩnh dialects on the Quảng Nam rimes through dialect contact, and also compares Quảng Nam and Hà Tĩnh dialects with that of Thanh Hoá, a “transitional” dialect between northern and north-central groups. Thanh Hoá province sits on the boundary of north and north-central regions on the map, and is separated from Quảng Nam by five provinces. However, the two dialects share many linguistic features, which are not reported in other dialects of the north-central group. The paper argues that the Quảng Nam dialect was shaped by historical migration, and was based on the dialect of Thanh Hoá migrants who moved to the territory of Quảng Nam, mainly during the 16th to 18th centuries. The new dialect that was established also integrated features from the dialects of other migrants, such as those from Hà Tĩnh.

The paper is structured as follows. Section two presents a classification of major dialects of Vietnamese and some historical background of the Quảng Nam territory. Section three discusses the Kẽ Chay dialect both in terms of its relationship to other north-central varieties and with respect to the features it uniquely shares with Quảng Nam, a southern dialect. These similarities are claimed to be due to migration. Section four then discusses similarities between the Quảng Nam and Thanh Hoá dialects: it is argued that the Quảng Nam dialect was originally based on that of Thanh Hoá, and then integrated features from Hà Tĩnh varieties. Alternative hypotheses are also discussed. Section five concludes the paper.

2. Geographical and historical context

This section provides some external background on the establishment of the Quảng Nam region, and on the migration by early settlers from the north-central region to Quảng Nam.

2.1 Dialectal classification

First, a note on classification. Researchers do not always agree on where to draw the isoglosses for major Vietnamese dialectal groups. The two most common phonological criteria used to classify dialects are the tonal system and the final consonant inventory. If similarities in the tonal system are considered alone, it could be said that northern and southern dialects form one group and dialects spoken in the central region form another. On the other hand, if the lack of alveolar-velar contrast in the coda is used as the sole criterion, then there is a North-South watershed, bordering on the line between Quảng Trị and Thừa Thiên provinces. Within each major group, minor subgroups are also distinguished. In general, researchers agree that there are three major dialect groups, which coincide with geographical regions: (i) northern dialects; (ii), dialects of north-central region from Nghệ An to Thừa Thiên, and (iii) southern dialects running from Quảng Nam province to the southernmost province. This general classification takes into account both the tonal system and the consonants permitted in the coda; see, for example Hoàng T. C. (1989). The north-central group is considered the most conservative group because its dialects retain many archaic features of the Viet-Muong Common period, including sounds and grammatical vocabulary, and also because these varieties display a larger number of phonological contrasts in this set, compared to their northern or southern counterparts; see Alves (2002), Hoàng T. C. (1995, 2004), Võ X. Q. (1993). This archaic nature of dialects in the north-central area means that they offer crucial data for understanding the history of the Vietnamese language, especially during the period in which Proto-Vietic languages developed into the varieties known as Viet-Muong Common – between the 10th and 14th centuries; Nguyễn, T. C. (1997), Trần T. D. (2005). The Thanh Hoá dialect shares significant phonological and lexical features with both major groups, leading some researchers to group Thanh Hoá dialect with northern dialects, whereas others group it with dialects of the north-central region.

2.2 A brief history of the Quảng Nam territory

Historical records indicate the early settlers in the south came mainly from Thanh Hoá and Nghệ An provinces, driven mostly by war or famine. Before the southern expansion, Nghệ An constituted the southernmost province of Đại Việt (the former name for Vietnam), bordering on Champa Kingdom in the south. The Thanh Hoá and Nghệ An regions were contested between Đại Việt and Champa for centuries. Champa lost three prefectures – in what now Quảng Bình province – to Đại Việt in 1069 (Đại Việt Sử Ký Toàn Thư or *Toàn thư*: 197; Cương Mục: 137). These prefectures had already belonged to Đại Việt since 982. Impoverished “Kinh” (ethnic Viet) farmers from populated areas in the Red river delta moved here to settle with local Kinh who came before them, and with local Cham groups (Lý et al. 2006: 23). In 1306, Champa offered Đại Việt two prefectures, Thuận and Hoá – currently Quảng Trị and Thừa Thiên provinces – as well the northern part of Quảng Nam as a wedding gift for a Đại Việt princess (Toàn thư: 340, Cương Mục: 255). Many Chams living in Thuận and Hoá refused to accept the new ruler. The Đại Việt king appointed local mandarins (Chams) to keep peace. Đại Việt did not exercise any real control in the region until the end of the 14th century. In 1402 the current Quảng Nam and Quảng Ngãi provinces were seized by Đại Việt. In the following year, the king (Hồ dynasty) sent rich but landless people from Thanh Hoá and Nghệ An provinces to settle in this newly seized land; Toàn thư (437), Cương Mục (326). Đại Việt and Champa still engaged in many wars, and after each battle the winning side assumed control of the region. In 1471 King Lê Thánh Tông staged a large-scale attack on Champa. After taking back two territories, Đại Chiêm and Cổ Luỹ, Quảng Nam was established as an administrative unit, comprising current Quảng Nam, Quảng Ngãi, and Bình Định provinces. The king appointed Chams who had surrendered to be mandarins there (Toàn thư: 662). This distant southern land became a place of exile for criminals: the more severe the crime, the farther south the prisoner was sent; Toàn thư (674), Phan H. C. (1819: 268).

During the mid 16th century, the Trịnh family in the North suppressed the Lê dynasty and wrested control of the whole country. The Nguyễn family, who were originally from Thanh Hoá, and had previously been an ally of Trịnh clan, became the Trịnh’s enemy. In 1558 to avoid trouble, Nguyễn Hoàng, son of Nguyễn Kim, asked to be sent to serve in the south, after a Trịnh lord had killed his two brothers. The children of key officials of the Nguyễn family and their soldiers accompanied Nguyễn Hoàng, several of whom were from Thanh Hoá province. Many families from Thanh Hoá and Nghệ An also followed Nguyễn Hoàng (Toàn thư: 845). This constituted the first big wave of southward migration. Nguyễn Hoàng started to build the Inner State in the southern region, in opposition to the Outer State, which was controlled by the Trịnh in the north. In the second half of the 16th century there

was severe famine in many northern areas, which resulted in the death of half of the population of Nghệ An. As a result, many Nghệ An residents fled either to south or to the northeast (Toàn thu: 881, 896, 899); along with immigrants from Thanh Hoá and Nghệ An provinces, this produced the second great wave of migration (Li 1998). In addition to official historical records, the genealogies of many families in Quảng Nam province contain claims that their ancestors came from Thanh Hoá or Nghệ An; see Nguyễn C. T. (1988), cited in Li (1998).

In the mid 17th century, the military and administrative base for the Inner State was sited in Kê Chiêm, in the Điện Bàn district of what is now Quảng Nam. European missionaries built a church in Kê Chiêm and adopted the language, in order to spread the gospel: it was in Kê Chiêm that the Vietnamese National Script (*Quốc Ngữ*) was created. Because many new migrants arrived from Thanh Hoá around that time, Kê Chiêm was renamed Thanh Chiêm, i.e. from Thanh Hóa and Kê Chiêm or Chiêm động (Đình T. T. & Đình B. T. 2011: 12).

The fact that Hà Tĩnh and Quảng Nam dialects share features which are not otherwise observed within their respective groups poses an interesting puzzle. Migration appears to be the most reasonable explanation: the ancestors of most Quảng Nam people came from Thanh Hoá and Nghệ An, bringing their dialects with them. In section four, I return to the discussion of historical migration to the new, southern lands, in more detail. We can now turn to a discussion of internal linguistic properties of these varieties.

3. The Kê Chay dialect, and its links to Quảng Nam

The central focus of this section is on the Kê Chay dialect of Hà Tĩnh province (north-central Vietnam). In particular, our concern is with those features of the Kê Chay dialect that are not seen in other north-central dialects, but which are similar to those found in Quảng Nam, a southern dialect. For this reason, the section begins with a brief introduction to the Quảng Nam rime, concentrating on features that are most relevant to issues to be discussed later.

3.1 The Quảng Nam dialect

3.1.1 Segmental phonology

The Quảng Nam vowel system is summarized in Table 1 below. For direct comparison, Tables 2 and 3 summarize the vowel systems of Kê Chay – both open and closed syllables – and the Hanoi (northern) dialect, respectively.

Table 1. The Quảng Nam vowel system

	Front		Central		Back	
					Unrounded	Rounded
High	i	ĩ	i	ĩ		u
Mid		e	ɣ	ɣ̃		o
Low	ɛ	ẽ	a	ã	ɑ	ɔ

Table 2. The Kê Chay vowel system

	CV			CVC		
	Front	Central	Back	Front	Central	Back
High	i	i	u	i ĩ	i ĩ̃	u ü
Mid	e (ɛ)	ɣ	o (ɔ)	e (ɛ)	ɣ ɣ̃	o (ɔ)
Low			ɑ		a	ɑ

Table 3. The Hanoi vowel system

	Front	Central	Back
			Rounded
High	i	i	u
Mid	e	ɣ ɣ̃	o
Low	ɛ	a ă	ɔ
Diphthongs	iə	iə	uə

In contrast to northern dialects, the Quảng Nam dialect lacks three phonemic diphthongs [iə], [iə̃], and [uə̃], instead, three high vowels are contrasted in length. Most notably, Quảng Nam has an “extra vowel”: the low, back, unrounded [ɑ] not found in any major dialects (Phạm 1997, 2014). In the literature this vowel has been described with various IPA symbols, and it is often unclear if the symbol is phonetic or phonemic. The descriptions are based on auditory impressions. The vowel’s distribution appears to be random. For example, the vowel is transcribed as [ᶑa] in open syllables but as [o] before labial consonants – see for example, Shimizu (2013), Tohyama (2015); alternatively, it has been treated as a low, back, rounded [ɔ] – see Lý et al. (2006). These studies provide no minimal pairs. Nguyễn Q. H. (2004), Vương H. L. (1998), and Trần T. T. (2003) all transcribe the vowel as a low, back, unrounded [ɑ], without further discussion. On the other hand, Phạm A. H. (1997, 2014, 2016, in press) describes the vowel as a low, back, unrounded /a/ and provides phonetic and phonemic evidence for the claim. Pham A. H. (in press) treats the rounding feature of the vowel as a secondary articulation. Phonetic

diphthongization is common in most vowels in southern dialects including Quảng Nam, but is not observed in other major dialect groups.

In the Quảng Nam dialect, the distinction between [ɛ] and [e], and/or between [ɔ] and [o], is not always clear. In open syllables and before labials, [ɛ] and [ɔ] tend to raise. Lý et al. (2006: 181) treat [e] and [o] as variants of /ɛ/ and /ɔ/ or /u/, respectively. However, these latter vowels are contrastive before velar consonants.

Even ignoring the existence of /a/, other peculiarities in its rime system cause Quảng Nam dialect to stand out from other southern varieties (e.g., Cao X. H., 1986; Hoàng T. C. 1989; Phạm A. H. 1997, 2014; Shimizu 2013; Tohyama 2015; Trần T. T. 2003; Vương H. L. 1998; Vương & Hoàng 1994). Table 4 lists sixteen correspondences between Quảng Nam and northern dialects, as represented by the Hanoi dialect (Pham A. H. 2013).⁴ Examples for vowel shifts that are most relevant in this paper are provided in this table. The vowel /a/ occurs in all syllable types. The examples in rows (1a), (1f), (1i), and (1j) show minimal pairs for /a/, /a/, /ɔ/ and /o/. Short /ä/ is lengthened before labials as in (1d), or fronted before velars, as in (1e). Hanoi rime [aw] systematically corresponds to Quảng Nam [o], as in (1i). Hanoi [äj] and [ăw] correspond to the Quảng Nam single vowel [a]; cf. (1f), (1h).

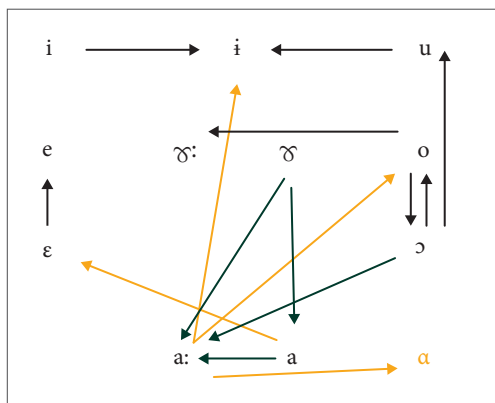


Figure 2. Vowel shifts in the Quảng Nam rime

4. Similar shifts have been reported in Trương V. S. (1993) for the Quảng Ngãi dialect.

Table 4. Set (1): Correspondences between Quảng Nam and Hanoi vowels

(1)	Orthographic representation	Hanoi	Quảng Nam	Gloss
a.	<i>ca</i>	ka	ka	‘mug’
b.	<i>cam</i>	kam	kam	‘orange’
c.	<i>can</i>	kan	kaŋ	‘to interfere’
d.	<i>tắm</i>	tăm	tam	‘to take a shower’
e.	<i>nắng</i>	năŋ	neŋ	‘sunshine’
f.	<i>cay</i>	kăj	ka	‘spicy’
g.	<i>tai</i>	taj	tiə	‘ear’
h.	<i>máu</i>	măw	ma	‘blood’
i.	<i>cao</i>	kaw	ko	‘tall’
j.	<i>co</i>	kɔ	kɔ	‘to shrink’
k.	<i>xóm</i>	sɔm	som	‘hamlet’
l.	<i>con</i>	kɔn	kɔŋ	‘offspring’
m.	<i>đẹp</i>	đɛp	đɛp	‘beautiful’
n.	<i>nghèo</i>	ŋɛw	ŋɛw	‘poor’
o.	<i>lều</i>	lew	lew	‘hut’
p.	<i>le</i>	lɛ	le/lɛ	‘to stick tongue out’
q.	<i>đen</i>	đɛn	đɛŋ	‘black’
r.	<i>lên</i>	len	leŋ	‘order’

Raising, backing, fronting of a vowel, diphthongization of a single vowel, and/or final glide deletion are all commonly observed in sound change, even in other southern dialects of Vietnamese. However, it is rare to find a variety with such an abundance of peculiarities as are exhibited by the Quảng Nam dialect, not only when compared to other dialects of Vietnamese, but also in comparison to other languages spoken in Southeast Asia; see Haudricourt (1953), quoted in Cao X. H. (1986).

3.1.2 *Quảng Nam tones*

Regarding tones, in syllables ending with a sonorant (zero coda, final glides or nasal consonants), northern Vietnamese dialects have six tones, grouped into high and low registers. The high register includes level tone 1 (ngang), rising tone 3 (sắc), and fall-rise tone 5 (hỏi). Low register tones comprise level tone 2 (huyền), falling tone 4 (nặng), and fall-rise tone 6 (ngã). Glottalization or creaky phonation is distinctive in tones 4 and 6. In checked syllables (ending with a stop consonant), rising tone 7 (sắc2) belongs to the high register and falling tone 8 (nặng2) to the low register. In Quảng Nam and other southern dialects, there are only five distinctive tones, tone 6 having been merged with tone 5; Hoàng T. C. (2004), Lý et al. (2006). Figure 3 below shows a sample of Quảng Nam tones from a male speaker in the

rural district of Tiên Phước. As in the case of northern dialects, Quảng Nam tones clearly spread out in the higher and lower parts of the tonal space. The highest and lowest fundamental frequencies fall within a range of 100 Hz.

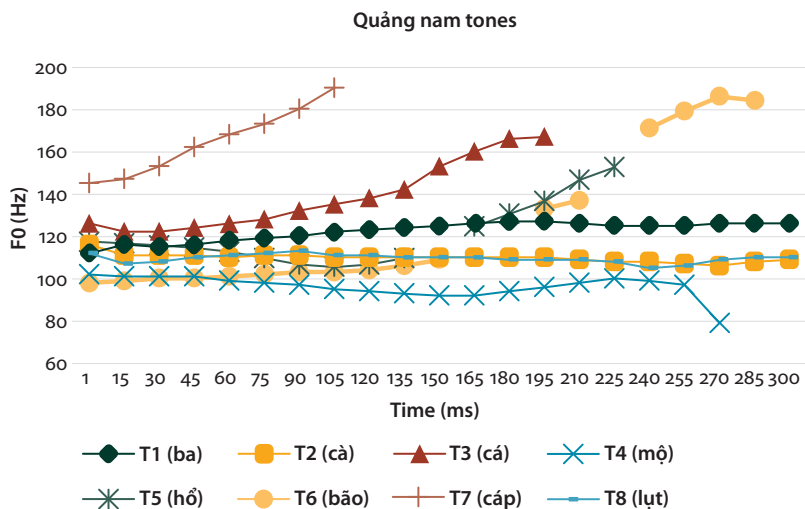


Figure 3. Quảng Nam tones corresponding to eight Hanoi tones, from a male speaker

In the next subsection we offer a detailed description of the sound system of Kê Chay dialect. It is shown that while Kê Chay is generally typical of north-central Vietnamese varieties, it contains some features not seen in other dialects of the same region, but which are found in the Quảng Nam dialect.

3.2 Kê Chay, a subdialect of northern central Vietnam

The Kê Chay dialect is spoken in the Kê Chay village of Đức An commune, formerly named Long Mã, in the Đức Thọ rural district. The Đức Thọ district borders with the Nghệ An province in the north, and Quảng Bình province in the south. Đức Thọ was a district of Nghệ An province until 1991, when it split and became a district of Hà Tĩnh. The Kê Chay village comprises four hamlets: Long Thành, Hữu Chế, Long Hoà, and Long Sơn. The consultant for this study comes from the Hữu Chế hamlet, which numbers about 150 households.

3.2.1 Elicitation methodology

Before analyzing the data, it is useful to briefly discuss the manner of their elicitation. The data were collected in Kê Chay village in 2016, from one speaker only – Mr.

Đào – who was 80 years old at the time of recording.⁵ For logistical reasons, the author was unable to stay longer to record more consultants. Although he was the only participant, Mr. Đào appears to be quite consistent in his speech. Features idiosyncratic in Mr. Đào’s speech, compared to other dialects in the region, are not random, even for a sound that appears unstable (the low, back, unrounded [ɑ]). For example, the backing of /a/ and the emergence of a new vowel, [ɑ], in Mr. Đào’s speech are also found in Hến, another subdialect of the same rural district with the Kê Chay dialect. The Hến data were collected from three local speakers (Pham, A. H. 2016). Other special characteristics in Kê Chay rimes, different from other dialects in its group, are also reported in Quảng Nam dialect, as will be seen below. Notwithstanding the drawback of working with a limited source, until recordings from a larger sample are available to validate the data presented here, Mr. Đào’s speech will be referred to as “Kê Chay dialect” in this paper.

The word list used for phonetic elicitation includes 194 actual words which together contain all possible combinations of sounds in the Vietnamese rime, as represented in the orthography.⁶ Two tokens of each word were recorded, randomly assigned to two lists presented in different orders. Each word was represented by a picture. The consultant was asked to name the pictures in his dialect using the framed sentence: *Đây là.....* (This is). Where it was suspected that a word was pronounced in the “popular dialect”, the consultant was asked to repeat the word. However, such incidents were uncommon. The analysis also included some words extracted from conversations with the consultant only when the meaning of the words was understood correctly, and the pronunciation was clear.

The results are presented below. The syllable structure of Kê Chay is similar to that of northern Vietnamese dialects: C(w)V(C/G). Each syllable obligatorily contains an onset, a nucleus and a tone. The pre-vocalic [w] can optionally occur between the initial consonant and the vowel. The coda may be occupied either by a consonant or a glide. There are no consonant clusters in either the onset or coda, with the exception of [tɫ-] in a few words.

5. It was not easy to convince local speakers to use their own dialect when speaking with an outsider. Kê Chay speakers use the dialect among family members and neighbors. To speakers of other dialects, they switch to the “popular” dialect, a regional standard variety spoken in Hà Tĩnh city. Mr. Đào’s son met the author by chance in town, took the author to the Kê Chay village to introduce to his father for the interview and recording. The son confirmed that several people in the village speak the same dialect. Conversations overheard between this young man and his friends gave the impression that the dialect they speak is different from the “popular” one.

6. A complete list of all words used for elicitation, together with additional information regarding tone samples, is available from the author upon request.

3.2.2 Consonants

3.2.2.1 Initial consonants

The initial consonants of Kê Chay are summarized in Table 5, with relevant examples listed below in Table 6/Set (2). The initial cluster [tl-] occurs in a small number of words. For typographic convenience, the two implosive stops [ɓ] and [ɗ] are transcribed as [b] and [d], respectively; the retroflex [ʐ] is transcribed as [r].

Table 5. Kê Chay initial consonants

	Labio-dental	Alveolo-dental	Retroflex	Post-alveolo-palatal	Velar	Glottal
Aspirated stop		t ^h				
Stop	ɓ	t ɗ	ʈ	c	k	ʔ
Fricative	f v	s	ʂ ʐ		x ɣ	h
Nasal	m	n		ɲ	ŋ	
Lateral		l				
Approximant		j				

Table 6. Examples of Kê Chay initial consonants

(2)	Orthography	IPA	Example	Gloss
	<i>b</i>	ɓ	<i>bàn</i>	table
	<i>ph</i>	f	<i>Phật</i>	buddha
	<i>v</i>	v	<i>vịt</i>	duck
	<i>m</i>	m	<i>máu</i>	blood
	<i>th</i>	t ^h	<i>tháp</i>	tower
	<i>t</i>	t	<i>tay</i>	hand
	<i>đ</i>	ɗ	<i>đi</i>	to go
	<i>d, gi</i>	j	<i>dưa</i>	watermelon
	<i>x</i>	s	<i>xanh</i>	blue
	<i>n</i>	n	<i>năm</i>	five
	<i>l</i>	l	<i>lược</i>	comb
	<i>tr</i>	ʈ	<i>trâu</i>	water buffalo
	<i>s</i>	ʂ	<i>sả</i>	lemongrass
	<i>r</i>	ʐ	<i>rồng</i>	dragon
	<i>ch</i>	c	<i>chín</i>	nine
	<i>nh</i>	ɲ	<i>nho</i>	grape
	<i>c, k</i>	k	<i>cá</i>	fish
	<i>kh</i>	x	<i>khỉ</i>	monkey
	<i>g, gh</i>	ɣ	<i>ghế</i>	chair
	<i>ng</i>	ŋ	<i>ngọt</i>	sweet
	<i>h</i>	h	<i>hấp</i>	to steam
		ʔ	<i>ăn</i>	to eat
	<i>tr</i>	tl	<i>trong</i>	inside/clear

There are two main distinguishing features of initial consonants in the Kê Chay. First, in contrast to the Quảng Nam dialect, but in common with many dialects in north-central Vietnam, the initial cluster [tɫ-], a remnant of Middle Vietnamese, has been retained in a number of words in Kê Chay dialect. The [tɫ-] sequence typically corresponds to modern Hanoi [tɛ] and Quảng Nam [t], as for example in *trăm* [tɫam], *trong* ‘inside/clear’ [tɫɔŋ], *trắng* ‘white’ [tɫaŋ], *trăng* ‘moon’ [tɫaŋ], *trăn* ‘python’ [tɫan], *trái* [tɫɿj] ‘fruit’, *trầu* ‘betel leaf’ [tɫaw]. In certain other cases, however, Kê Chay [tɫ-] corresponds to modern Hanoi [l]; these include *lá* ‘leaf’ [tɫɔ] and *luá* ‘rice’ [tɫɔ].

Second, Kê Chay has also preserved non-spirantized medial consonants, which have been lost in most other Vietic varieties. Historically, most other varieties have been subject to “the spirantization of medial stop consonants”, whereby initial medial stops in sesquisyllables were spirantized to “weak fricatives”, then later stabilized to fricatives; see Ferlus (1975, 1982), Maspéro (1912), Shimizu (2011). For example, Muong [p] as in [paaʔ] and Thavung [kp] as in [kpaas] correspond to Vietnamese [v], e.g., *vải* [vaj] ‘fabric’, while Muong [kaaw] and Thavung [ako] correspond to Vietnamese *gạo* [ɣaw] ‘rice’.

Preservation of non-spirantized consonants has been described for other dialects of north-central Vietnam – such as Phong Nha dialect of Quảng Bình province (Michaud, Ferlus & Nguyễn (2015) – as well as in other dialects of Quảng Bình, e.g., Hanoi *gối* [ɣoj] ~ Quảng Bình [kuj] ‘knee’, Hanoi *vỗ* [vo] ~ Quảng Bình [fo] ‘to clap’ (Võ X. T. 1997). The data in Table 7/Set (3) show that Kê Chay dialect also

Table 7. Preservation of non-spirantized consonants in Kê Chay

(3)	Orthography	Hanoi	Quảng Nam	Kê Chay	Gloss
a. z/t ~ ʔ/t	<i>ruộng</i>	zuəŋ	ruŋ	ʔuəŋ	rice field
	<i>rắn</i>	zăn	reŋ	tăn	snake
b. s/ʃ ~ ʔ	<i>sừng</i>	siŋ	ʃiŋ	ʔiŋ	horn
	<i>số</i>	so	ʃo	ʔo	number
	<i>sâu</i>	sɿw	ʃaw	ʔɿw	worm
	<i>sắn</i>	săn	ʃeŋ	ʔran	yucca
c. z/ʃ ~ t	<i>đế</i>	ze	je	te	cricket
d. ɣ ~ k	<i>gái</i>	ɣaj	ɣiə	kɿj	girl
	<i>gốc</i>	ɣok	ɣok	kök̚p̚	root
	<i>gánh</i>	ɣăŋ	ɣăn	kaŋ	bamboo stick
e. v ~ b	<i>vào</i>	vaw	jo	bo	to enter
f. z/ʃ ~ s	<i>giếng</i>	ziəŋ	jiŋ	siŋ	a well
	<i>giống</i>	zöŋ	jöŋ	söŋ̃m	alike
	<i>gia (phả)</i>	za	ja	sa	genealogy
	<i>giữ</i>	zi	ji	si	to keep

preserves non-spirantized consonants, which correspond to fricative or liquid consonants in other Vietnamese dialects: compare, for example, rows (3a)–(3e). The examples in row (3f) show how Proto Vietic [s], which is preserved in Kê Chay, corresponds to a voiced fricative consonant in other dialects. It should be noted that these correspondences are not systematic, that is to say, not all words with [s] or [ʃ] in modern Vietnamese dialects correspond to [t] in Kê Chay.

3.2.2.2 *Final consonants*

The phonemic final consonants and glides in Kê Chay dialect are provided in Table 8. As in northern dialects, palatal consonants [c] and [ɲ] occur as allophones of velar consonants after short, front vowels /i/ and /ë/. Labio-velar consonants [kʷ] and [ŋʷm] occur as allophones of velar consonants after short, rounded, back vowels.

Table 8. Phonemic final consonants and glides in Kê Chay (by place and manner)

	Labial	Alveolo-dental	Velar
Stop	p	t	k
Nasal	m	n	ŋ
Glide	w	j	

3.2.3 *Kê Chay vowels*

This subsection presents a description of the Kê Chay vowel system. Details of the vowel system of Hanoi, the standard variety of the northern group, are provided for comparison. Vowels are presented in open and closed syllables to emphasize special characteristics of Kê Chay rimes, especially where /a/ and /a/ are involved.

3.2.3.1 *Open syllables*

The following vowels occur in open syllables in the Kê Chay dialect: [i], [e], [ɛ], [ī], [ɤ], [u], [o], [ɔ]. Examples in Table 9 [set (4)] show corresponding vowels between the Hanoi, Quảng Nam and Kê Chay dialects. Like in Quảng Nam dialect, the height contrast between [ɛ] and [e], and between [ɔ] and [o] is not always maintained. The vowel [e] is often diphthongized with an off-glide (closing glide), e.g., *ghế* [ɣeʲ] ‘chair’, *dê* [teʲ] ‘goat’. The vowel [ɛ] raises, as in *mẹ* [me] ‘mother’, *beo* ‘jaguar/tiger’ [bew], *sét* ‘lightening’ [set], or is strongly diphthongized with an on-glide (opening glide), as in *me* [m^hɛ] ‘tamarind’, *xe* [s^hɛ] ‘vehicle’. Similarly, [ɔ] can sometimes raise to [u] or [o], as in (4h, j), and/or be diphthongized as in (4h, i). The most unusual feature in the Kê Chay dialect is the absence of the low, central vowel /a/, in open syllables. In its place, there is a new vowel [a], corresponding to /a/ in other dialects, and is similar to the Quảng Nam [a]. The absence of /a/ and emergence of [a] in Kê Chay are also found in the Hén dialect. This vowel [a] is

Table 9. Simple vowels in open syllables

(4)	Orthography	Hanoi	Quảng Nam	Kẻ Chay	Gloss
a.	<i>khi</i>	xi	xi	xi	monkey
b.	<i>ghế</i>	ye	ye	ye ^j	chair
c.	<i>me</i>	mɛ	mɛ	me, m ^l ɛ	tamarin
d.	<i>sư</i>	si	ʃi	ʃi	monk
e.	<i>mỡ</i>	mɤ	mɤ	mɤ	fat
f.	<i>cú</i>	ku	ku	ku	owl
g.	<i>tô</i>	to	to	to	bowl
h.	<i>đỏ</i>	ɔ	ɔ	du, d ^w o	red
i.	<i>nhỏ</i>	ɲɔ	ɲɔ	ɲ ^w o	small
j.	<i>nỏ</i>	nɔ	nɔ	no	crossbow
k.	<i>gà</i>	ɣa	ɣa	ɣɔ	chicken
l.	<i>sả</i>	sa	ʃa	ʃɔ	lemongrass
m.	<i>lá</i>	la	la	tlɔ	leaf
n.	<i>cá</i>	ka	ka, k ^w a	kɔ	fish
o.	<i>đá</i>	da	da, d ^w a	dɔ	rock
p.	<i>mạ</i>	ma	ma, m ^w a	m ^w a	rice seedlings
q.	<i>ba</i>	ba	ba b ^w a	b ^w a	three
r.	<i>ra</i>	za	ra, r ^w a	r ^w a	out
s.	<i>hoả</i>	hwa	wa	h ^w a	fire-truck

not found in any dialects of Vietnamese other than the Quảng Nam dialect of the southern group.

3.2.3.2 Closed syllables

The examples listed in Table 10/Set (5) illustrate the distinguishing characteristics of certain rimes in Kẻ Chay, as compared with those in the Quảng Nam and Hanoi dialects.

Table 10. A comparison of Kẻ Chay rimes with those of other varieties (closed syllables)

(5)	Vietnamese orthography	Hanoi	Quảng Nam	Kẻ Chay	Gloss
a.	<i>chín</i>	cin	cij	cín	nine
b.	<i>kiến</i>	kiən	kin	kin	ant
c.	<i>sừng</i>	siŋ	ʃiŋ	ʃiŋ	horn
d.	<i>xương</i>	siəŋ	siŋ	siŋ	bone
e.	<i>cúc</i>	kũk̚p̚	kũk̚p̚	kũk̚p̚	daisy
f.	<i>cuốc</i>	kuək	kuk	kuk	hoe
g.	<i>tết</i>	tet	tec	tet	New Year
h.	<i>sâu</i>	sɤw	ʃaw	ʃɤw	worm
i.	<i>mực</i>	mĩk	mĩk	mɤk	ink, squid

(continued)

Table 10. (continued)

(5)	Vietnamese orthography	Hanoi	Quảng Nam	Kẻ Chay	Gloss
j.	<i>ếch</i>	ʔec	ʔet	ʔɛt	frog
k.	<i>ớt</i>	ʔɛt	ʔɛk	ʔɛt	pepper
l.	<i>(ốc) bươu</i>	biw	biw	bɔw	snail
m.	<i>cơm</i>	kɔm	kɔm	kɔm	cooked rice
n.	<i>nhẫn</i>	ɲɛ̃n	ɲẵn	ɲɛ̃n	ring
o.	<i>Phật</i>	fɛ̃t	fẵk	fɛ̃t	Buddha
p.	<i>năm</i>	nẵm	nam	nam	five
q.	<i>trăn</i>	tẽn	ʔɛ̃n	ʔan	python
r.	<i>tay</i>	tẵj	ta	taj	hand
s.	<i>rồng</i>	rõ̃ŋm	rõ̃ŋm	rõ̃ŋm	dragon
t.	<i>(dân) tộc</i>	tõ̃kɔp	tõ̃kɔp	tõ̃kɔp	nation
u.	<i>lọng</i>	lõ̃ŋm	lan	lõ̃ŋm	field
v.	<i>họp</i>	hɔp	hop	hop	meeting
x.	<i>trong</i>	tẽõ̃ŋm	ʔan	tlon	inside

The distinguishing properties of the Kẻ Chay rimes vis-à-vis their Hanoi counterparts are as follows:

- As in the Quảng Nam dialect, Kẻ Chay lacks phonemic diphthongs: Hanoi diphthongs [iə], [iə̃], and [uə] correspond to Kẻ Chay monophthongs [i], [ĩ], and [u]; see Table 10 rows (5b), (5d) and (5f), respectively. Additional examples include Hanoi *chuyển* [tɕwɛ̃n] ‘necklace’, *miến* [miə̃n] ‘vermicelli’, *mười* [miə̃j] ‘ten’, *chuồn* [tɕuə̃n] ‘dragon fly’, and *chuột* [tɕuət] ‘mouse’ corresponding to Kẻ Chay [cin], [min], [mij], [cun] and [cut], respectively. These systematic correspondences create a length contrast for the three high vowels: [ĩ] and [i], rows (5a), (5b); [ĩ̃] and [ĩ], rows (5c), (5d); and [ũ̃] and [u], rows (5e), (5f). (In a small number of words, Kẻ Chay maintains Proto-Vietic single vowels that had evolved to diphthongs in Middle Vietnamese: for example, Kẻ Chay [rɔt] ‘intestine’, [rɔŋ] ‘rice field’, [mɔj] ‘mosquitoes’, and [rɔj] ‘flies’, corresponding to Hanoi *ruột* [zuət], *ruộng* [zuə̃n], *muỗi* [muə̃j], and *ruổi* [zuə̃j], respectively. These latter correspondences are unsystematic, however, and are also found in other dialects of north-central Vietnam, for example, in Quảng Bình and Hà Tĩnh dialects; see Michaud et al. (2015), Võ X. T. (1997).);⁷

7. Some correspondences are products of historical changes, e.g., the Hanoi rime [ɕw] as in *trâu* [tɕw] ‘water buffalo’ and *bầu* [bɕw] ‘long squash’, corresponds to Kẻ Chay [u], [tɕu] and [bu], respectively. These correspondences are traces of diphthongization in Middle Vietnamese, where a single vowel changed to a closing diphthong (e.g., [u] to [ɕw]). Kẻ Chay preserves the single vowel, [u]. These correspondences are common to dialects of north-central Vietnam but not systematic, and are not seen in southern dialects.

2. (conversely to 1), single vowels tend to be diphthongized in Kê Chay dialect. In some words, this diphthongization can be quite marked, and accompanied by vowel raising: [ɛ] and [ɔ], for example, raise to [e] and [o], as in *sen* [ʃ^wen] ‘lotus’, or *rót* [r^wot] ‘to pour liquid’. Further examples are provided in Table 11/Set (6). Hanoi [ɔj] is consistently pronounced as [ʷoj] in Kê Chay. The secondary element can be produced stronger and longer than the vowel, it sounds like the back diphthong [uə]. The tendency toward diphthongization in Quảng Nam and Kê Chay dialects may originate in the Thanh Hoá dialect, something that will be discussed in Section 4.

Table 11. Diphthongization of single vowels in Kê Chay

(6)	Vietnamese orthography	Hanoi	Quảng Nam	Kê Chay	Gloss
a.	<i>ngọt</i>	ŋɔt	ŋok	ŋ ^w ot	sweet
b.	<i>ong</i>	ʔɔŋm	ʔaŋ	ʔ ^w oŋ	bee
c.	<i>nón</i>	nɔn	nɔŋ	n ^w on	conical hat
d.	<i>sói</i>	sɔj	ʃuə	ʃ ^w oj	wolf
e.	<i>tỏi</i>	tɔj	tuə	t ^w oj	garlic
f.	<i>đói</i>	dɔj	duə	d ^w oj	elephant

3. The Hanoi rime [ĩk] is lowered to [ɤk], while Hanoi [ec] is backed to [ɤt] in Kê Chay: Table 11, Set 5, (5i), (5j) above. These correspondences create a length contrast for [ɤ] in Kê Chay: short [ɤ] as in *mút* [mɤt] ‘jam’ or *ếch* [ɤt] ‘frog’, long [ɤ] as in *cơm* [kɤm] ‘cooked rice’ or *ớt* [ʔɤt] ‘pepper’.
4. Rimes such as [ɤw], [ɤŋ], [ɤk], which constitute accidental gaps in northern dialects, occur in the Kê Chay dialect, as in (*ốc*) *bừu* [bɤw] ‘snail’, *ruợu* [rɤw] ‘wine’, corresponding to Hanoi [biw] and [ziw], respectively; *giường* [jɤŋ] or [cɤŋ] ‘bed’ corresponding to Hanoi [ziəŋ]; *tờng* (*ong*) [tɤŋ] ‘(bee) nest’ corresponding to Hanoi [tɤŋ] (*tăng*).
5. As in the Quảng Nam dialect, Hanoi short [ă] corresponds to Kê Chay long [a]: see rows (5p)–(5r).
6. In some Kê Chay words, [o] is lowered to [ɔ], as in (5t), however, [ɔ] can also raise to [o], as in (5u)–(5x). Neutralization between [e] and [ɛ], and between [o] and [ɔ] in closed syllables is common in southern dialects including Quảng Nam.
7. In some Kê Chay words, the short, back vowel [ɔ] is lengthened before velar consonants. As a result, the velar consonant in these words is not labialized as it would be after short, rounded vowels, e.g., Hanoi *trong* [tɤɔŋm] ‘inside’ in (5x) corresponds to Kê Chay [tloŋ], with a long vowel followed by a plain velar. Other examples include Hanoi *ngỗng* [ŋɔŋm] ‘goose’, *sông* [sɔŋm] ‘river’ corresponding to Kê Chay [ŋoŋ], [tɔk]. This pronunciation is also common in other dialects of north-central Vietnam.

8. The Hanoi vowel [a] corresponds to a low, back vowel in the Kẻ Chay dialect, varying between the unrounded [a] (before a velar consonant) and rounded [ɔ] (in open syllables or mostly before a labial consonant), or diphthongization as [w̥a]. In the Hến dialect, this vowel is phonetically more stable, and is also found before /w/, as expected: for example, Hanoi *bão* [baw] ‘storm’, and *đào* [daw] ‘cherry’ corresponds to Hến [ɔaw] and [daw], respectively; see Pham, A. H., 2016: 20). Both in Kẻ Chay and in Quảng Nam dialects, Hanoi [aw] corresponds to [ɔ], [a^w], [o], or [o^w], where the off-glide [w] is very soft and short, as in Table 12/Set 7: rows (7l), (7m). Other examples include *pháo* [fo] ‘firecracker’, or *sao* [sɔ] ‘star’.⁸ In any case, in the Kẻ Chay dialect, [o] and [ɔ] are non-contrastive.

Table 12. Correspondents of Hanoi [a] in Quảng Nam and Kẻ Chay varieties

(7)	Orthography	Hanoi	Quảng Nam	Kẻ Chay	Gloss
a.	<i>làm</i>	lam	lam	lam, lɔm	to do
b.	<i>lan</i>	lan	lan	lwan	orchid
c.	<i>bác</i>	bak	bak	bak	uncle
d.	<i>cáp</i>	kap	kap	kɔp	cable
e.	<i>tháp</i>	tʰap	tʰap	tʰap, tʰɔp	tower
f.	<i>tám</i>	tam	tam, tom	tam, tɔm	Eight
g.	<i>khác</i>	xak	xak	xak	different
h.	<i>rang</i>	zan	ran	ran	to fry
i.	<i>tai</i>	taj	tiə	taj, tɔj	ear
j.	<i>hai</i>	haj	hiə	haj, hɔj	two
k.	<i>mai</i>	maj	miə	maj, mɔj	apricot blossom
l.	<i>áo</i>	ʔaw	ʔv ^w , ʔo	ʔv ^w , ʔo	shirt
m.	<i>cháo</i>	ɬaw	cɔ ^w , co	cɔ ^w , co	porridge

In the Kẻ Chay dialect, this vowel resembles the Quảng Nam /a/ in varying between the unrounded [a], rounded [ɔ], or the strongly labialized alternant [w̥a]. This vowel systematically corresponds to Hanoi /a/ in the Hến dialect, but not in Kẻ Chay and Quảng Nam dialects when the syllable ends in a glide. Before /w/ in Kẻ Chay and Quảng Nam, the vowel is rounded and the final glide is dropped or is pronounced very soft and short, as in Table 12 (7l), (7m). Before /j/ Quảng Nam rime changes to [iə], as in (7i)–(7k).

8. Considered from a diachronic point of view, the Kẻ Chay [o], corresponding to Hanoi [aw], could be a preservation of an old rime (Nguyễn T. C. 1997). Synchronically, Kẻ Chay [o] in this correspondence might be another example of monophthongization (similar to Hanoi [ziə] ‘conut’ corresponding to Kẻ Chay [ji]).

Given that Hanoi [a] corresponds to Kê Chay [a] or [ɔ] in open and closed syllables, it might be wondered whether [a] occurs at all in Kê Chay rimes. The examples in Table 13/Set (8) below show that in closed syllables, [a] does occur, but only as a long vowel, corresponding to Hanoi short [ǎ]. Where the final consonant is a labial, Quảng Nam and Kê Chay rimes are similar; compare rows (8d) and (8e):

Table 13. Distribution of [a] in Kê Chay rimes

(8)	Vietnamese orthography	Hanoi	Quảng Nam	Kê Chay	Gloss
a.	<i>sǎn</i>	sǎn	ʃɛŋ	tan	yucca
b.	<i>rǎn</i>	zǎn	rɛŋ	tan	snake
c.	<i>mǎng</i>	mǎŋ	mɛŋ	maŋ	bamboo shoots
d.	<i>nǎm</i>	nǎm	nam	nam	five
e.	<i>trǎm</i>	teǎm	ʃam	tlam	a hundred
f.	<i>cau</i>	kǎw	ka	kaw	areca nut
g.	<i>cay</i>	kǎj	ka	kaj	spicy
h.	<i>(xe) gǎn máy</i>	ɣǎn maj	ɣɛŋ ma	ɣan maj	motobike

9. The Hanoi rimes [ǎŋ] and [ǎc] – phonemically /ǎŋ/ and /ǎk/ – correspond to various vowels in Kê Chay. The correspondence as long [a], in words such as those in Table 14/set 9 (9a)–(9d), suggests that Kê Chay inputs Hanoi [ǎŋ] and [ǎc] with their phonetic values (as if the vowel is phonemically short /ǎ/ in Hanoi). However, in other instances, such as in (9e)–(9g), Kê Chay correspondences are [jɛŋ] and [jɛk], as if the Hanoi phonemic vowel were /ǎ/, raised and diphthongized to [jɛ]. Finally, the word *banh* ‘ball’ in (9h) – borrowed from French *balle* – which is treated as long [a] in Hanoi dialect, corresponds to Kê Chay [ʷa].

Table 14. Kê Chay correspondences with Hanoi /ǎk/, /ǎŋ/

(9)	Vietnamese orthography	Hanoi	Quảng Nam	Kê Chay	Gloss
a.	<i>hành</i>	hǎŋ /ǎŋ/	hǎn	haŋ	onion
b.	<i>cánh</i>	kǎŋ /ǎŋ/	kǎn	kaŋ	wing
c.	<i>gạch</i>	ɣǎc /ǎk/	ɣǎt	ɣac	brick
d.	<i>sách</i>	sǎc /ǎk/	ʃát	ʃac	book
e.	<i>xanh</i>	sǎŋ /ǎŋ/	sǎn	siəŋ, sʲɛŋ	blue
f.	<i>xách</i>	sǎc /ǎk/	sǎk	sʲɛk	to lift up
g.	<i>(đòn) gánh</i>	ɣǎŋ /ǎŋ/	ɣǎn	ʃɛŋ	bamboo stick to carry baskets
h.	<i>banh</i>	bǎŋ /ǎŋ/	bǎn	bʷan	ball

3.2.3.3 Vowel chain shifts

The absence of /a/ in open syllables and of a length contrast for /a/ in closed syllables, combined with the lowering and raising of mid vowels, has produced vowel chain shifts in certain environments. These chain shifts may be summarized as follows.

1. In open syllables, the central vowel [a] has moved further back, while the low, back, rounded vowel [ɔ] has raised: a > a/ɔ; ɔ > o.
2. In syllables containing a final glide, short [ǎ] is lengthened, while long [a] moves further back. The final glide /w/ is deleted or becomes a secondary on-glide: ǎj > aj; aj > ɔj/aj; ǎw > aw; aw > o/v^w.
3. In syllables containing a final consonant, short [ǎ] is lengthened; long [a] moves further back: ǎC > aC; aC > oC/vC.

3.2.4 Acoustic-phonetic measures of vocalic segments

The description in the preceding sections is based on qualitative auditory perception, and consideration of the distribution of the segments. In order to determine the roundedness of the Kê Chay low back vowel corresponding to Hanoi /a/ more precisely – specifically, whether it is best analyzed as an unrounded [a], or rounded [ɔ] – measures were taken using Praat (Boersma & Weenink 2006), of syllables containing the three vowels [a/ɔ], [o], and [ɔ] in Kê Chay dialect, all of which show inconsistency, especially for vowel height. The formant values for words containing these three vowels are listed in Tables 15–17, respectively.

Table 15. Kê Chay [a], corresponding to Hanoi long [a]

(11)	Vietnamese orthography	Kê Chay			Gloss
		F1	F2	F3	
a.	<i>cá</i>	744	1054	3365	fish
b.	<i>sá</i>	768	1040	3263	lemongrass
c.	<i>ga</i>	888	1197	3419	train station
d.	<i>lá</i>	667	1330	2887	leaf
e.	<i>đá</i>	599	982	2864	rock
f.	<i>gà</i>	699	983	2915	chicken
g.	<i>cáp</i>	663	1065	2782	cable
h.	<i>tháp</i>	761	1106	3291	tower
i.	<i>tám</i>	748	1099	3282	eight
j.	<i>(xe) đạp</i>	622	1327	2571	bicycle
k.	<i>(khoai) lang</i>	805	1288	3059	sweet potato
l.	<i>bác</i>	633	1147	3030	uncle

It is known that lower F3 is often indicative of lip rounding. In Table 15/Set 11 the syllables having the lowest F3 values are those in rows (11d–g) (11j) and (11l), consistent with the auditory impression. Some informal descriptions use the Vietnamese grapheme *ô* ([o]) for these words, indicating that rounded pronunciation: for example, *gà* ‘chicken’ is taken to be pronounced as *gồ* [ɣo] (Đức Hùng 2016). Before labial consonants, the vowel is more rounded in some words – rows (11g) and (11j), plausibly due to assimilation – than in others, such as (11h), (11i).

The difference in formant values between some words can be quite large. Even with this variability, the distribution of the back vowels [ɑ], [ɔ], [o] and [u] in the vowel space of this one speaker of Kê Chay dialect is broadly similar to that in the Quảng Nam dialect: as shown in Figure 4 below, [ɑ] occurs lowest among back vowels.

When compared to other dialects, the two back rounded vowels, [o] and [ɔ], in Kê Chay seem to have switched in height. Kê Chay dialect has various correspondences for Hanoi [o] and [ɔ]. Table 16 provides the formant values of syllables containing vowels corresponding to Hanoi [ɔ]; those corresponding to Hanoi [o] are listed in Table 17.

Notice that in Table 16, the word *còi* ‘whistle’ pronounced as a rounded [a], has an unusually high F1. Two tokens of *nho* ‘grapes’ are included in this list to show the variability. Similarly, the words in the last three rows of Table 17 – *áo*, *cháo*, *pháo*, corresponding to Hanoi [ɔ] – are included with the other words in the list to show variations of the two vowels [o] and [ɔ] in Kê Chay dialect.⁹

Table 16. Formant values for Kê Chay vowel [o] corresponding to Hanoi [ɔ]

Vietnamese orthography	Kê Chay IPA	Kê Chay		Gloss
		F1	F2	
<i>đỏ</i>	do	418	1183	red
<i>(đuá) đỏ</i>	do	508	789	red melon
<i>to</i>	to	431	884	big
<i>luá – lo</i>	lo	370	870	rice seedlings
<i>(màu) đỏ</i>	do	430	719	red color
<i>nho</i> ¹	ɲo	761	1268	grapes
<i>nho</i> ²	ɲo	424	1044	grapes
<i>nỏ</i>	no	542	923	crossbow
<i>(gà) con</i>	k ^w on	843	1286	chic
<i>con</i>	k ^w on	387	1362	offspring

(continued)

9. Two words, *lọng* [lɔŋm] ‘parasol’ and *tóc* [tɔkɰ] ‘hair’, are excluded, because in Vietnamese, after a short, back, rounded vowel, a velar consonant becomes a labio-velar, and the vowel loses its roundness, e.g., [lawŋm] and [tawkɰ]. These two syllables have high F1 values (920, and 978, respectively), as expected of a central vowel.

Table 16. (continued)

Vietnamese orthography	Kẻ Chay IPA	Kẻ Chay		Gloss
		F1	F2	
<i>nón</i>	n ^w on	630	1356	conical hat
<i>trong</i>	tlon	460	1271	inside
<i>ong</i>	ɽ ^w oŋ	613	901	bee
<i>(tâng) ong</i>	ɽ ^w oŋ	503	872	bee nest
<i>ngọt</i>	ŋ ^w ot	850	1372	sweet
<i>bọt</i>	b ^w ot	849	1356	bubble
<i>mũi</i>	moj	715	1013	mosquito
<i>còi</i>	k ^w aj	925	1316	whistle
<i>voi</i>	v ^w oj	462	1480	elephant
<i>tỏi</i>	t ^w oj	535	1170	garlic
<i>sói</i>	ʃ ^w oj	492	1166	wolf
<i>đói</i>	d ^w oj	869	1333	hungry
average		575	1133	

Table 17. Formant values for Kẻ Chay [ɔ] corresponding to Hanoi [ɔ]

Vietnamese orthography	Kẻ Chay		Gloss
	F1	F2	
<i>tô</i>	530	932	bowl
<i>gỗ</i>	503	1007	wood
<i>rồng</i>	863	1224	dragon
<i>một</i>	755	1137	one
<i>bốn</i>	545	882	four
<i>ngỗng</i>	624	996	goose
<i>tôm</i>	593	931	shrimps
<i>xốp</i>	585	1283	spongy
<i>hồng</i>	908	1391	pink
<i>cốc</i>	885	1240	cup
<i>áo</i>	559	873	blouse
<i>cháo</i>	572	1064	porridge
<i>pháo</i>	576	1024	firecracker
<i>sao</i>	560	950	star
average	646	1089	

Figure 4 shows a plot of Kẻ Chay vowels based on their F1 and F2 formants. For each vowel, the average formant values from 8 to 9 different syllables were converted to the auditory Bark scale, using the formula of Zwicker & Terhardt (1980). Each averaged vowel was then plotted on the F1–F2 graph. A representative syllable for each vowel is given in Vietnamese orthography next to the IPA symbol. Note that

vowel [a], included here for comparison, occurs only in syllables ending in a consonant or glide. [a] is the lowest vowel on the graph. With respect to the three high vowels, only the long counterparts (found in open syllables) are shown. Figure 4 shows that [e] and [ɛ] are almost merged. The height difference between [o] and [ɔ], or [ɔ] and [a], is very similar to that between the long [ɤ] and short [ɛ̃], which phonemically contrast only in length. However, the height difference between [o] and [a] is similar to that of other vowels of the same frontness-backness, for example, the difference between [i] and [e], [u] and [o], or [ɤ] and [a]. It seems that neither [e] and [ɛ], nor [o] and [ɔ] are distinct from one another.

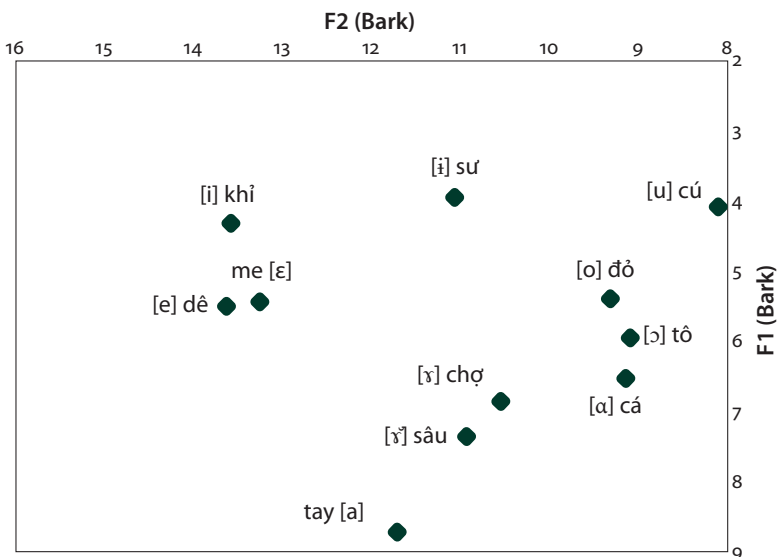


Figure 4. A plot of Kê Chay vowels

3.2.5 Tones

The Nghệ An and Hà Tĩnh dialects distinguish four – sometimes five – tones, tones 4 (*nặng*) and 6 (*ngã*) having been merged. All tones occur in a narrow pitch space. According to Hoàng T. C. (2004: 212), dialects of north-central region belong to a system of low tones, because tones are realized in the lower part of the tonal space, except tone 1 (*ngang*). The division between high and low registers is not as clear as that in northern or southern dialects (Hoàng C. C. 1986; Honda 2006; Phạm A. H. 2005; Võ X. Q. 1993). In the dialects of north-central Vietnam, tones are distinguished primarily by contour, rather than pure pitch information; see Hoàng T. C. (2004).

The tones recorded in Mr. Đào's speech show characteristics similar to those in other dialects of Nghệ An and Hà Tĩnh: the tones are distributed within a narrow

tonal space, with some tones apparently superimposed on each other. The Kê Chay correspondents of eight Hanoi tones are shown in Figures 5 and 6, on the same scale as in Figure 3. Figures 5 and 6 show the F0 values of each tone, measured and averaged from 7 to 10 words bearing the same tone. Two tokens of each word were elicited, these being randomly arranged in two lists.

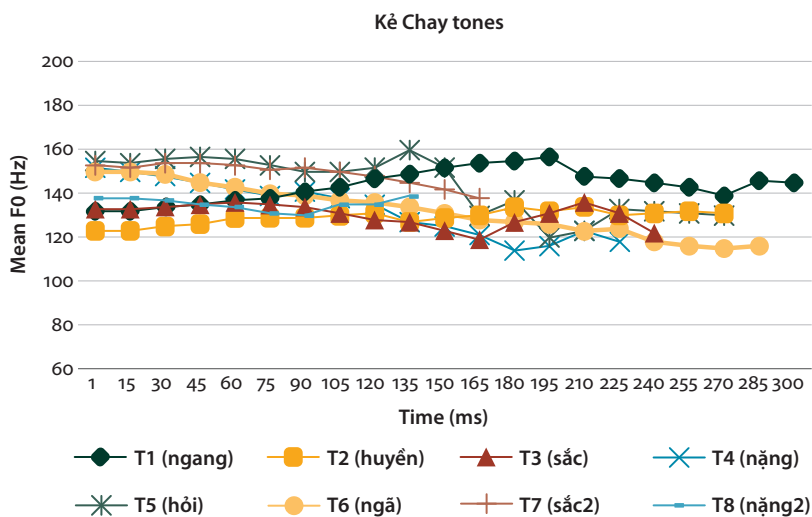


Figure 5. Eight Hanoi equivalent tones in Kê Chay dialect from a male speaker

Two Kê Chay checked tones are shown in Figure 6. Tone 7 (*sắc2*) rises highest in northern and southern dialects. Tone 8 (*nặng2*) falls in other dialects. In Kê Chay, these two tones also fall within a very narrow pitch range, about 10 Hz in the scale of 40 Hz–50 Hz; tone 7 slightly falls, while tone 8 slightly rises.

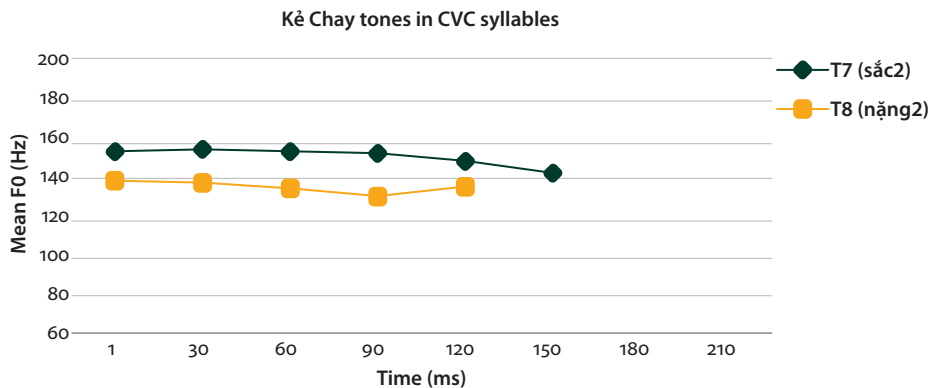


Figure 6. Two Kê Chay tones in syllables ending in a stop consonant

Figure 5 shows a cluster of pitch tracks. The highest and lowest fundamental frequencies of Kê Chay tones fall within a 40 Hz range. When the y -axis range is reduced to magnify the contours between 100 Hz and 160 Hz, two further observations may be drawn.

First of all, tonal height falls within a very narrow pitch range overall in Kê Chay. In this respect, Kê Chay differs from Hanoi or Quảng Nam dialects, but is similar to other dialects in the region, such as Nghệ An or Hà Tĩnh dialect; see, for example, Honda (2006), Nguyễn V. L. (2002), Phạm A. H. (2005), Vũ T. P. (1982).

Second, the two 'level' tones – tone 1 (*ngang*) and tone 2 (*huyền*) – can be seen to rise in Kê Chay. By contrast, tones 3, 4, 5 and 6 all display a falling contour. Among these, tone 5 (*hỏi*) is highest, separated from the rest. Three other tones, tone 3 (*sắc*), tone 4 (*nặng*), and tone 6 (*ngã*), almost overlap both with respect to contour and height. Tonal contours are unstable in this sample, especially in the second half of the rime.

In general, dialects in the north-central region tend to have a smaller tonal inventory than is observed in the northern standard, with various kinds of merger being reported. Võ X. Q. (1993), for example, reports that only four tones are distinguished in Nghi Lộc dialect of Nghệ An; Ferlus (1996) observes the merger of tones 4 (*nặng*), 5 (*hỏi*), and 6 (*ngã*) in Cao Lao Hạ, a Quảng Bình dialect; in Yên Lương, a Nghi Lộc dialect of Hà Tĩnh, tones 2 (*huyền*), 4 (*nặng*), and 6 (*ngã*) are merged, according to Hoàng T. C. (1989); Nghi Trung, a subdialect of Nghi Lộc, has a three-tone system, the result of merger between tones 3 (*sắc*) and 5 (*hỏi*), and tones 2 (*huyền*), 4 (*nặng*), and 6 (*ngã*), respectively; finally, Quán Hành, another subdialect of Nghi Lộc, shows yet another set of mergers, between tone 3 (*sắc*) and 5 (*hỏi*), and 4 (*nặng*) and 6 (*ngã*) (Phạm A. H. 2005).

This stimulus items used in this paper were not designed to elicit minimal pairs for tones, and so the data are only indicative. Provisionally, it may be suggested that the Kê Chay dialect has undergone a merger of three northern tones leading to the four-tone system, shown in Table 18.

Table 18. Tonal contrasts in the Kê Chay dialect (in non-stop-final syllables)

	Rise	Fall
High	A1 (<i>ngang</i>)	B1 (<i>hỏi</i>)
Low	A2 (<i>huyền</i>)	B2 (<i>nặng, ngã, sắc</i>)

3.2.6 Interim summary

In this section, I have provided a description of the sound system of Kê Chay dialect, focusing on vocalic properties. It has been shown that while this variety is largely typical of those belonging to the north-central dialectal group, it also displays a

few segmental features that are not seen – or at least are not common – in its dialectal group. These exceptional features, which include: (a) the emergence of the low, back, unrounded vowel; (b) the lengthening of [ã] in closed syllables; and (c) correspondence between [aw] and [o], are also features Quảng Nam, a southern dialect. There are several other features in Kê Chay dialect that are not reported in north-central dialects but which are common in southern dialects including Quảng Nam. These latter features include the replacement of phonemic diphthongs with length contrast in high vowels, the raising of [ɛ] and [ɔ], and the phonetic diphthongization of nucleic vowels.

Table 19 summarizes the main points of comparison between the Kê Chay and Quảng Nam dialects. The last column shows how these features are expressed in other dialects of Nghệ Tĩnh (Nghệ An and Hà Tĩnh provinces). The first six rows of Table 19 are concerned with segmental features, the last three with tonal properties. The shaded cells show convergences.

The features listed in this table vary in their degree of importance. Only some of the features are used to categorize a dialect into one or other larger dialect group. For example, in categorizing a dialect, the presence of a contrast between final alveolar and velar consonants, as well as overall tonal contours and pitches, are considered more important than the absence of phonemic diphthongs. Similar tonal features and the alveolar/velar contrast in the coda clearly identifies Kê Chay as a dialect of the north-central group compared to Quảng Nam, a southern dialect. With respect to other segmental features, the Kê Chay dialect contrasts with other varieties in its group, and is closer to Quảng Nam dialect: rows (b)–(e).

Table 19. Points of comparison between Kê Chay, Quảng Nam, and Nghệ Tĩnh dialects. (The question mark in row b indicates that this vowel may occur in some Nghệ Tĩnh subdialects, under a different description.)

Linguistic features	Kê Chay (north-central)	Quảng Nam (south)	Nghệ Tĩnh dialects (north-central)
a. [a] in CV	–	+	+
b. presence of [a]	+	+	?
c. [aw] ~ [o] correspondence	+	+	–
d. lengthening [ã] in CVC.	+	+	–
e. three phonemic diphthongs	–	–	+
f. contrast final alveolar and velar cons.	+	–	+
g. tonal contours use a large space	–	+	–
h. distinctive creaky phonation	–	+	–
i. many tones merge/small tonal inventory	+	–	+

It should thus be clear from this discussion that Kê Chay and Quảng Nam dialects share many rimal properties. The question is how this has come about: how is it that dialects from two distinct dialect groups, which are otherwise different from one another in major respects can also exhibit so many common features? Although one cannot exclude independent chance developments, contact would seem to be a more plausible explanation. In the final section, I argue that these shared properties are due to patterns of migration.

4. Thanh Hoá as a donor dialect for Quảng Nam

This section presents evidence supporting the idea that Quảng Nam dialect was established based on the speech of migrants from Thanh Hoá province. Historical migration records, similarities between Quảng Nam and Thanh Hoá dialects including sounds, lexical evidence and grammatical constructions all tend towards this conclusion. Alternative hypotheses are also considered.

4.1 Migration from Thanh Hoá to Quảng Nam

Thanh Hoá province is the fifth largest province in Vietnam and is currently the third most populated with over 4 million people (2013 census). It shares a border with Nghệ An province to the south. Linguistically, Thanh Hoá is regarded as a transitional dialect between northern and north-central areas. The dialects spoken in northern districts of Thanh Hoá are closer to northern dialects more generally, whereas the dialects of southern districts are closer to those of Nghệ An and Hà Tĩnh; see Mai T. C. (2011).

The early settlers in Quảng Nam came mainly from Thanh Hoá province and the northern part of Nghệ An province. As a result, many characteristics of the Thanh Hoá and Nghệ An dialects are observed in Quảng Nam dialect (Hoàng T. C. 2004: 225) and in other dialects spoken in central and southern Vietnam (Phạm V. H. 1985, 2017). Like the Quảng Nam dialect, the Thanh Hoá dialect has 5 tones, tones 5 (*hỏi*) and 6 (*ngã*) having been merged. Tonal contours are distributed in a wider tonal space than in Nghệ Tĩnh tones, similar to the pitch range in northern and southern dialects; Hoàng T. C. (2004: 95), Phạm V. H. (2017). Both Quảng Nam and Thanh Hoá dialects lack the same three phonemic diphthongs; see Phạm V. H. (1985). Instead, there is strong diphthongization for single vowels in Thanh Hoá dialect, accompanied by raising, also seen in Kê Chay dialect. For example, northern *chị* [çi] ‘older sister’, *cụ* [ku] ‘great grandparents’, *mẹ* [mɛ] ‘mother’, *nhỏ* [ɲɔ] ‘small’ correspond to Thanh Hoá [cej], [kɻw], [mjɛ], and [ɲ^ho], respectively;

see Lê V. H. (1985), Hoàng T. C. (2004). In both Quảng Nam and Thanh Hoá dialects, the short vowel [ă] is lengthened in closed syllables. In the Thanh Hoá dialect there is lowering of the rime [i̯k] to [y̯k], and of the vowel [ɤ] to [ã] (Phạm V. H. 1985, Vũ T. T. 2014). something that is also observed in Kê Chay and Quảng Nam dialects. Quảng Nam and Thanh Hoá dialects also have final palatals after /i/ and /e/. Palatal consonants do not occur in the coda position in southern dialects. However, Quảng Nam lacks the alveolar-velar contrast in coda position, which is common in southern dialects.¹⁰

Table 20 summarizes main points of comparison between the Kê Chay, Quảng Nam and Thanh Hoá dialects. It shows a somewhat smaller separation between Quảng Nam and Thanh Hoá dialects, as compared to Kê Chay and Quảng Nam dialects. Quảng Nam and Thanh Hoá dialects have a similar tone system, tone 5 in these dialects corresponding to northern tones 5 and 6 (Lý et al. 2006). There are only two features, (a) and (b), with respect to which Quảng Nam differs from Thanh Hoá, but is similar to Kê Chay dialect.

Table 20. Points of comparison between Kê Chay, Quảng Nam, and Thanh Hoá dialects

Linguistic features	Kê Chay (north-central)	Quảng Nam (southern)	Thanh Hoá (northern/ north-central)
a. presence of [a]	+	+	-
b. [aw] ~ [o] correspondence	+	+	-
c. lengthening [ã] in CVC.	+	+	+
d. three phonemic diphthongs	-	-	-
e. strong phonetic diphthongization	+	+	+
f. final palatals	-	+	+
g. tonal contours use a large space	-	+	+
h. distinctive creaky phonation	-	+	+
i. many tones merge/small tonal inventory	+	-	-

Lexically, Quảng Nam, Kê Chay and Thanh Hoá dialects have similar grammatical words, which are not used in northern or southern dialects. Some examples are listed in Table 21.

10. Thừa Thiên is an exception because although it is identified with the north central group and similar to southern dialects, its final alveolar and palatal consonants do not contrast: see Hoàng T. C. (2004).

Table 21. Shared lexical items Quảng Nam, Kẻ Chay and Thanh Hoá

Hanoi	Quảng Nam	Kẻ Chay	Thanh Hoá	Gloss
<i>mày</i>	<i>mi</i>	<i>mi</i>	<i>mi</i>	2nd person, sing., fam.
<i>gì</i>	<i>chi</i>	<i>chi</i>	<i>chi</i>	what
<i>thế</i>	<i>rứa</i>	<i>rứa</i>	<i>rứa</i>	that so
<i>kia</i>	<i>tê</i>	<i>tê</i>	<i>tê</i>	there

Contracted forms are very popular in southern dialects and in dialects of north-central Vietnam, e.g., in Quảng Bình (Võ X. T. 1997), in Nghệ An (Alves 2007; Alves & Nguyễn 2007). In this construction, a kin or locative term combined with the demonstrative *ấy/đó* ‘that’ becomes a monosyllabic word bearing tone 4, e.g., *ông đó* ‘grandfather + that’ => *ông* ‘he’, *bên đó* ‘side + that’ => *bên* ‘over there’. This construction is also reported in the Thanh Hoá dialect (Phạm V. H. 1985).

Historical migration appears to be the most probable explanation for the relationship between Quảng Nam, Kẻ Chay and Thanh Hoá. It is likely that the Quảng Nam dialect was established from the Thanh Hoá dialect and integrated innovative features, such as the loss of contrast between final alveolar and velar consonants.

As noted in the Section 2, most migrants to the Quảng Nam region are reported to have come from Thanh Hoá and Nghệ An. However, there are no records showing the numbers of migrants from each province. Thanh Hoá has a larger population than Nghệ An. The estimated number of taxpayers in the 15th century was 100,000 for Thanh Hoá province and 50,000 for Nghệ An province (Li 1998: 171). Given this background, it is reasonable to assume that migrants from Thanh Hoá were in the majority. In addition, given the Thanh Hoá origins of the ruling Nguyễn family and their key officials – see above – Thanh Hoá dialect would probably have enjoyed greater prestige than other dialects spoken in the new lands.

4.2 Other possible influences on the Quảng Nam dialect

4.2.1 Non-Vietic influences

Before the Viets arrived in Quảng Nam, the land was inhabited by the Champa, a multiethnic nation of speakers of Austronesian languages. Although it is possible that these languages might have influenced the Quảng Nam dialect, there is no linguistic evidence to support this hypothesis, and the external facts speak against it. Thousands of Cham people were killed in battles. When in 1403 Hồ Quý Ly forced migration from Thanh Hoá and Nghệ An to Chiêm Động and Cổ Lũy – current Quảng Nam and Quảng Ngãi provinces – it is believed that most local residents fled, leaving behind their lands. The families of the new Vietnamese residents joined a year later (Cường Mục 1998: 326). There are no clear records on how many Cham

people stayed behind and co-habited with the Vietnamese migrants. Cham people lived in small pockets and spoke the dialect of eastern Cham (Ken 2004; Li 1998; Phan K. 1969). The Chams and new settlers adopted each other's cultural customs (Li 1998; Ken 2004), but there is no evidence of phonological influence in either direction.¹¹ Crucially, neither the vowel /a/ nor the other rimal correspondences in Quảng Nam dialect are observed in the Cham.

The Chinese were the second large population living in the Inner State. Hoàng T. C. (2004), suggests that the loss of alveolar consonants in the coda in southern dialects might be due to the influence of Teochew or Chiuchow Chinese. Once again, however, the back unrounded vowel [a] and other correspondences in the Quảng Nam rimes are not observed in Teochew.

4.2.2 *Other Vietic varieties*

Another remote possibility is the Quảng Nam dialect originated in, or was strongly influenced by, some other Vietic languages. Besides the Kinh (Viet people), Vietnam has more than fifty ethnic groups speaking different languages belonging to many language families. These ethnic groups live mainly in the mountainous provinces from the North to South Vietnam. There is no clear consensus among researchers on the proper classification of each group nor of their languages. Proto-Vietic languages developed into Viet-Muong Common around the 10th to 14th centuries. Viet-Muong Common split into the Vietnamese and Muong languages around the 13th to 15th centuries (Trần T. D. 2005). The Muong people live mainly in the mountainous provinces of North Vietnam, as well as in Nghệ An and Thanh Hoá provinces of north Vietnam. Muong is the closest language to Vietnamese and it is sometimes not easy to tell if a language/dialect is Muong or Vietnamese (Hoàng T. C. 2004; Trần T. D. 1999). Some groups of Muong people recently migrated to some southern provinces (Trần T. D. 1999). In Thanh Hoá and Nghệ An, the Viet people form the majority. There also exists a group called “Thổ people” but it is difficult to separate these from Muong or Vietnamese people (Trần T. D. 1999: 82). It is possible that some features of Muong languages were integrated into Hà Tĩnh dialects and later introduced to Quảng Nam, or that among early settlers from Nghệ An who migrated to Quảng Nam were Muong people. However, the vowel [a] is not reported in any Muong languages or dialects.

In short, while it cannot be entirely discounted, it seems very unlikely that Quảng Nam phonology was shaped to any significant extent by contact with non-Vietnamese varieties.

11. Aside from the claim that Cham developed its tonal system from the contact with Vietnamese; see Brunelle (2009), Hoàng T. C. (1987).

5. Conclusion

This study is among the first attempts to probe the origins of the Quảng Nam dialect. While previous studies have mentioned a possible link between the Thanh Hoá dialect and dialects of the central and southern Vietnam, this paper provides some detailed phonetic evidence for this connection. The linguistic evidence presented here offers persuasive support for the hypothesis that Quảng Nam was established on the basis of the Thanh Hoá dialect when Thanh Hoá people migrated to the new lands.

Future work should include the collection of more data from larger samples of speakers of sub-dialects in Quảng Bình, Nghệ An, Hà Tĩnh and Thanh Hoá provinces, especially in the areas further from the national highway #1, that runs from north to south Vietnam. These dialects provide a window into the past and can contribute significantly to our understanding of historical developments of Vietnamese sounds and dialects. Synchronically, they link dialects which might otherwise seem to be unrelated. However, language documentation focusing on dialects in remote areas, especially in the north-central region, is still scarce. These minor dialects are quickly losing their speakers to a “common” or standard dialect, in school, at work, and in social settings. It is, therefore, an urgent matter to record and preserve them before they are extinguished. This goal can only be achieved collectively and collaboratively.

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SECTION B

Morphology and syntax

A more perfect unification

Exploring a Nano-syntactic solution to Vietnamese *đã*

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In this paper, we provide a new analysis of the Negative Constraint in Vietnamese, whereby the anterior morpheme *đã* loses its perfect reading in negative contexts. The Nanosyntax approach adopted here is claimed to derive this constraint without the stipulations inherent in existing formal accounts (e.g., Trinh 2005; Duffield 2017; Phan & Duffield 2016, 2019).

Keywords: Vietnamese syntax, aspect-negation interactions, Negative Constraint

1. Introduction

The empirical concern of this paper¹ is the contrastive behaviour of the Vietnamese TAM marker *đã* across affirmative contexts vs. negative contexts. Specifically, our concern is with the fact that in affirmative sentences the presence of *đã* gives rise to an ambiguity between a past and a perfect reading, whereas in negative contexts only the preterite reading is available. For obvious reasons, we refer to this as the Negative Constraint.

Let us first consider some data, beginning with affirmative contexts:

- (1) a. *Anh-ấy đến.*
3S.M come
'He comes/came.' [No specified time]
- b. *Anh-ấy đã đến.*
3S.M DA come
EITHER: 'He came.' [Past time interpretation]
OR: 'He has come.' [Perfect interpretation]

1. The present article is an attempt to improve upon our previous analyses of the Negative Constraint: see, for example, Phan & Duffield (2016, 2019), Duffield (2017).

In (1a) – the sentence without *đã* – the man’s coming may be freely interpreted as taking place in the present or in the past. In (1b), on the other hand, the presence of *đã* situates the event in the past. However, in addition to this past time (preterite) reading, (1b) may also be interpreted with a perfect reading; that is to say, the man’s arrival is asserted to have occurred prior to the utterance time, and still to be of current relevance.

Now consider the interaction between *đã* and clausal negation. There are two negative markers in Vietnamese that we are concerned with in this paper: the simple negative morpheme *không* (NEG) and perfect negative *chưa* (NEG_{PRF}), usually translated as ‘not yet’: these are exemplified in (2) and (3), respectively.

- (2) a. *Anh-ấy không đến.*
 3S.M NEG come
 ‘He doesn’t come/didn’t come.’
- b. *Anh-ấy đã không đến.*
 3S.M DA NEG come
 ‘He didn’t come.’ [exclusive past time interpretation]
 NOT ‘He hasn’t come.’
- (3) a. *Anh-ấy chưa đến.*
 3S.M NEG_{PRF} come
 ‘He hasn’t come yet.’ [exclusive perfect interpretation]
- b. *Anh-ấy đã chưa đến.*
 3S.M DA NEG_{PRF} come
 ‘He hadn’t come yet.’ [past perfect interpretation]

Simple negative sentences, such as the example in (2a) – which contain *không* but lack *đã*, – are compatible with either a present or a past time interpretation. Addition of *đã* to a negative clause, as in the example (2b), yields a past time interpretation only: the perfect reading is excluded here. In order to obtain a negative perfect reading the default negative *không* in (2) must be replaced by the synthetic negative marker *chưa* (‘not.yet’), illustrated in (3a) and (3b). Where this form appears on its own, as in (3a), *chưa* has an exclusively perfect reading; that is to say, it cannot be used to indicate a definite time in the past. The addition of *đã* in (3b) immediately shifts the interpretation from a present perfect to a past perfect one. This clearly suggests that the sole interpretive contribution of *đã* in negative sentences is to add a past time reading.

While these observations concerning *đã* have been previously discussed in the literature – see e.g., Panfilov (2002), Trinh (2005); Duffield (2013, 2014, 2017), Phan (2013), Bui (this volume) – no completely satisfactory explanation has yet emerged of the Negative Constraint. The aim of this squib is to sketch out an

original syntactic approach to *đã* using the Spell-out principles of Nanosyntax: we shall claim that the advantages this approach offers over earlier head-movement-driven accounts makes it the most promising to date.

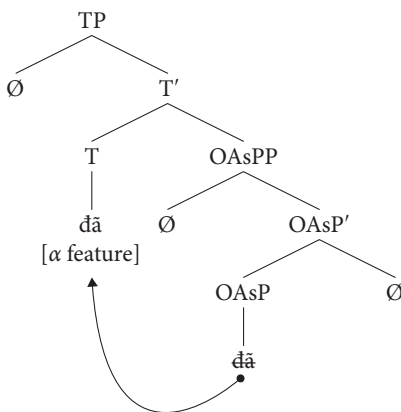
Before continuing, it is worth noting that this kind of interaction between aspect and negation is not unique to Vietnamese: it has previously been observed that certain kinds of aspectual reading may appear or disappear in negative contexts; cf. Matthews (1990), Li (1999), Miestamo & van der Auwera (2011).

2. Previous treatments

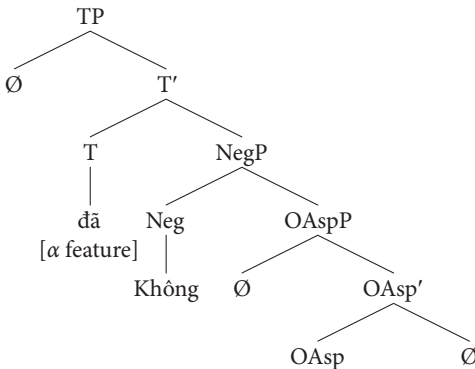
Hitherto, there have been two main syntactic approaches to the Negation Constraint: the ‘*đã*-as-homophone’ analysis, as proposed by Trinh (2005), and the ‘multifunctional-*đã*’ approach advanced by Duffield (2013, 2014) and Phan (2013). We briefly review these in turn.

Trinh (2005)’s account tackles the problem by assuming that there are two homophonous lexical items: ‘perfect $\mathcal{D}\check{A}_1$ ’ and ‘past $\mathcal{D}\check{A}_2$ ’, each having different points of initial merger. Specifically, the perfect $\mathcal{D}\check{A}_1$ is initially merged lower in Asp^0 , then raises to T^0 yielding the ambiguous interpretation of *đã* in (1b), as shown in (4a). By contrast, past $\mathcal{D}\check{A}_2$ is taken to be directly base-generated in T^0 , as illustrated in (4b): this yields the exclusive past interpretation in (2b) and (3b) above.

(4) a. Affirmative clauses (OAsp→T)



b. Negative clauses (direct insertion under T)



There are two significant difficulties with Trinh's account. In the first place, it fails to capture the close semantic relationship between perfect and past readings: it is presumably not accidental that these meanings are conflated in many languages, such as in many modern varieties of spoken Romance and Continental West Germanic, where preterite forms have largely been lost (either restricted to literary registers, or lost entirely, in some varieties).

More significantly perhaps, Trinh's analysis offers no explanation – other than possibly though appeal to haplogy – as to why these two homophones may not co-occur, either in affirmative or negative contexts (as in (5) and (6), respectively):

- (5) **Anh-ấy đã đã đến.*
 3S.M DA DA come
 'He came'/'He has come.'
- (6) a. **Anh-ấy đã không đã đến.*
 3S.M DA NEG DA come
 'He didn't come.'
- b. **Anh-ấy đã chưa đã đến.*
 3S.M DA NEG_{PRF} DA come
 'He hadn't come yet.'

The analysis proposed in Duffield (2013, 2014), also Phan (2013), is in many respects a variant of Trinh's account. It avoids the problem of accidental homophony by invoking the notion of multifunctionality in the sense of Travis, Bobaljik & Lefebvre (1998), Duffield (2014), according to which grammatical meaning inheres in syntactic heads themselves, rather than in the underspecified lexical exponents of these heads. On the original Duffield/Phan account, there is only one lexical *đã*: its interpretation in a given context is the sum of its core meaning – namely, 'anterior' – and whatever additional meanings it derives from the grammatical positions into which it is merged. Thus, *đã* is ambiguous if it is first merged under Asp° and later

raised to T° , but is unambiguous – signalling the past-only reading – whenever it is directly inserted under T° .

This multifunctional approach nicely captures the intuition that different interpretations of *đã* result from different syntactic environments, and directly explains the absence of doubled *đã* in affirmative contexts, as in (5) above. However, it leaves unresolved the question of why negative sentences such as those in (6) are unacceptable even though both positions – above and below Neg° – should be available.

Both previous analyses trace the Negation Constraint to the idea that the presence of negation triggers a violation of head-minimality: as with tense-lowering in English (Pollock 1989; Chomsky 1989), clausal negation is assumed to block head-movement. Yet though the analogy is obvious, it is much less clear why negation should block Asp-to-T raising here; after all, finite auxiliary raising over negation would seem to be the rule rather than the exception in more familiar languages. This putative blocking effect is particularly puzzling since there are no morphosyntactic considerations – ‘Mirror Principle effects’ – that would require strict adherence to the Head Movement Constraint (Travis 1984): in the case at hand, long head-movement should be permissible; see Harizanov & Gribanova (2018), for a revised approach to the HMC. Given this, we are led to consider an alternative approach to the negation puzzle: rather than invoking head-movement, we propose to explain the Negation Constraint in terms of competition among lexical – or rather *lexico-syntactic* – items {*đã*, *chưa*, *không*} when it comes to spelling out the syntactic structure $T > Neg > Asp$. The present account relies on the lexicalization algorithms of Nanosyntax, which are set out in the next section.

3. A Nanosyntactic approach to the Negation Constraint

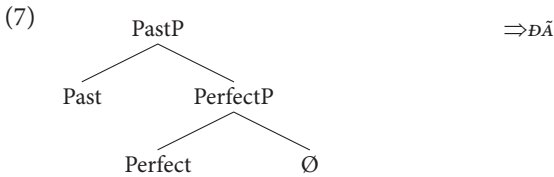
Following Starke (2009), Caha (2009), and Lander (2016), we assume that words, including functional categories, are lexically represented as L-TREES, which may – if they are complex – correspond to a continuous stretch of syntactic phrase-structure, that is to say, a word corresponds to more than a single syntactic head. On this construal, where we have a syntactic tree (S-TREE) that needs to be spelled out, it is necessary to match all available L-trees to the S-tree.² There will be a competition

2. Within the assumptions of Nanosyntax, the computation starts from features. The syntax does not project from lexical items (as is more commonly assumed), but rather the other way around. The core idea in Nanosyntax is that the lexicon is strictly post-syntactic: there is no pre-syntactic lexicon, as in Minimalism, nor are there ‘lists’ that feed into syntax, as proposed in Distributed Morphology. The justification behind this kind of architecture ultimately has to do with the idea of sub-morphemic heads, and the need for phrasal spellout. See Baunaz, De Clercq, Haegeman & Lander (2018), for explication and detailed discussion. We are grateful to a reviewer for raising this issue.

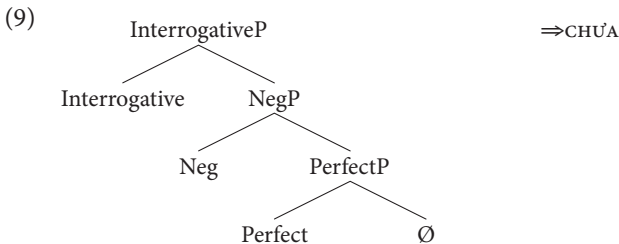
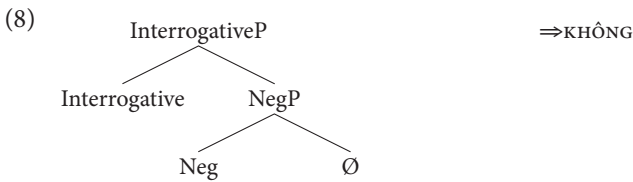
between those L-trees: which competitor wins out in this mapping contest in a given context is determined by three governing principles:

- SUPERSET PRINCIPLE, which requires that an L-tree should be the same size or larger than the relevant S-tree for a successful match, see Caha (2009, 2014);
- ELSEWHERE PRINCIPLE, which requires that – just in case more than a single L-tree is available to lexicalise an S-tree – the L-tree with the fewest unused features should be chosen;
- PRINCIPLE OF CYCLIC OVERRIDE: assuming that derivations are built bottom-up, then later, higher-level spell-outs cancel out previous, lower-level spell-outs: see Lander (2016), for discussion.

Here, we adopt a compositional approach to *đã* – for fuller justification see Phan & Duffield (2018) – in which *đã* is taken to comprise two semantic features: a temporal PAST feature, and an aspectual PERFECT feature. Syntactically, these two features head their own strictly-ordered projections: PastP>PerfectP. In terms of Nanosyntax, $\mathfrak{D}\tilde{A}$ is a lexico-syntactic object, instantiated as the layered L-tree in (7):



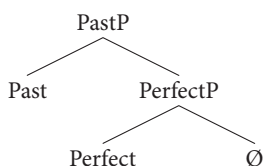
The Vietnamese lexicon also contains two abstract lexical items, KHÔNG and CHƯA: these are associated with the L-trees in (8) and (9), respectively.



Crucial to the present analysis is the top layer *InterrogativeP*, above *NegP* in (8) and (9).³ This additional structure reflects the fact that *không* and *chưa* can serve as either negative or interrogative markers, depending on their position with respect to VP; cf. Duffield (2013), Trinh (2005), Law (2014), for further discussion. Intuitively then, *không* = (yes or) no; whereas *chưa* = (yes or) not yet: cf. Nguyen D. H. (1997). These extended trees for *không* and *chưa* in (8) and (9) thus minimally contrast with what is proposed in Duffield (2017: tree 20), in which the L-tree for *chưa* contained only two layers (*NegP*>*PerfP*). On that earlier proposal *đã* would have no fewer unused features than *chưa* when it comes to spelling out *PerfectP*, and so could not be preferred by the Elsewhere Principle.

By the Superset Principle,⁴ the L-tree in (7) can match all of the S-trees in (10), yielding the multifunctional ambiguity effect of *đã*:⁵

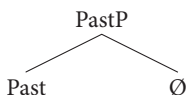
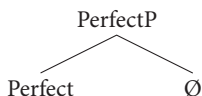
(10) a. *SI: Past-Perfect*



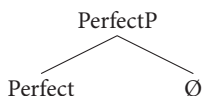
3. We are grateful to Lena Baunaz and to Karen De Clercq for discussion of this point.

4. In this squib, we adopt the revised version of the Superset Principle, following Caha (2014), which is the original version (Stark 2009; Lander 2016) without the ‘Anchor condition’. The crucial difference between the two versions is that the revised version allows the L-tree to spell out all three S-trees (a) (b) and (c) in (10); whereas in the classical version only (a) and (c) are allowed, (b) is not allowed, since the lowest layer *PerfectP* has to be matched by the Anchor condition; see Lander (2016), for details, see also De Clercq & Vanden Wyngaerd (2016), Vanden Wyngaerd (2016), for further discussion of the revised Superset Principle which can account for other grammatical phenomena cross-linguistically. We are grateful to Amélie Rocquet, Pavel Caha, Eric Lander and Karen De Clercq for discussing this point.

5. One anonymous reviewer raises the question of whether the so-called mapping between the lexical syntax and the genuine syntactic structure is nothing more than a different way to maintain the “homophone” approach, only to shift part of the burden to the syntactic structure. As will be shown below, Nanosyntax is certainly not a different way of maintaining the homophone approach. This is exactly the point of the Superset Principle as a way to account for syncretism. See Baunaz, De Clercq, Haegeman & Lander (2018), for detailed discussion. However, we suppose in one way we are ‘shifting the burden’ to syntax – since we assume that different readings require different underlying structures, with a single lexical entry potentially being able to match different sizes of that syntactic structure by the Superset Principle.

b. S2: *Past*c. S3: *Perfect*

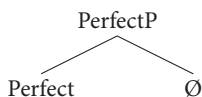
Syntax incorporates one feature at a time, and at each step, a suitable match from the lexicon must be found. First let us consider affirmative *perfect* contexts, as in the ambiguous Examples (1) and (*5) above. In affirmative perfect sentences, we have only PerfectP. There are two L-tree candidates that can lexicalise PerfectP – either *đã* or *chưa* – since by the Superset Principle, PerfectP is contained both in the L-tree for *đã* in (7) and also in the L-tree for *chưa* in (9). Given the Elsewhere Principle, the L-tree for *đã* in (7) is the winning match since it has fewer unused features. Accordingly, PerfectP is lexicalised as *đã*.

(11) *Affirmative Perfect Derivation (one step):*⇒ *đã* [*chưa* is the losing competitor]

In the case of affirmative *past* contexts, two derivational steps are involved. First, we start once more with PerfectP: once again, the best match in the lexicon is the L-tree of *đã* in (7), so PerfectP is spelled out by *đã*, as before. At the second step in the derivation, however, when we build PastP on top of PerfectP, there is a match for the whole trunk PastP>PerfectP in the lexicon, spelled out by *đã*, which overrides the first spellout. The unattested order **đã đã* is ungrammatical (Example 5) due to the Principle of Cyclic Override.

(12) *Affirmative Past Derivation (two steps):*

Step 1:

⇒ *đã* [*chưa* is the losing competitor]

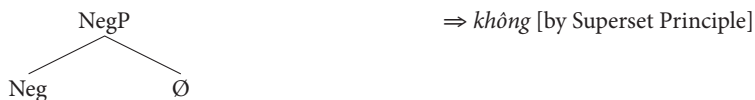
Step 2:



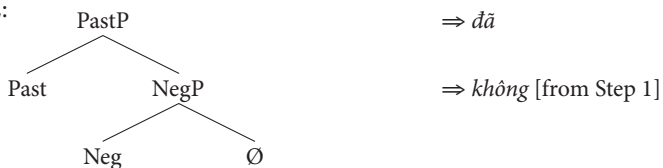
Now consider negative contexts, as in the examples in (2), (3) and (6). In past – that is *non-perfect* – negative *không* sentences, such as Example (2b), two derivational steps are once again involved. The first step begins from NegP: here, the Superset Principle allows for two possible spell-outs – *không* or *chưa* – since both the L-tree for *không* in (8) as well as the L-tree for *chưa* in (9) are supersets of the S-tree NegP. However, the L-tree for *không* in (8) contains the fewer unused features, so NegP spells out as *không*, given the Elsewhere Principle. At Step 2, PastP is built on top of NegP. At this point there is no match for the whole trunk PastP>NegP in the lexicon, so NegP is spelled-out by *không*, while PastP is spelled out by *đã*, the two independently of one other. We end up with the correct word – that is to say, *đã* precedes *không* – and with the desired interpretation, in that *đã* is interpreted as past only.

(13) *Negative Past Derivation (two steps):*

Step 1:



Step 2:



In the case of past perfect negative *chưa* contexts, as in Example (3b) above, the derivation now involves three steps. At Step 1, we start from PerfectP; here, the best match in the lexicon is the L-tree of *đã* in (7), so PerfectP is spelled out by *đã*. At step 2, the derivation proceeds, with NegP being inserted on top of PerfectP. This time there *is* a lexical (L-syntactic) match for the NegP>PerfectP, namely, *chưa*, the L-tree for *chưa* in (9) being a superset of the S-tree NegP>PerfectP. This higher spell-out *chưa* cancels out the previous spell-out (*đã*); by Cyclic Override, the order **chưa – đã* is correctly ruled out. Finally, at Step 3, PastP is built on top of NegP>PerfectP. At this point in the derivation, there is no match for the whole trunk in the lexicon, hence only one possibility is permitted: NegP>PerfP is spelled out by *chưa*, and PastP is spelled out by *đã*. We end up with the right word

order – $\dot{d}\ddot{a}$ preceding *chua* – and with the correct interpretation: only the past reading of $\dot{d}\ddot{a}$ is available here. Once more, the grammatically unacceptable order $*\dot{d}\ddot{a}$ *chua* $\dot{d}\ddot{a}$, in (5b), is excluded by the Cyclic Override principle.

(14) *(Past) Perfect Derivation*:⁶

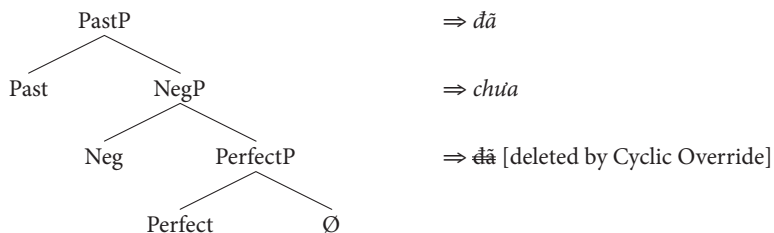
Step 1. *Perfect Derivation (as in (11))*:



Step 2. *Negative Perfect derivation (only one competitor)*



Step 3. *Past Negative Perfect derivation (additive – no available L-tree)*



By means of these lexicalization algorithms, we end up both with the desired word order, in as much as $\dot{d}\ddot{a}$ always precedes negation morphemes – correctly blocking the unacceptable combinations of $*\dot{d}\ddot{a}$ $\dot{d}\ddot{a}$ and $*\dot{d}\ddot{a}$ *chua* $\dot{d}\ddot{a}$ – and with the observed interpretation, correctly excluding the perfect reading of $\dot{d}\ddot{a}$ in negative contexts. The Negative Constraint, which had previously been a stipulation, now emerges as a theorem.

4. Conclusion

In conclusion, our Nanosyntactic approach has several advantages over the previous head-movement driven accounts. It is lexically non-redundant, in assuming only one lexical entry for $\dot{d}\ddot{a}$. Given that multifunctionality is ubiquitous in the Vietnamese lexicon (see Duffield 1998, 1999; Phan 2013; Duffield 2014), a

6. Perfect sentences are derived by applying Steps 1 and 2 only; Past perfect sentences involve the additional Step 3.

Nanosyntax solution prevents massive lexical homophony; at the same time, it is syntactically flexible, in allowing for a single L-tree to match more than one S-tree. Most relevantly of course, it correctly derives the Negation Constraint.

Finally, as noted at the outset, the Negation Constraint is not restricted to Vietnamese. To take one example, Mandarin Chinese *le* is also ambiguous between a temporal and an aspectual reading (Lin 2005), and is incompatible with negation markers *bu* and *meiyou*:

- (15) a. *ta qu le faguo.*
 3s go LE France
 ‘He went to France.’/‘He has been to France.’
- b. **ta bu qu le faguo.*
 3S NEG go LE France
 ‘He did not go to France.’ [Examples from Li 1999: 235]
- c. **ta meiyou qu le faguo.*
 3S not.have go LE France
 ‘He hasn’t been to France.’ [Linda Badan, p.c.]

Hence, a question left for future research is the extent to which Nanosyntactic approach can profitably be extended to Chinese, and other typologically similar languages.

Acknowledgements

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Illusory islands

On ‘*wh*-questions in Vietnamese’

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This paper offers an extended critique of an article by Bruening & Tran (2006) concerning *wh*-questions in Vietnamese. Drawing on both language-internal and cross-linguistic evidence, attention is brought to bear on several empirical shortcomings in Bruening & Tran’s analysis, as a result of which the constituency of *wh*-question constructions in this language is misrepresented. An alternative treatment is proposed which attempts to remedy these difficulties, and, in so doing, may also explain some additional distributional and interpretive anomalies.

Keywords: Vietnamese syntax, *wh*-questions, island constraints, covert movement vs. unselective binding

1. Introduction

Bruening & Tran (2006) (henceforth BT) propose that Vietnamese, a *wh-in-situ* language, employs two distinct strategies for licensing *wh*-questions: (i), a (covert) movement strategy; (ii), a non-movement strategy involving unselective binding. Which of the two is operative, the authors claim, is signalled by the presence of a final particle *thế*, which explicitly marks the latter strategy. In evidence, BT offer a set of minimal contrast examples showing *wh*-elements being properly licensed within syntactic islands just in case *thế* is present. The sentences in (1)–(3) are said to illustrate blocked *wh*-interpretations for the *wh*-indefinite element *ai* (‘who’) contained within three ‘syntactic islands’: complex NPs, sentential subjects and adjunct clauses, respectively; the (b) examples in each pair are supposed to demonstrate the suspension of island effects by final *thế*:

- (1) a. **Tân sẽ chụp hình* [_{NP} *con hổ* [_{CP} *đã dọa ai*]]?
 Tân ASP catch picture CL tiger ASP scare who
 ‘Tan will take a photo of the tiger that scared who?’
 ‘*Who will John take a picture of the tiger that scared who?’

- b. *Tân vừa chụp hình* [_{NP} *con hổ*] [_{CP} *đã dọa ai*] *thế?*
 Tân ASP catch picture CL tiger ASP scare who PRT
 ‘Tan took a photo of the tiger that scared who?’
- (2) a. * [_{CP} *Ai sẽ bỏ đi*] *làm mọi người bối rối?*
 who ASP leave make everyone embarrass
 ‘That who will leave will make everyone embarrassed?’
 ‘*Who that ~~who~~ will leave will make everyone embarrassed?’
- b. [_{CP} *Ai vừa bỏ đi*] *làm mọi người bối rối thế?*
 who ASP leave make everyone embarrass PRT
 ‘That *who* left made everyone embarrassed?’
- (3) a. * *Tân sẽ thua cuộc* [_{CP} *vì*] [_{TP} *ai làm hư xe của anh ta*]]?
 Tân ASP lose race ‘cos who damage car POSS PRN
 ‘Tan will lose the race because *who* will damage his car?’
 ‘*Who will Tân lose the race because ~~who~~ will damage his car?’
- b. *Tân thua cuộc* [_{CP} *vì ai làm hư xe của anh ta*] *thế?*
 Tân lose race ‘cos who damage car POSS PRN PRT
 ‘Tan lost the race because who damaged his car?’

It should be noted that in Examples (1)–(3) above, I reproduce the bracketing and glosses of the original examples. Beyond this point, unless otherwise noted, the glosses and other annotations are my own.

If the bracketing and glossing of the examples above provided an accurate analysis of the strings, then the availability of these contrasts would justify placing Vietnamese among a well-established set of ‘dual strategy’ languages. The best known work on this topic from a purely syntactic perspective is that of Pesetsky (1987), whose discussion builds on previous proposals by several authors, including Choe (1984), and Nishigauchi (1983). Viewed from a morphological perspective, the availability of these alternations would appear to set Vietnamese within the set of languages in which the two strategies carry distinctive morphological signatures. Perhaps the most familiar language of this second sub-group – albeit one with overt *wh*-movement – is Modern Irish, whose two *wh*-strategies have been much discussed by James McCloskey in various articles (e.g., McCloskey 1990, 2001, 2002; see also McCloskey & Sells 1988). The examples in (4)–(6) below, adapted from McCloskey (n.d.) are representative of a larger paradigm set, in which the (b) examples, involving the complementiser a^N , are apparently immune to the standard range of island effects to which the parallel structures headed by the complementiser a^I – the (a) examples – are subject. The strings in (4) show a case of object relativisation, where both alternants are acceptable; those in (5) illustrate *wh*-island contexts, while those in (6) show complex NP-islands:

- (4) a. *an ghirseach a ghoid na síogaí...*
 the girl a^L steal the fairies
 ‘The girl that the fairies stole...’
- b. *an ghirseach a-r ghoid na síogaí í...*
 the girl a^{N-PAST} steal the fairies her
 ‘The girl that the fairies stole (her)...’
- (5) a. **na h-amhráin sin a fhuil fhios cé a chum...*
 the songs DEM a^L is knowledge who a^L made
 ‘*those songs that we know who composed’
- b. *na h-amhráin sin a bhfuil fhios cé a chum iad...*
 the songs DEM a^N is knowledge who a^L made them
 ‘?those songs that we know who composed them’
- (6) a. **seanchasóg ar dócha a fhuil an táilliúir a dhein sa*
 old-jacket C_{pro} probable a^L is the tailor a^L made in
chré fadó...
 earth long.ago
 ‘*an old jacket that the tailor who made has probably been in the grave for ages’
- b. *seanchasóg ar dócha go bhfuil an táilliúir a dhein í sa*
 old-jacket C_{pro} probable c^N is the tailor c made it in
chré fadó...
 earth long.ago
 ‘an old jacket that the tailor who made it has probably been in the grave for ages’

Given these cross-linguistic parallels, the idea that Vietnamese should employ two distinct mechanisms for interpreting *wh*-elements is plausible, unremarkable even. In this paper, however, I will argue that BT’s proposal is based on misleading empirical and methodological assumptions. It will be claimed that almost all the Vietnamese data in BT’s article have been misanalysed: that the *unacceptability* of the starred (a) examples is due to factors that are independent of islandhood; conversely, the alleged absence of island effects in the (b) examples in (1)–(3) is not due to any alternative *wh*-strategy induced by *thé*, but to the much simpler – if theoretically less consequential – fact that these are not parsed as subordinate clauses in the first place; see in particular Duffield (2018). It is argued that in every grammatically acceptable instance (covert) extraction targets a *wh*-element in a matrix clause – either the *wh*-phrase (*ai*) itself, or a null pronominal co-indexed with *ai*. In no case is it necessary for *thé* to be anything more (or less) than an extra-syntactic discourse particle, having no sentential status. If this alternative interpretation is correct, then the most economical conclusion must be, *contra* BT,

that Vietnamese only permits a single strategy in the case of true *wh*-questions, namely, covert movement.

The remainder of this paper is organised as follows. First, I briefly set out the main components of BT's argument. I discuss certain problems with the authors' annotations of key examples, showing that any perceived ungrammaticality is largely due to extraneous factors, and that the presence of *thế* has little or no alleviating effect on those contexts that actually do involve constraints on movement, other than to focus an alternative (main clause) parse of an ambiguous string. I draw attention to a number of crucial cases where BT's acceptability judgments conflict with those of the thirty-two native-speakers I have consulted. I then present an alternative treatment, based on a revised set of examples and judgments. In addition, it is argued that the discourse structure of Vietnamese (and other typologically similar southeast Asian languages) reinforces a paratactic analysis for what would typically be parsed as hypotactic structures in formal written English; see Clark (1992). In every case, the impression of islandhood is an illusion.

In addressing these issues, I adopt methods for analyzing speakers' judgments of grammatical acceptability that are more familiar from experimental linguistics research than those typically found in theoretical linguistics articles. Specifically, I use aggregated judgment data, collected from thirty-one native-speakers of Vietnamese in February 2019.¹ Participants were asked to judge the acceptability of every variant of the sentences discussed in a previous version of this paper, presented in randomised order. For each of the total 113 sentences participants were required to assign a rating on a scale from 1 (*không chấp nhận được*/unacceptable) to 4 (*hoàn toàn chấp nhận được*/fully acceptable). Participants were explicitly requested to pay close attention to the punctuation: where the sentence ended in a question mark, they were asked to judge whether the sentence was acceptable as a direct *wh*-question; that is to say, whether *ai* could be interpreted as a variable. For conversion purposes, I considered mean scores < 2 as grammatically unacceptable (*); scores above 2 and less than 3 as marginally acceptable (?); and scores above 3 to be wholly acceptable (with the intended interpretation). However, as will become clear, the individual scores for particular sentences were less interesting than the comparisons between items within a given paradigm – especially, those with or without *thế*.

1. The complete data set comprised over 60 response lists; only the first 32 were analyzed. One respondent was dropped from the analysis owing to consistent acceptance of items uniformly judged to be wholly unacceptable by all of the other participants. Two participants failed to judge certain sentences (around ten items in total): these missing data were replaced with mean values for the item in question. Aside from this, there was no trimming or exclusion of data. A source file containing all recorded responses is available on request.

2. Original arguments

BT make a number of key observations and assumptions concerning the final particle *thế* and sentences involving this element. I consider each of these in turn.

2.1 Is *thế* a sentential element at all?

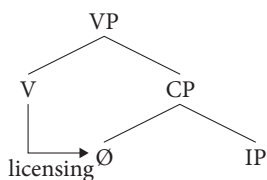
The first point of contention concerns the status of final *thế*. BT analyze *thế* as a syntactically integrated discourse element, a *realis* marker that serves to syntactically license a null Q-particle in C. According to the analysis schematised in (7) below – reproducing BT’s [34] – it is this null Q-particle that does the syntactic work (so to speak): *thế* itself is syntactically inert, and is in fact obligatorily absent from embedded contexts.

The syntactic inertness of *thế* itself is clear from the following quote, which appears towards the end of the article: “Our response to the question of why a particle associated with *realis* mood would also serve as an unselective binder is *that it does not*. The relation between the question particle and unselective binding is only indirect (BT 2006: 338 [emphasis mine]).”

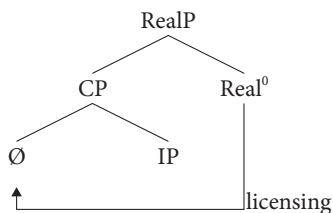
(7) BT Example 34:

(34) Null Q licensing

a. Embedded



b. Matrix



It should be clear from (7) that BT do not claim that *thế* is itself contained within a C-related projection; indeed, they argue that their treatment of this element speaks against Cheng (1997)’s ‘Clausal Typing Hypothesis’ precisely because the putative

Q-marker (in C) is never overtly expressed. However, BT *do* claim explicitly that *thế* occupies a head-final *structural* projection, that is to say, it is syntactically integrated. Given the massive head-initiality of Vietnamese observed for all other projections – even at the level of morphological N-N compounds, see, for example, Spencer (1991)) – this seems like a most improbable assumption; see also Duffield (2013a). Moreover, to the extent that there is evidence for a *realis* projection in Vietnamese – termed *AsrP* in Duffield (2007) – this projection also is unambiguously head-initial.

A crucial question at the outset, therefore, is whether *thế* is in fact a sentential particle – that is, whether it is syntactically integrated – or whether it is better treated as a turn-final discourse particle, comparable to non-standard British English *innit*, Canadian English *eh*, Singlish *leh*, etc.² These kinds of particles have three characteristic properties that distinguish them from syntactically integrated functional categories: first, they are restricted to conversational registers; second, whatever their pragmatic function, they are typically syntactically inert – they do not interact with other grammatical elements; finally, by definition, they generally only appear utterance-finally, in which position their conversational function is usually to elicit some contribution from the hearer. All of these properties are apparently shared with Vietnamese *thế*.

BT are at pains to downplay *thế*'s discourse-related status: indeed, the word *discourse* appears only once in the text (p. 337). This reticence is understandable since the coherence of their argument relies on the possibility of a *structural* licensing relationship between *thế* and other syntactically-represented elements. Yet *prima facie* evidence clearly suggests that *thế* is really an extra-syntactic discourse particle: in the terms of Conversational Analysis, that *thế* is a *turn-level* object within a Turn Construction Unit (TCU), rather than a sentence-level element in any syntactic representation: see, for example, Schlegloff (1996), Heritage (2013).

2. Consider the following definition of a discourse marker: 'A particle (such as *oh*, *well*, *now*, and *you know*) that is used in conversation to make discourse more coherent but that generally adds little to the paraphraseable meaning of an utterance [...] In most cases, *discourse markers are syntactically independent*: that is, removing a marker from a sentence still leaves the sentence structure intact. Discourse markers are more common in informal speech than in most forms of writing [emphasis mine]' (Source: <<http://grammar.about.com/od/d/g/discoursemarkerterm.htm>>). Andersen (2001) discusses some interesting turn-medial exceptions, as in (i) and (ii). This in no way alters the general claim that *innit* – the discourse marker under discussion – is a pragmatic, discourse-level marker, not a syntactic one.

- (i) 'Look, it's their problem *innit*, I mean I just want to get over these bloody things.'
- (ii) 'It's nasty and they and they just get it off *innit* and tie a little knot.'

The most obvious motivation for classifying *thế* as extra-syntactic – as BT themselves observe – is that it invariably occurs utterance-finally: *thế* can only attach to the right edge of root utterances, and can only be followed by other discourse particles such as *ạ* (see below). The examples in (8) (cf. BT’s example [12]) illustrate this fixed utterance-final position:

- (8) a. [?][*Ai đi New York*]_j *mà Tân biết t_j thế?*
 who go New York PRT Tân know PRT
 ‘For which person x, Tan knew x went to New York?’
 b. * [*Ai đi New York thế*] *mà Tân biết t_j?*
 who go New York PRT PRT Tân know
 ‘For which person x, Tan knew x went to New York?’

BT contrast the placement of *thế* in (8) with the *clause*-final positioning of interrogative *không* in (9): specifically, the contrast between Examples (8b) and (9b) is taken to demonstrate that *thế* – unlike *không* – cannot appear inside a (fronted) embedded clause. (Here once again I provisionally accept BT’s bracketing of (8a). See below for an alternative analysis of related constructions.)

- (9) a. [*Lan có gặp Thơ*]_p *Tân biết t_j không.*
 Lan ASR meet Tho Tân know NEG
 ‘*Tan knows whether Lan met Tho.’
 b. [?][*Lan có gặp Thơ hay không*]_p *Tân biết t_j.*
 Lan ASR meet Tho NEG] Tân know
 ‘Tan knows whether Lan met Tho.’ [cf. BT fn. 5: Example (i)]

However, the contrasts in (8) and (9) are much less clear cut than BT imply; certainly, they are far from minimal. In the first place, only (9a–[4]) is considered fully acceptable (i.e. mean score >3), and this only with an irrelevant main clause interpretation (‘Does Tan know that Lan met Tho?’). As Table 1 below shows, all of the other sentences, including (8a [2]), are judged marginal at best. Second, *contra* BT’s assertion (p. 325), comparison of rows [1] and [2] in Table 1 demonstrates that the addition of *thế* in (8a) makes no significant difference to the acceptability of the utterance as a *wh*-question.

What *does* makes a difference here is the presence or absence of the topic/relative particle *mà*, which BT do not control for. As with the disjunctive particle *hay* and the future morpheme *sẽ*, discussed directly below, BT’s failure to properly balance these other factors makes it hard to secure an argument.

Third, for reasons that BT fail to explain, (9b) is only acceptable given the presence of the disjunctive particle *hay* (‘or’): without this particle (9b) is judged to be even less acceptable than (8b), indeed, reliably so ($p < .01$): compare rows 3 and 5.

Table 1. Evidence for *thế* as an utterance-final particle

Sentence	Judgment	SD	Sig.
1. Ai đi New York mà Tân biết?	2.83	1.09	1 vs. 2: ns
2. Ai đi New York mà Tân biết <i>thế</i> ?	2.93	1.08	2 vs. 3: $p < .0001$
3. Ai đi New York <i>thế</i> mà Tân biết?	1.97	0.99	1 vs. 3: $p < .0001$
4. Lan có gặp Thơ, Tân biết <i>không</i> ?	3.43	0.77	4 vs. 5: $p < .0001$
5. Lan có gặp Thơ <i>không</i> , Tân biết?	1.40	0.72	5 vs. 3: $p < .01$

Moreover, to the extent that (8a → [2]) is accepted by speakers, the string has an alternative translation in which *biết* ('know') is interpreted as taking a DP, rather than CP, complement: compare 'Who does Tan know ~~who~~ (that went to NY)?' In other words, this marginal string may also be interpreted as involving a matrix object question, not the long-distance subject one that BT assume. Quite plausibly, therefore, no island is involved here. I return to this issue below.

BT make an additional claim regarding the functional distribution of *thế*, namely, that it is restricted to *wh*-questions: 'The particle *thế* is used only for *wh*-questions and cannot occur in *Yes-No* questions or in non-interrogative clauses... (2006: 324 [fn. 4]).' The acceptability of the examples in (10) below, in which *thế* appears following final *không* in simplex *Yes-No* questions, contradicts this assertion: the judgments reported in Table 2 reveal no reliable difference whatsoever between *Yes-No* questions with or without *thế*:

- (10) a. *Chị có mua nhà không (thế)?*
 PRN ASR buy house NEG PRT
 'Did you buy a house?'
 b. *Lát nữa con có đi chơi không (thế)?*
 while more PRN ASR go play NEG PRT
 'Will you go out later?'

Table 2. *Thế* in *Yes-No* questions

Sentence	Judgment	SD	Sig.
1. <i>Chị có mua nhà không?</i>	3.97	0.19	1. vs. 2: ns
2. <i>Chị có mua nhà không thế?</i>	3.87	0.35	
3. <i>Lát nữa con có đi chơi không?</i>	4	0	3. vs. 4: ns
4. <i>Lát nữa con có đi chơi không thế?</i>	3.97	0.48	

Notice that in these examples *thế* is essentially inert: its presence or absence makes no difference to the interpretation of other elements. This is in direct contrast to the situation in (11) where final *không* – the 'particle' normally associated with *Yes-No* questions – is appended to sentences containing *wh*-indefinites. For example, the

sentences in (11) show that in clauses involving only one *wh*-indefinite *không* alters the interpretation of the object DP *gì*, such that it is treated as an indefinite, rather than a *wh*-expression.

- (11) a. *Chị mua cái gì?* [Mean Rating 3.6, SD 0.62]
 PRN buy CL what
 ‘What did you buy?’
 b. *Chị mua cái gì không?* [Mean Rating 3.73, SD 0.52]
 PRN buy CL what NEG
 ‘Did you buy something?’

More interesting are the contrasts in (12) and (13), (non-island) contexts involving multiple *wh*-expressions. The quantitative results are summarised in Table 3 below. Notice first of all that in the embedded clause examples in (12), final *không* is required to allow any kind of question interpretation: without *không*, (12a) is only marginally acceptable (compare [1] vs. [3]). By contrast, example (12b) shows that the addition of *thế* does not suffice to force a *wh*-reading: the sentence retains its interpretation as a *Yes-No* question, with somewhat reduced acceptability [1] vs. [2]. And in (12c), the addition of *thế* significantly reduces the acceptability of the sentence [3] vs. [4] – even though as we just observed *không thế* is a perfectly acceptable sequence in other contexts.

- (12) a. *ⁱAnh biết ai cho ai cái gì *(không)?*
 PRN know ai give ai CL gì NEG
 ‘Do you know who gave what to whom?’
 b. *ⁱAnh biết ai cho ai cái gì (thế)?*
 PRN know ai give ai CL gì PRT
 ‘Who gave what to whom, (as you know)?’
 c. *Anh biết ai cho ai cái gì không (?thế)?*
 PRN know ai give ai CL gì NEG (PRT)
 ‘Do you know who gave what to whom?’

Table 3. *thế* in multiple-*wh* contexts

Sentence	Judgment	SD	Sig.
1. <i>Anh biết ai cho ai cái gì?</i>	2.24	1.12	1 vs. 2: ns
2. <i>Anh biết ai cho ai cái gì thế?</i>	2.03	1.02	2 vs. 3: $p < .0001$
3. <i>Anh biết ai cho ai cái gì không?</i>	3.22	0.95	3 vs. 4: $p < .05$
4. <i>Anh biết ai cho ai cái gì không thế?</i>	2.93	1.08	4 vs. 2: $p < .0001$
5. <i>Ai cho ai cái gì?</i>	2.86	1.21	5 vs. 6: ns.
6. <i>Ai cho ai cái gì thế?</i>	2.90	1.11	6 vs. 7: $p < .05$
7. <i>Ai cho ai cái gì không?</i>	2.45	0.98	7 vs. 8: ns.
8. <i>Ai cho ai cái gì không thế?</i>	2.52	1.06	8 vs. 6: ns.

Conversely, the examples in (13 – cf. [Table 3: 4–7]) reveal that a multiple *wh*-interpretation is possible in matrix clauses even without *thế* (13a – [5]), unless this is inhibited once more by the addition of *không* (13b – [7]). It will be clear that in these cases – all of which are only marginally acceptable – the addition of *thế* has no effect on the judgments, neither facilitatory nor inhibitory.

- (13) a. *Ai cho ai cái gì (thế)?*
 ai give ai CL gì PRT
 ‘Who gave what to whom?’
 b. *Ai cho ai cái gì không (thế)?*
 ai give ai CL gì NEG PRT
 ‘Did someone give someone something?’

In short, the judgments on the examples in (11)–(13) strongly imply that *thế* is essentially inert, both syntactically and in illocutionary terms: this is in direct contrast to clause-final *không*, which plays a systematic functional role in the interpretation of matrix questions, and which interacts scopally with other functional elements. These facts urge caution, to say the least, in treating *thế* as linked to syntactic scope-marking, or even as having any *syntactic* role whatsoever.

Before turning to the core syntactic and semantic features of BT’s proposal, it is important to draw attention to a separate problem with BT’s treatment of the pre-verbal markers in the core examples in (1)–(3) above.

2.2 Non-equivalence of pre-verbal TAM markers

A crucial point to observe about the core contrasts in (1)–(3) above is that they are non-minimal. Just as BT fail to control for the effects of *mà* and *hay* in Examples (8) and (9), respectively, there is a confound in the paradigms in (1)–(3) with respect to the pre-verbal markers *sẽ* and *via*, one that is literally glossed over in B&T’s examples.

The clear implication of BT’s using the same gloss (ASP) for both of these morphemes is that the two are interchangeable. Yet this is not the case: in fact, it is debatable whether *either* of these elements is an exponent of an aspectual functional category, as BT’s labelling asserts.

Before considering the true status of these elements, a relevant point to observe is that most of the unacceptability of the crucial (a) examples is due to the presence of *sẽ* rather than to the absence of *thế*, as BT propose. This can be demonstrated straightforwardly by omitting *sẽ*, or replacing it by *via* in order to create true minimal contrasts. As is clear from Table 4, once *sẽ* is deleted the sentences without *thế* are greatly improved with the intended *wh*-interpretation. There is still a facilitatory effect of *thế* in two sentences, something that remains to be accounted for;

however, this influence is only slightly larger than the inhibitory effect of including *sẽ*: compare the effect size between the first two rows of each group with that of the second two rows. Most relevantly for present purposes, the result of adding *thế* in the third construction is to slightly *reduce*, rather than increase the acceptability of the sentence. In this paradigm, then, the entire contrast hinges on *sẽ*: *thế* plays no significant role in determining acceptability.

It will also be clear from Table 4 that the constructions vary significantly in their overall acceptability: for example, even the most acceptable version of the first construction – with *thế* – is considered marginal (2.55 = ?), whereas the third construction passes the threshold of full acceptability (3.0) even without *thế* (once *sẽ* is removed).

Table 4. *Sẽ* vs. *vừa* in interrogative contexts

Sentence	Judgment	SD	Sig.
1. Tân sẽ chụp hình con hổ đã dọa ai?	1.69	0.71	1 vs. 2: $p < .05$
2. Tân vừa chụp hình con hổ đã dọa ai?	1.97	0.91	2 vs. 3: $p < .005$
3. Tân vừa chụp hình con hổ đã dọa ai <i>thế</i> ?	2.55	0.95	3 vs. 1: $p < .0001$
4. Ai sẽ bỏ đi làm mọi người bối rối?	2.21	1.00	4 vs. 5: $p < .0005$
5. Ai vừa bỏ đi làm mọi người bối rối?	2.83	0.97	5 vs. 6: $p < .0001$
6. Ai vừa bỏ đi làm mọi người bối rối <i>thế</i> ?	3.60	0.72	6 vs. 4: $p < .0001$
7. Tân sẽ thua cuộc vì ai làm hư xe của anh ta?	1.55	0.73	7 vs. 8: $p < .0001$
8. Tân thua cuộc vì ai làm hư xe của anh ta?	3.00	0.86	8 vs. 9: ns.
9. Tân thua cuộc vì ai làm hư xe của anh ta <i>thế</i> ?	2.90	1.06	9 vs. 7: $p < .0001$

The judgments collated in Table 4 suggest that a more accurate representation of the BT’s core paradigm is that given in (14a–c) below, where the presence of final *thế* is only *preferred* in some constructions, as opposed to being necessary for a *wh*-interpretation. This is indicated in each case by the annotation before the parenthesis; the question marks within the parentheses show that even with *thế* these sentences are considered anomalous for many of the speakers consulted.

- (14) a. Tân vừa chụp hình con hổ đã dọa ai **(?thế)?*
 Tân ADV catch picture CL tiger ASP scare who PRT
 ‘Tan took a photo of the tiger that scared who?’
- b. Ai vừa bỏ đi làm mọi người bối rối *?(thế)?*
 who ASP leave make everyone embarrass PRT
 ‘That who left made everyone embarrassed?’
- c. Tân thua cuộc vì ai làm hư xe của anh ta *(thế)?*
 Tân lose event because who damage car POSS PRN PRT
 ‘Tan lost the race because who damaged his car?’

The status of *sẽ* and *vừa* is discussed at length in Phan (2013) in the context of an overall discussion of all pre-verbal TAM markers; see also Duffield (2013b, 2017). That research, as well as more traditional descriptions, including Cao (2003), clearly demonstrates that the ‘future’ marker *sẽ* is non-aspectual in nature. In contrast to true aspectual auxiliaries such as (perfect) *đã* and (progressive) *đang*, whose appearance and/or interpretation is conditioned by the aspectual sub-class of the main predicate (Vendler 1957), *sẽ* is interpreted invariantly with all predicate types, simply as a marker of relative futurity; cf. Bui (this volume).

That said, *sẽ* displays a number of co-occurrence restrictions beyond the alleged ‘island contexts’ of (1a)–(3a) above. The examples in (15) illustrate that *sẽ* is systematically excluded from a range of contexts, including (future) *Yes-No* questions (15a); declarative ‘future-perfect’ constructions, in (15b), and emphatic contexts, involving emphatic or (*realis*) *có* (15c): see Duffield (2013a).

- (15) a. *Năm sau vợ anh (*sẽ) có làm việc ở Paris không?*
 year next wife PRN FUT INT work be Paris NEG
 ‘Will your wife work in Paris next year?’
- b. *Năm sau vợ anh sẽ (*có) làm việc ở Paris.*
 year next wife PRN FUT ASR work be Paris
 ‘Your wife will work in Paris next year!’
- c. *Đến cuối năm nay, tôi (*sẽ) đã ra trường.*
 arrive end year DEM¹ PRN FUT ANT go.out.school
 ‘I shall have graduated by the end of the year.’
- (16) a. *Cô ta sẽ có quá nhiều tiền mà không thể đếm được hết.*
 PRN FUT have too much money RM not can count can all-up
 ‘She will have so much money that she won’t be able to count it.’
- b. *Sẽ có người cần anh.* [song title]
 FUT exist person need PRN
 ‘There will be someone (who) needs you.’³

The contrast between (15c) and the examples in (16) below shows that whereas future *sẽ* is incompatible with emphatic *có* (15c), it may freely co-occur with *có* when the latter functions as a main verb (= English ‘have’) (16a), and/or with existential *có* (with post-verbal subjects), as in (16b). None of these restrictions is observed with true aspectuals.

3. Notice again in passing, that the string *người cần anh* in (16c) is potentially ambiguous between a covert subject relative clause and an embedded complement clause: hence, the sentence can be translated as either ‘There will be someone who needs you’ or ‘It will be (the case that) someone needs you.’ As discussed below, the prevalence of such strings in Vietnamese may predispose non-native linguists to analyze complex embeddings where none in fact exist.

Table 5 summarises the effects of including *sẽ* in any construction involving another pre-verbal TAM morpheme.

Table 5. General restrictions on future *sẽ*

Sentence	Judgment	SD	Sig.
1. Năm sau vợ anh <i>có</i> làm việc ở Paris không?	4.0	0	1 vs. 2: $p < .0001$
2. Năm sau vợ anh <i>sẽ</i> <i>có</i> làm việc ở Paris không?	2.21	1.08	2 vs. 3: ns.
3. Năm sau vợ anh <i>sẽ</i> <i>có</i> làm việc ở Paris.	2.45	1.12	3 vs. 1: $p < .0001$
4. Đến cuối năm nay, tôi <i>sẽ</i> <i>đã</i> ra trường.	2.03	1.15	4 vs. 5: $p < .005$
5. Đến cuối năm nay, tôi <i>đã</i> ra trường.	2.72	1.03	
6. Cô ta <i>sẽ</i> <i>có</i> quá nhiều tiền mà ... hết.	3.24	0.83	6 vs. 3: $p < .005$
7. <i>Sẽ</i> <i>có</i> người cần anh.	3.86	0.44	7 vs. 6: $p < .001$

Precisely what excludes *sẽ* from the various constructions in (15) is unclear, supposing there to be a single reason: what is important here is that *sẽ* is the main source of unacceptability in BT’s canonical examples. A possible explanation, which covers a subset of the cases including Examples (1a)–(3a) – and which is consistent with BT’s assumption that *thế* is some kind of *realis* marker – is that there is an interpretive clash between this element and *irrealis* *sẽ*, which renders the two mutually incompatible. BT devote a considerable portion of their paper to establishing the *realis* nature of *thế* (something that is not contested here): in light of this, the idea of an interpretive clash seems plausible.

As for *vừa*, whilst this morpheme is semantically aspectual, it is probably better analyzed as an adverbial modifier than as a functional category, given its relative transportability: in contrast to true functional categories, which appear in a fixed order, *vừa* may adjoin either to the left or the right of the progressive morpheme *đang*. Compare the examples in (17) and (18), and the results presented in Table 6:

- (17) a. Vào giờ này tuần tới tôi *sẽ* *đang* nghỉ mát
 come hour DEM¹ week next I FUT ASP holiday BE
 ở Hawaii rồi.
 Hawaii already
 ‘By this time next week I will have been holidaying in Hawaii.’
- b. *Vào giờ này tuần tới, tôi *đang* *sẽ* nghỉ mát ở Hawaii rồi.
- c. Lúc tôi đến, nó *đã* *đang* ngủ rồi.
 when I come, PRN ASP ASP sleep already
 ‘When I came, he had been sleeping.’
- d. *Lúc tôi đến, nó *đang* *đã* ngủ rồi.
- (18) a. Người mà (vừa) *đang* (vừa) ăn cơm vừa xem tivi đó...
 person RM just PROG just eat rice just watch tv DEM
 ‘the person who was just eating dinner and watching tv...

- b. *Người mà (*vừa) đã (vừa) ăn cơm vừa xem tivi đó...*
 person RM just ANT just eat rice just watch tv DEM
 ‘the person who has just eaten dinner and watched tv...’

Table 6. Distributional restrictions on *vừa*: contrasts with TAM markers

Sentence	Judgment	SD	Sig.
1. ...tôi sẽ <i>đang</i> nghỉ mát ở Hawaii rồi.	3.38	0.91	1 vs. 2: $p < .0001$
2. ... tôi <i>đang</i> sẽ nghỉ mát ở Hawaii rồi.	1.83	0.93	
3. Lúc tôi đến, nó <i>đã đang</i> ngủ rồi.	2.62	1.14	3 vs. 4: $p < .0005$
4. Lúc tôi đến, nó <i>đang đã</i> ngủ rồi.	1.86	0.99	
5. Người mà <i>vừa đang</i> ăn cơm ...	3.59	0.82	5 vs. 6.: $p < .01$
6. Người mà <i>đang vừa</i> ăn cơm ...	3.00	1.0	
7. Người mà <i>đã vừa</i> ăn cơm ... tivi đó.	2.17	1.23	7 vs. 8: ns
8. Người mà <i>vừa đã</i> ăn cơm ... tivi đó.	2.55	0.63	

It is worth noting that there were large discrepancies in speakers' judgments of sentences [3] and [7] involving *đã*: about half of the speakers consulted rated both of these sentences as fully acceptable (=4), while the other speakers considered them to be strongly unacceptable. (Nguyen, this volume, clearly belongs to the latter group of speakers). This pattern of responses contrasts sharply with the judgments for sentences [2] and [4], which were uniformly rejected.

Setting aside these extraneous confounds – and taking (14) as the paradigm to be explained – we can now examine the core syntactic data in B&T's analysis.

BT's fundamental empirical claim is that the presence of *thế* allows sentences involving *wh*-indefinites – in what would otherwise be construed as 'blocking' environments – to be interpreted as direct *wh*-questions: that is to say, the *wh*-expressions are interpreted as having matrix scope. BT develop their claim with respect to two kinds of blocking environment: standard island contexts, and negative scope-islands. In the rest of this paper I shall focus exclusively on the putative island contexts, given space constraints. For discussion of *wh*-indefinites under negation, see Tsai & Quang (this volume).

2.3 Establishing a base-line: dissociating movement and interpretation

Before re-analyzing blocking contexts, consider the following English examples:

- (19) a. Would you (happen to) know [where I can find the toy department?]
 b. Do you know [*what* her maiden name was?]
 c. Can you tell me [*who* brought *what*?]

There are several points to observe about the questions in (19). First, though they have the syntactic form of *Yes-No* questions, these examples cannot be felicitously interpreted as such in normal conversational contexts: ‘Yes’ is rarely a pragmatically felicitous response. Rather, these are interpreted as polite *wh*-questions (information requests): unless the answer is “No”, the matrix clause is effectively ‘parsed out’ of the interpretation.⁴

A separate point to observe is that in spite of their direct interpretation, overt *wh*-movement to the matrix CP is unacceptable in this context:

- (20) a. *Where would you happen to know [that I can find the toy department?]
 b. *What do you know [that her maiden name was?]
 c'. ??Who can you tell me [that brought *what*?]⁵
 c''. *What can you tell me [who brought?]

Yet once the main clauses are re-parsed as parentheticals, as indicated by inversion in the ‘lower’ clause, overt movement is clearly possible:

- (21) a. ?Where, would you happen to know, [can I ~~can~~ find the toy department *where*?]
 a'. Where can I ~~can~~ find the toy department *where*, would you happen to know?
 b. ?[What, do you know, [was her maiden name *was what*?]
 b'. [What was her maiden name *was what*], do you know?'

The English examples in (19)–(21) thus demonstrate that obtaining a matrix scope (direct) reading for a syntactically embedded *wh*-expression does not necessarily imply any long-distance dependency relation: on occasion, the containing clause

4. As it is used here, the term ‘parsing out’ here is closely related to Oshima (2006) mention of ‘annotative’ usages. In offering a pragmatic account of factive island effects, Oshima reinterprets Rooryck (1992)’s putative factive/non-factive contrast in (i) vs. (ii), as follows: ‘The contrast between [(i) and (ii)], on the other hand, can be attributed to the fact that clause-taking verbs like *believe*, *think*, and *feel*, which can be used “annotatively” (as in *They, I believe, didn’t make it after all*; cf. ??*They, I regret, didn’t make it after all*), allow extraction more readily than those that cannot (see Pollard and Sag (1994): 178–181, Liberman (1973)).’

(i) *Who do you regret/understand/forget likes this book?

(ii) Who do you believe likes this book?

(examples from Rooryck 1992; cited from Adams 1985).

This amounts to saying that the latter verbs are parsed as parentheticals – that they are parsed out, leaving the embedded clause as top-most in the interpretation. See Duffield (2018).

5. To the extent that (20c’) is acceptable, it is only with a single-*wh* reading (*who*): overt movement of *who* to the matrix position blocks the intended pair-list reading.

may simply be parsed out of the analysis. The examples also show that whether or not the matrix clause can be parsed out in this way depends crucially on the conventional pragmatic uses of the particular matrix construction involved, as well as on the presence of markers of root status; in this case, *SUBJ-AUX* inversion. (The term ‘matrix construction’ is advisedly chosen: in (19/21c) it is not the matrix predicate alone, but the choice of auxiliary (*can* vs. *did*), and person that determines whether the matrix clause can be parsed out).

With this in mind, consider BT’s baseline example in (22) [= BT 7]:

- (22) *Tân biết ai đi New York.*
 Tan know who go New York
 i. ‘Tan knows for which person x , x went to New York.’
 ii. ‘For which person x , Tan knows that x went to New York?’

BT claim that this sentence is ambiguous between a unmarked indirect question reading, and a reading in which *who* is interpreted as taking matrix scope. They interpret the latter reading as a ‘long-distance’ reading; in this way, Example (22) is supposed to show that Vietnamese allows long-distance (covert) extraction in principle, except where selectional restrictions and/or island effects prevent it.

There are several difficulties with this claim. First, there is a basic issue of acceptability: for many native-speakers consulted, the sentence is unacceptable with an interrogative interpretation (22ii): as Table 7 below shows, the mean acceptability of BT’s baseline sentence contrasts sharply with its unambiguous declarative version, where *ai* is replaced by the pronoun *họ* (\approx they):

Table 7. Ambiguity of complement clauses containing *ai*

Sentence	Judgment	SD	Sig.
1. <i>Tân biết ai đi New York?</i>	2.52	0.94	1 vs. 2: $p < .0001$
2. <i>Tân biết họ đi New York.</i>	3.97	0.18	

Second, as was just illustrated for English, one cannot be sure that for those who accept the ‘embedded’ reading the direct *wh*-interpretation is really the result of covert movement: it could as readily arise from parsing out the main clause in the right conversational context, as schematised in (23); this operation being facilitated by the addition of final *thế*.

- (23) *Tân biết – Ai đi New York?*

Alternatively, the availability of a direct reading may well be a diagnostic of an alternative global parse: in this case, a relative clause analysis. Notice that in (22), in both Vietnamese and English, there is a potential ambiguity within the ‘question

reading’ between a short-distance object interpretation ‘who is the person x (x went to NY), Tan know x ?’ and a long-distance subject interpretation ‘Who is the person x , such that Tan knows that x went to New York.’ In both languages, the ambiguity arises due to the optionality of complementisers~relativisers (in English *that*, in Vietnamese *rằng, mà*, respectively), as well as to the semantic ambiguity of the verbs *know~biết*: compare Spanish *conocer* (‘know (a person, place)’) vs. *saber* (‘know (a proposition)’). Clearly, in order to test the validity of BT’s claim, it is necessary to tease these two readings apart, to check whether *wh*-expressions can in fact be extracted from (unambiguously) embedded domains, and also to exclude the former (relative clause) interpretation.

The examples in (24) and (25) show that complement clauses in Vietnamese may be disambiguated by an overt subordinating element: *rằng* in the case of declarative complements, *liệu* for indirect questions. In such contexts, where the selectional properties of the matrix verb are satisfied by the complementiser itself, one would predict long-distance extraction should be possible in principle, and – if BT are correct – that this should be facilitated by the addition of final *thế*.

- (24) a. Ông ta nói rằng công.việc không thích hợp với ông ta.
 PRN say COMP work NEG suitable with PRN
 ‘The man said that the job was unsuitable for him.’
- b. Ông ta nói [rằng việc nào không thích hợp với ông ta] ??(thế)?
 PRN say COMP work which NEG suitable with PRN PRT
 intended: ‘Which work (did the man say) was unsuitable for him?’
- (25) a. Người đàn ông tự hỏi [liệu cô bồ có ở lại với ông
 CL man self ask LIEU PRN friend ASR BE. stay with PRN
 ấy không].
 DEM NEG
 ‘The man wondered whether (or not) his girlfriend would stay with him.’
- b. Người đàn ông tự hỏi [liệu (có) ai ở lại với ông ấy
 CL man self ask LIEU EXP who BE stay with PRN DEM
 không] (?thế).
 NEG PRT
 ‘The man wondered whether anyone would stay with him.’
 ??‘Who did the man wonder whether (or not) would stay with him.’

The relevant judgments are summarised in Table 8 below, and in the annotations to (24) and (25). The paradigm sets in Table 8 display sharply divergent patterns: whereas the addition of *thế* to embedded declaratives containing *wh*-indefinites facilitates a matrix *wh*-reading [2] vs. [3] – in fact (24b) is considered anomalous without *thế* – its application to embedded questions (24b) has no scope-altering effect: instead, the acceptability of (25b) is significantly reduced by the addition

of *thế* – the sentence remains preferentially interpreted as an indirect question (*ai* = ‘anyone’). Compare [5] vs. [6].

This evidence, when taken in conjunction with the fact that *thế* is not restricted to *wh*-environments (10), casts further doubt on BT’s core assumption about the function of *thế*: it may even suggest a more radical possibility, namely, that *wh*-constituents are barred from embedded contexts entirely.

Table 8. Effects of *thế* on long distance extraction

Sentence	Judgment	SD	Sig.
1. Ông ta nói rằng công.việc không thích hợp với ông ta.	3.72	0.70	1 vs. 2: $p < .0001$
2. Ông ta nói rằng việc nào không thích hợp với ông ta?	2.03	1.21	2 vs. 3: $p < .0001$
3. Ông ta nói rằng việc nào không thích hợp với ông ta <i>thế</i> ?	3.55	0.74	3 vs. 1: ns.
4. Người đàn ông tự hỏi liệu cô bồ có ở lại với ông ấy không?	3.66	0.72	4. vs. 5: ns.
5. Người đàn ông tự hỏi liệu có ai ở lại với ông ấy không?	3.79	0.41	5. vs. 6: $p < .0001$
6. Người đàn ông tự hỏi liệu có ai ở lại với ông ấy không <i>thế</i> ?	3.17	0.65	6 vs. 4: $p < .0005$

If this suggestion is on the right track, then the function of *thế* is not to license unselective binding, but rather to indicate that the sentence should be analyzed in such a way as to place the *wh*-element in a root clause, either by parsing out the matrix predicate or by biasing an alternative reading of the preceding string. Each of BT’s canonical examples may be understood as instantiating one or other of these strategies.

Let us now consider the alternative parse of the English translation of (22), namely, the object relative parse ‘*Who does Tan know ~~who~~ ((that) went to New York)?*’ In English, the crucial difference between this analysis and the long-distance subject reading – both of which have approximately the same final interpretation – is the position of *who* vis-à-vis the complementiser/relativiser *that*: if *who* is interpreted to the left of (relativiser) *that* we obtain a matrix interpretation (26a); conversely, interpreting *who* to the right of (complementiser) *that* forces an embedded ‘long-distance’ subject reading (26b). In English, the latter reading is more marginal, arguably due to the *that*-trace effect, as indicated by the ?? annotation in (25b); however, this PF-property should not play any role in the corresponding Vietnamese sentence in which a covert dependency is involved, particularly under BT’s unselective binding proposal. Compare also Duffield (2018) for an alternative construal of *that*-trace contexts.

- (26) a. Who did you know ~~who~~ [that went to New York]?
 b. [?]Who did you know [that [~~who~~ went to New York]]?

As noted above, Vietnamese distinguishes between the complementiser *rằng* and the relativiser *mà*. Though both elements are optional in principle, the distributional contrasts in (27) show that they can clearly disambiguate the string in (22) above:

- (27) a. [?]*Tân biết (*ai) rằng ai đi New York.*
 Tan knows ai that ai go New York
 ‘Tan knows that someone went to New York.’
 (No long distance *wh*-reading available)
 b. [?]*Tân biết ai mà (*ai) đi New York?*
 Tan know who REL ai go New York
 i. ‘Tan knows (someone) who went to New York.’
 ii. [?]‘Who does Tan know (that went to New York)?’
 (No long-distance *wh*-reading available [in principle])

As Example (27a) indicates, no long-distance *wh*-interpretation is possible in the unambiguously embedded version of (22), where *ai* must be construed as contained within the embedded clause; on the other hand, (27b) shows that even where the extraction takes place from a position in the matrix clause, the *wh*-interpretation is dispreferred when *ai* is accompanied by a relative clause. This is unexpected on BT’s analysis: on the contrary, one would predict that adding *thế* to (27a) should have the effect of permitting a long-distance construal of *ai*, while it should have no effect in (26b), where the direct *wh*-reading is supposed to be fully acceptable in any case. These predictions are clearly not borne out, however, as revealed in Table 9: the addition of *thế* has no statistically reliable effect on the acceptability of the sentence under any reading.

Table 9. Effects of *thế* in unambiguous complement clause contexts

Sentence	Judgment	SD	Sig.
1. <i>Tân biết ai đi New York?</i>	2.52	0.94	1 vs. 2: $p < .0001$
2. <i>Tân biết họ đi New York.</i>	3.97	0.18	
3. <i>Tân biết rằng ai đi New York?</i>	2.34	0.90	3 vs. 4: ns
4. <i>Tân biết rằng ai đi New York thế?</i>	2.52	1.15	4 vs 5: $p < .0001$
5. <i>Tân biết ai rằng đi New York?</i>	1.21	0.49	6 vs. 4: $p < .0001$
6. <i>Tân biết mà ai đi New York?</i>	1.21	0.49	6 vs. 7: $p < .0001$
7. <i>Tân biết ai mà đi New York?</i>	2.41	1.05	7 vs. 8: ns
8. <i>Tân biết ai mà đi New York thế?</i>	2.48	1.02	8 vs. 6: $p < .0001$

3. Re-analyzing islands

Having considered the status of baseline sentences – in particular, the fact that BT’s canonical string (22) is amenable to several structural analyses, only one of which involves long-distance extraction – let us now re-analyze the contrasts observed in three putative island contexts. For convenience, the judgment data are reproduced in Table 10, using BT’s labels in scare quotes.

Given the discussion to this point, I will assume henceforth – *contra* BT – that none of the direct interpretations of *wh*-indefinites arise from long-distance construal/unselective binding. To bolster this assumption, it is necessary to demonstrate that there is an alternative analysis of the strings in question that yields a matrix interpretation in each case.

Table 10. Summary of ‘Island Effects’ contrasts

Clause Type	Judgment	SD	Sig.
‘Complex NP island’			
2. Tân vừa chụp hình con hổ đã dọa ai?	1.97	0.91	2 vs. 3: $p < .005$
3. Tân vừa chụp hình con hổ đã dọa ai <i>thế?</i>	2.55	0.95	
‘Sentential subject constraint’			
5. Ai vừa bỏ đi làm mọi người bối rối?	2.83	0.97	5 vs. 6: $p < .0001$
6. Ai vừa bỏ đi làm mọi người bối rối <i>thế?</i>	3.60	0.72	
‘Adjunct Island constraint’			
8. Tân thua cuộc vì ai làm hư xe của anh ta?	3.00	0.86	8 vs. 9: ns.
9. Tân thua cuộc vì ai làm hư xe của anh ta <i>thế?</i>	2.90	1.06	

3.1 ‘Complex NP-islands’ as consecutive main clauses

- (14) a. *Tân vừa chụp hình con hổ đã dọa ai* ^{??}(?*thế?*)?
 Tân ADV catch picture CL tiger ASP scare who PRT
 ‘Tan took a photo of the tiger that scared who?’

As outlined previously, BT analyse the string in (14a) as involving an object relative clause containing *ai*: *thế* is then supposed to permit unselective binding into this complex NP-island. This is schematised by the bracketing in (30a) below. For native-speakers I have consulted, such a reading is possible though not readily accessible: in fact, its status seems to be similar to that of the equivalent English echo question (in non-echo environments). Part of the problem here is that there is a

much preferred way of asking the intended question, namely, that in (28), and the addition of *thế* in and of itself does little to narrow this acceptability gap:⁶

- (28) a. *Con hổ [mà Tân vừa chụp hình] đã dọa ai (thế)?*
 CL tiger REL Tân just take photo] ASP scare who PRT
Lit. ‘The tiger that Tân just photographed scared who?’

Moreover, once the sentence is altered to make it clear that *ai* is contained within a relative clause, the acceptability of the string is further reduced. Example (29a) shows that insertion of the relative clause marker *mà* reduces the acceptability of the string with the intended reading; acceptability is further reduced in (29b) by the addition of a post-VP modifier that unambiguously modifies the head of the putative relative (*con hổ*):

- (29) a. [?]*Tân vừa chụp hình con hổ mà đã dọa ai [?](thế)?*
 Tân ADV catch picture CL tiger REL ASP scare who PRT
 ‘Tân took a photo of the tiger that scared who?’
 b. ^{??*}*Tân vừa chụp hình con hổ đã dọa ai kêu gầm gừ (thế)?*
 Tân ADV catch picture CL tiger ASP scare who by growling PRT
 ‘Tân took a photo of the tiger that scared who by growling?’

The relevant minimal contrasts are presented in Table 11 below. All of these data indicate that (14a) is not in fact acceptable on any reading in which *ai* is contained within a complex noun-phrase. Notice especially the clear contrasts between [5] vs. [3], and [7] vs. [4], as well as the absence of any ameliorating effect of *thế* in unambiguous island contexts (e.g. [6] vs. [7]).

Table 11. Summary of ‘CNPC’ contrasts

Sentence	Judgment	SD	Sig.
2. Tân vừa chụp hình con hổ đã dọa ai?	1.97	0.91	2 vs. 3: $p < .005$
3. Tân vừa chụp hình con hổ đã dọa ai <i>thế</i> ?	2.55	0.95	
4. Con hổ mà Tân vừa chụp hình đã dọa ai?	3.31	0.84	4 vs. 5: ns. 4 vs. 1: $p < .0001$
5. Con hổ mà Tân vừa chụp hình đã dọa ai <i>thế</i> ?	3.59	0.79	5 vs. 3: $p < .0001$
6. Tân vừa chụp hình con hổ mà đã dọa ai?	1.90	0.94	6 vs. 7: ns 6 vs. 3: $p < .0001$
7. Tân vừa chụp hình con hổ mà đã dọa ai <i>thế</i> ?	2.00	1.07	7 vs. 3: $p < .05$

6. Notice once more that *thế* is preferred here, in spite of the fact that no long-distance dependency is involved: that is, this is a canonical matrix object extraction.

Notice now that there are at least two alternative analyses of this string, the first of which is as accessible as the object relative reading: this is a sentential topic reading. Analyzing the string as in (30b) yields the question of who was scared by Tan's photographing the tiger (rather than by the tiger itself).

- (30) a. ^{??}*Tân vừa chụp hình [con hổ đã dọa ai thế]?*
 b. [#]*[Tân vừa chụp hình con hổ] đã dọa ai thế?*

If the latter reading is more anomalous than the object relative reading in the present context, this is probably for pragmatic reasons: in contrast to tigers, someone taking pictures is not especially frightening. However, once more suitable lexical items are substituted, leaving the grammatical structure intact, the judgments are reversed: in (31), for example, it is the sentential topic reading that is preferred:

- (31) a. ^{*}*Tân chụp hình đứa trẻ [làm ai khó chịu thế]?*
 Tan catch picture CL child [make ai upset] PRT
 'Who did Tan take a picture of the child that upset who?'
 b. [?]*[Tân chụp hình đứa trẻ] làm ai khó chịu thế?*
 Tan catch picture CL child make ai upset PRT
 'Who did (it) upset that Tan took a picture of the child?'

It is interesting to note, therefore, in (31) – where once again a main clause analysis is possible (31b) – that the addition of *thế* leads to a significant gain in acceptability; this is shown in Table 12.

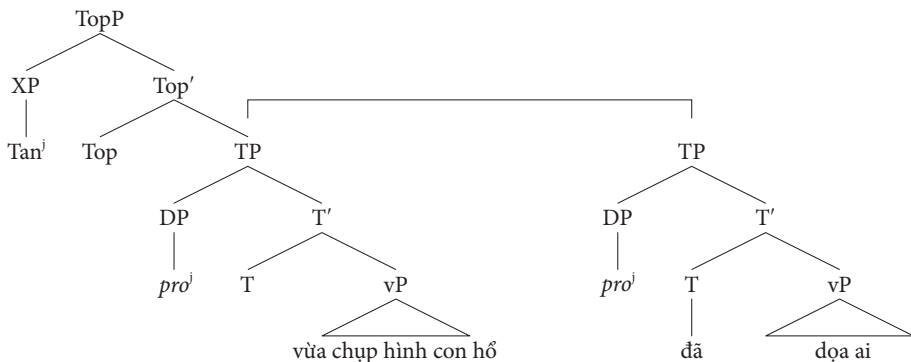
Table 12. Sentential topic analysis

Sentence	Judgment	SD	Sig.
1. <i>Tân chụp hình đứa trẻ làm ai khó chịu?</i>	2.55	1.01	1 vs. 2: $p < .005$
2. <i>Tân chụp hình đứa trẻ làm ai khó chịu thế?</i>	3.10	0.86	
3. <i>Vừa gặp đã yêu.</i>	3.76	0.51	
4. <i>10 món ăn Việt, vừa nhìn đã khó chịu.</i>	2.62	1.16	

This point may well be moot, given that the most accessible reading of the string in (14a) involves no subordination at all:⁷ for many speakers consulted, the string is best analyzed as two consecutive matrix clauses, where Tan (= *pro*) is taken to be the topic and subject in each clause: 'Tan, (he) (just) took a picture of a tiger, and (then) who did (he) [= Tan] scare?'

7. I am grateful to Trang Phan for pointing out this reading, and for explaining the discourse function of *vừa...đã* sequences. It should be clear that this consecutive analysis also allows the object of the first clause to become the subject of the second, if TopPs rather than TPs are collocated (Topic Switch).

(32)



This parse is diagrammed in (32) above. Notice that the *vừa...đã* sequence found in (14a) occurs commonly in Vietnamese discourse to signal that someone who has just done one thing does another thing right after that, somehow sooner than expected: typically, the topic is shared, as exemplified in (33):

- (33) a. *Vừa gặp đã yêu.*
 just meet ASP love
 ‘Love at first sight!’ (lit. ‘just meet, already love’)
- b. *10 món ăn Việt, vừa nhìn đã khóc thét.⁸*
 10 CL dish Viet just look ASP cry
 ‘Ten Vietnamese dishes, just looking (at them) will make you cry.’

3.2 Alternative analyses of ‘Sentential Subjects’

Let us now consider the strings that BT class as ‘Sentential Subject Constraint’ violations, exemplified by (14b). Here once more, alternative analyses are available which involve only short-distance (matrix) construal. The first possibility is a relative clause analysis, in which *ai* in (14b = 34a) gets parsed as a matrix subject followed by a relative clause. As before, the RC analysis can be disambiguated by inserting an overt relativiser *mà*, as in (34b), which yields a very similar interpretation without the need for any long-distance extraction:

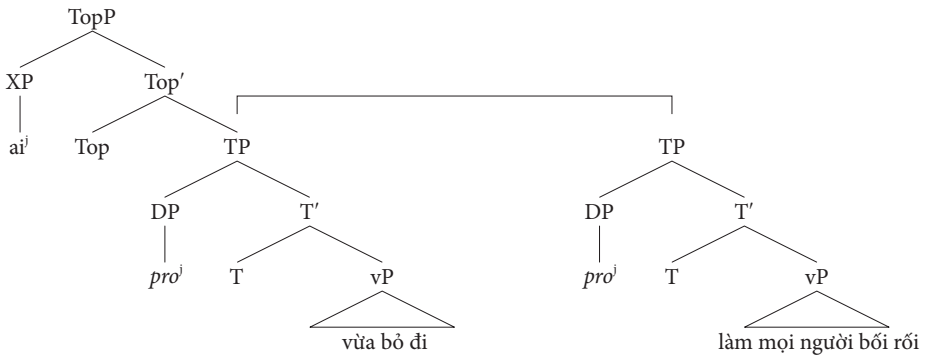
- (34) a. [*Ai vừa bỏ đi*] làm mọi người bối rối (thế)?
 who ASP leave make everyone embarrass PRT
 ‘?That who left made everyone embarrassed?’

8. <<http://ngoisao.vn/an-ngon/dia-chi-an-ngon/10-mon-an-viet-vua-nhin-da-khoc-thet-127799.htm>>

- b. *Ai* [_{RC} *mà (vừa) bỏ đi*] *làm mọi người bối rối (thế)?*
 who REL ASP just leave make everyone embarrass PRT
 ‘Who that just left made everyone embarrassed?’
- c. *Ai* [*vừa bỏ đi*], [*làm mọi người bối rối*] ??(*thế*)?
 ai ASP leave make everyone embarrass PRT
 ‘Who just left, and embarrassed everyone (by doing so)?’

There is also an even simpler solution, namely, that once again two consecutive clauses are involved. The only difference between English and Vietnamese in this respect is that in English consecutive clauses are generally conjoined with ‘and’. If this rather banal interpretation is correct, then (14b) should really be assigned the analysis and translation in (34c), schematised in (35):

(35)



The judgment data in Table 13 are consistent with either alternatives.⁹ However, the preference for (34b) [8] over (34c) [9] suggests that the relative clause analysis may be more likely. But however the strings are analyzed, the *wh*-indefinite is parsed as a matrix argument: in neither case is islandhood relevant.

Table 13. SSC violations: Alternative analyses

Sentence	Judgment	SD	Sig.
5. <i>Ai vừa bỏ đi làm mọi người bối rối?</i>	2.86	0.97	5 vs. 6: $p < .0001$
6. <i>Ai vừa bỏ đi làm mọi người bối rối thế?</i>	3.59	0.77	6 vs. 8: $p < .05$
7. <i>Ai mà bỏ đi làm mọi người bối rối?</i>	–	–	–
8. <i>Ai mà bỏ đi làm mọi người bối rối thế?</i>	3.21	0.86	8 vs 5: ns.
9. <i>Ai vừa bỏ đi, làm mọi người bối rối?</i>	2.69	1.00	9 vs. 5: ns.
10. <i>Ai vừa bỏ đi, làm mọi người bối rối thế?</i>	–	–	–

9. Two items – [7] and [10] – were omitted from the survey by mistake. This made it impossible to probe the relationship with *thế* as closely as in the other cases.

3.3 ‘Adjunct islands’ are main clauses, too

This alternative approach extends to the third putative island context, namely, the alleged ‘adjunct island’ represented in (14c), repeated below as (36):

- (36) *Tần thua cuộc vì ai làm hư xe của anh ta (thế)?*
 Tan lose event because who damage car POSS PRN PRT
 ‘Tan lost the race because who damaged his car?’

In the first place, as has already been discussed, the presence of *thế* does not materially affect the acceptability of this sentence: *contra* BT, for the thirty-one speakers consulted, both sentences are judged to be on the threshold of full acceptability, with a slight preference for the version without *thế*.

Table 14. [part repeated]. ‘Adjunct Island’ contrasts

Sentence	Judgment	SD	Sig.
8. <i>Tần thua cuộc vì ai làm hư xe của anh ta?</i>	3.00	0.86	8 vs. 9: ns.
9. <i>Tần thua cuộc vì ai làm hư xe của anh ta thế?</i>	2.90	1.06	

However, even if one accepted BT’s judgments of this particular contrast, this still would not necessarily support their theoretical claim. Consider the sentences in (37) and (38) below. If the presence of *thế* allowed for a long-distance dependency into an adjunct clause, then one would expect the *position* of the putative subordinate clause, and the *choice of the subordinating conjunction* to make no difference to “unselective binding” of the *wh*-argument. Yet the data show both of these factors play a crucial role in blocking any *wh*-reading, irrespective of *thế*. The paradigm sets in (37) and (38) reveal that re-arranging the clauses, and/or substituting conjunctions in order to make it clearer that the string containing *ai* should be parsed as a subordinate adjunct clause, renders the sentence grammatically unacceptable. Specifically, the (b) examples show that preposing the adjunct clause removes the availability of a direct-*wh* interpretation; more generally, the substitution of the comparatively weak subordinator *vì* with the stronger conjunctions *bởi vì* – and especially *mặc dù* – militate against acceptability: (38a), for example, is completely unacceptable on the intended interpretation. In no case is the structure rescued by the addition of *thế*, which either has no effect, or makes things worse. It is striking that every one of the lowest-rated sentences in Table 14, without exception, contains *thế*. While it would require a different analysis to determine this conclusively, the *t*-test comparisons in column 3 strongly suggest that preposing and conjunction choice are significantly stronger factors in predicting acceptability than the presence or absence of *thế*.

Crucially, as demonstrated by the comparisons in Table 14 and illustrated by the (c) examples in (37) and (38), all of these sentences are fully acceptable if the interrogative morpheme *ai* is replaced by the pronoun *em* ('younger sibling') – just as long as *thế* is omitted!

- (37) a. [?]Tân nấu bữa tối bởi vì ai đã mang vài thứ đặc biệt (**thế*)?
Tan cook dinner because *ai* ASP bring several thing special PRT
*‘Who did Tan cook dinner because ~~who~~ brought something special?’
- b. **Bởi vì ai đã mang vài thứ đặc biệt, Tân nấu bữa tối (thế)?*
because ai ASP bring what special Tan cook dinner PRT
*‘Who because brought something special did Tan cook dinner?’
- c. *Tân nấu bữa tối bởi vì em đã mang vài thứ
Tan cook dinner because PRN ASP bring several thing
đặc biệt (**thế*)?
special PRT
‘Tan cooked dinner because she brought something special.’*
- (38) a. **Tân thắng cuộc [mặc dù ai làm hư xe của anh ta] (thế).*
Tan win race even though ai damage car POSS PRN PRT
??/*‘Who did Tan win the race even though damaged his car?’
- b. **[Mặc dù ai làm hư xe], Tân thắng cuộc (thế)?*
even though ai damage car, Tan win race PRT
i. ‘Even though someone damaged the car, Tan won the race.’
ii. *‘Who even though damaged the car, did Tan win the race?’
- c. *[Mặc dù em làm hư xe] Tân thắng cuộc (**thế*)?*
even though PRN damage car Tan win race PRT
‘Even though she damaged the car, Tan won the race.’

The data in (37) and (38) thus tend to the conclusion that the AIC is as robust an effect in Vietnamese as it is in English, irrespective of the presence of *thế*: (14c) is another illusory island. But if this is the case, then how is a *wh*-reading obtained in this case? The most likely possibility, I suggest, is that it arises in just the same way as it does in the following English utterance, namely, as a conversational run-on:

- (39) *‘Tan lost the race because...who damaged his car?’*

In the case of the Vietnamese string, the presence of *thế* may serve to highlight the ‘re-start’ involved here: what starts out as an adjunct clause is reparsed as a main clause, and thus interpreted as a question: see Duffield (2018).

What remains less clear is the question of which clause *thế* is attached to. If one assumes that the Vietnamese conjunction *vì* is strictly subordinating, like English *because*, then the conclusion must be that this is an adjunct clause, hence an island.

However, as has been observed by several authors, Vietnamese discourse structure imposes a less rigid distinction between subordinate and co-ordinate clauses than that found in English. Clark (1992)'s remarks are especially relevant:

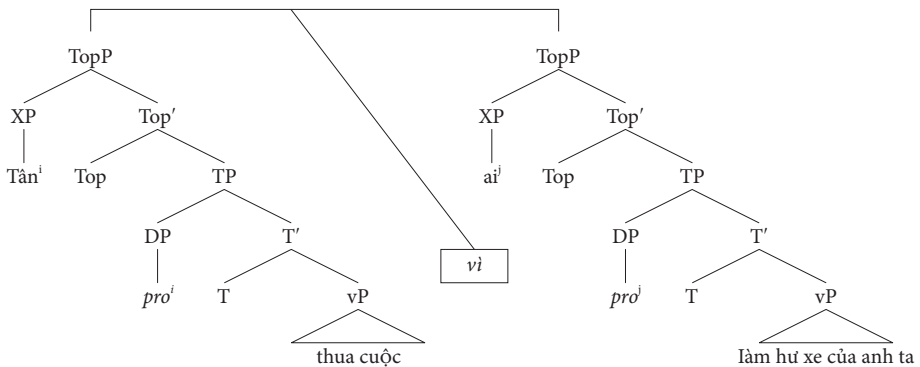
Ideas in Mainland South East Asia tend to be expressed in seemingly co-ordinate or sequential units in a linear fashion, rather than in clause-within-clause constructions. These units are frequently unmarked by conjunctions. Therefore, when conjunctions are used, they signal the likelihood that the speaker wishes to make some point about the relationship between the clauses involved with that construction. *Some constructions do not have meanings that are restricted enough to be quite clear about the relationship being expressed.* (Clark 1992: 91, emphasis mine)

In light of these remarks, it is plausible to re-analyze these apparent adjuncts as root clauses, in which case – as shown in (39) and (40) – the 'island' once again disappears:

Table 15. 'AIC' Violations: Alternative analyses. (The judgments in rows 5/6/7 and 12/13/14 are those of a single native-speaker linguist. I take them to be indicative, though they were not entered into any analysis.)

Sentence	Judgment	SD	Sig.
1. Tăn nấu bữa tối bởi vì ai đã mang vài thứ đặc biệt?	2.41	1.05	1 vs. 2: $p < .0001$
2. Tăn nấu bữa tối bởi vì ai đã mang vài thứ đặc biệt <i>thê?</i>	1.55	0.99	
3. Bởi vì ai đã mang vài thứ đặc biệt, Tăn nấu bữa tối?	1.31	0.60	3 vs. 4: $p < .05$ 3 vs. 1: $p < .0001$
4. Bởi vì ai đã mang vài thứ đặc biệt, Tăn nấu bữa tối <i>thê?</i>	1.10	0.30	4 vs. 2: $p < 0.005$
5. Tăn nấu bữa tối bởi vì em đã mang vài thứ đặc biệt.	4.00	–	
6. Bởi vì em đã mang vài thứ đặc biệt, Tăn nấu bữa tối.	4.00	–	
7. Bởi vì em đã mang vài thứ đặc biệt, Tăn nấu bữa tối <i>thế.</i>	1.00	–	
8. Tăn thắng cuộc mặc dù ai làm hư xe của anh ta?	2.48	1.09	8 vs. 9: $p < .0001$
9. Tăn thắng cuộc mặc dù ai làm hư xe của anh ta <i>thê?</i>	1.28	0.59	
10. <i>Mặc dù</i> ai làm hư xe, Tăn thắng cuộc?	1.59	0.82	10 vs 11: $p < .0001$ 10 vs. 8: $p < .0001$
11. <i>Mặc dù</i> ai làm hư xe, Tăn thắng cuộc <i>thê?</i>	1.00	0	11 vs. 9: $p < .005$
12. Tăn thắng cuộc, <i>mặc dù</i> em làm hư xe.	4.00	–	
13. <i>Mặc dù</i> em làm hư xe, Tăn thắng cuộc.	3.00	–	
14. <i>Mặc dù</i> em làm hư xe, Tăn thắng cuộc <i>thế.</i>	1.00	–	

- (40) a. [Tân thua cuộc] [vì [ai làm hư xe của anh ta]] thế?
 ‘Tân lost the race (because) [who damaged his car?]



This may seem *ad hoc*, yet it is worth noting that even more familiar languages show similar alternations between rigidly hypotactic and paratactic structures. German topicalization, for example, is – like Vietnamese – restricted to one topic constituent per matrix clause. In contrast to Vietnamese, German topicalization generally triggers obligatory finite verb-movement: this is the well-known ‘Verb-Second’ constraint, exemplified in (41):

- (41) a. *Im Garten habe ich gespielt.*
 in.the garden have I played
 ‘I played in the garden.’
 b. **Im Garten ich habe gespielt.*
 in.the garden I have played
 ‘I played in the garden.’

In the case of adjunct clauses, however, German allows two options with certain conjunctions, such as those headed by the weak subordinator *wie* (*as*): the adjunct clause may be merged as the Topic, triggering verb-movement (42a), but it also may be more loosely adjoined, appearing outside the clause, as in (42b):

- (42) a. *Wie du weißt habe ich im Garten gespielt.*
 As you know have I in the garden played
 ‘As you know, I played in the garden.’
 b. *Wie du weißt, ich habe im Garten gespielt.*
 As you know I have in.the garden played
 ‘As you know, I played in the garden.’

This implies that languages permit some flexibility in how tightly discourse structure is bound to syntax: one cannot conclude that a given clause is necessarily an adjunct or root clause simply on the basis of whether it is introduced by a (typically subordinating) conjunction.

4. Conclusion

In this paper, I have provided a detailed set of empirical and methodological objections to the analysis of *wh*-questions in Vietnamese proposed in B&T (2006), in which the final particle *thế* is treated as a syntactic *realis* marker licensing unselective binding. Through a close examination of the core data in BT’s article, it has been demonstrated that almost all of the unacceptability of starred examples in BT is due to extraneous factors, and that when these are properly controlled for, *thế* has no significant alleviating function (in syntactic terms). Central to this discussion is the constituency of alleged islands to *wh*-movement. I have argued that in all relevant cases, the appearance of islandhood is illusory: for each of the alleged island contexts (CNPC, SSC, AIC), I have proposed several alternative analyses in which extraction takes place from positions within matrix clauses; hence, the putatively alleviating function of *thế* is moot. It has also been demonstrated that *thế* preferentially appears in a wide range of conversational contexts in which unselective binding plays no plausible role. Taking all the relevant distributional facts into consideration, the conclusion must be that *thế* is not a syntactic particle at all, and that any adequate account of its behavior is to be found in the field of conversational analysis or discourse processing, rather than in syntax. The proposed re-analysis not only explains the facts without recourse to a ‘dual strategy option’ for *wh*-dependencies, but also accounts for the preferred interpretations of the strings in question, as well as for the acceptability of various related constructions (e.g. the distribution of overt relative clause markers, and sentential topics). Finally, the alternative proposal set out here is argued to comport better with the nature of a language having a preference discourse structures than does the authors’ more theoretically-driven proposal.

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SECTION C

Semantics

Temporal reference in Vietnamese

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The paper seeks to address gaps in current knowledge regarding cross-linguistic variation on the semantics of tense and aspect by examining how temporal reference is determined in Vietnamese. It is argued that, like St'át'imcets (Matthewson 2006), Vietnamese is a 'superficially tenseless' language in the sense that even though the grammar lacks overt tense morphology, every finite clause contains a phonologically empty non-future tense morpheme. I then argue that future tense in Vietnamese realised as a combination both the obligatory null tense morpheme and an overt spell-out of *sẽ*, which is the Vietnamese counterpart of the English WOLL operator (Abusch 1985). This means that *sẽ* itself is neither a purely a tense or solely an epistemic modal. Consequently, this study concludes that future time reference is systematically different from present and past time interpretations, which is similar to previous claims made by Abusch (1997), Kratzer (1998), and others.

Keywords: (future) tense, aspect, viewpoint aspect, tenselessness, cross-linguistic comparisons

1. Introduction

Tense, the grammatical category expressing the location of an action or a state in time, has been the focus of a large body of literature on temporal reference. A number of recent studies have discussed the fact that many languages, including Kalaallisut (Bittner 2005), Lillooet (Matthewson 2006), Mandarin (Lin, 2005), Guarani (Tonhauser 2011), and Hausa (Mucha 2013), among others, appear to be tenseless. In other words, such languages appear not to have overt grammaticalised expressions that impose constraints on the temporal relation between the time of reference and the time of utterance. These studies have significantly contributed to our understanding on temporal reference by presenting detailed theoretical analyses on different tenseless languages, determining how they are similar and how they may vary from one another.

The goal of this paper is to further this understanding of cross-linguistic variation on the semantics of tense and aspect by examining how temporal reference is achieved in Vietnamese. In particular, the study will examine both the interpretation of bare verbal predicates, and of the preverbal aspectual and modal particles *sẽ*, *đã*, and *đang*, as well as their interactions with one another. The study first explores the possibility of accounting for such markers as optional tenses, along the lines of Duffield's (1999, 2007) and Phan's (2013) analyses. By testing this hypothesis against empirical data, I argue against the claim that *sẽ* and *đã* are future and past tenses, respectively. Following Matthewson's (2006) analysis for Lillooet, I further argue that although Vietnamese lacks overt tense morphology, every finite clause in the language possesses a phonologically empty tense morpheme, which restricts the reference time to being non-future. I then propose that *đang* is an expression of progressive aspect, while *đã* is a perfect marker; see also Duffield (2017), Phan & Duffield (in press, this volume) Furthermore, futurity in Vietnamese is expressed with the combination of the null tense with *sẽ*, which functions as an overt spell-out of the WOLL operator (Abusch 1985).

The structure of the paper is as follows. The next section introduces basic Vietnamese temporal data. In Section 3, I discuss some previous analyses of these contrasts, In Section 4, I address problems with these previous accounts and show how they do not work for a larger set of data in the language. Section 5 then contains the bulk of my analysis, and shows that it captures these facts. Finally, I summarise the key patterns, re-emphasise the main points, and discuss their theoretical and typological import in the concluding Section 6.

I conclude this introduction by outlining some very basic background assumptions and terminology. Following Reichenbach (1947) and adopting the terminology widely used in the literature on tense, this paper assumes a three-way distinction among the utterance time (UT), the topic time or reference time (RT), and the situation time or event time (ET). These categories are defined as follows:

- (1) a. UT: The time at which the sentence is uttered
- b. RT: The time about which the claim is made
- c. ET: The time for which the predicate holds of the subject

Furthermore, following Klein (1994), this paper assumes that tense provides information about the location of the RT and its relation to the UT:

- (2) a. Past Tense: The RT precedes the UT ($RT < UT$)
- b. Present Tense: The RT surrounds the UT ($UT \subseteq RT$)
- c. Future Tense: The RT follows the UT ($UT < RT$)

English verbs are marked with tense information, as illustrated in (3) below.

- (3) a. At the time of the war, Rey was in Jakku.
 b. At the time of the war, Rey is in Jakku.
 c. At the time of the war, Rey will be in Jakku.

The RT of all the cases in (3) is the time of the war. In (3a), the past tense form of BE indicates this RT precedes the UT, while in (3b) and (3c), present and future tense marking indicate that it surrounds and follows the UT, respectively. Therefore, it the matrix tense affects the interpretation of the adjunct phrase, namely, the time of the war. While the time of the war is in the past in (3a), it is in the present in (3b), and in the future in (3c). Meanwhile, aspect morphology contributes information regarding the relationship between the ET and the RT.

- (4) a. Imperfective Aspect: The ET surrounds the RT ($RT \subseteq ET$)
 b. Perfective Aspect: The RT surrounds the ET ($ET \subseteq RT$)

In addition, English verbs may relay information concerning viewpoint aspect.

- (5) a. When Leia was in the kitchen, Han was making a sandwich.
 b. When Leia was in the kitchen, Han made a sandwich.

Both of the sentences in (5) are in the past tense, indicating that the RT, which is the time of Leia's being in the kitchen, precedes the UT. In (5a), the use of imperfective aspect places Leia's being in the kitchen inside the sandwich-making. Intuitively, (5a) seems to require the sandwich-making to have begun before and finished after Leia was in the kitchen. On the other hand, in (5b), the inclusion relation between the ET and the RT is reversed, as the perfective aspect places the (end of) the sandwich-making within the time of Leia's being in the kitchen.

2. Vietnamese temporal data

2.1 Temporally unmarked predicates

Unlike English, verbs (verbal complexes) in Vietnamese are not overtly marked with tense information: there are no obligatory grammaticalised expressions that impose constraints on the temporal relation between the RT and the UT in the language. When uttered out of the blue, clauses containing temporally unmarked verbs are only compatible with past time adverbials like *tối qua* 'last night' in (6a),

present time adverbials like *bây giờ* ‘now’ in (6b), but not with future time adverbials like *năm sau* ‘next year’ in (6c).¹

- (6) a. *Tối qua Darth Vader xây Ngôi Sao Chết.*
 night pass Darth Vader build CL star death
 ‘Darth Vader built the Death Star last night.’
- b. *Bây giờ Darth Vader xây Ngôi Sao Chết.*
 now Darth Vader build CL star death
 ‘Darth Vader builds the Death Star now.’
- c. *#Năm sau Darth Vader xây Ngôi Sao Chết.*
 year after Darth Vader build CL star death
 (*Intended:* ‘Darth Vader will build the Death Star next year.’)

Similarly, a clause containing the bare verb *xây* ‘build’ is a felicitous answer to the question in (7) about a past activity, or as an answer to the question in (8) concerning a present activity, but crucially, not as an answer to the question in (9) about a future activity.

- (7) a. *Tối qua DV làm gì?*
 night pass DV do what
 ‘What did DV do last night?’
- b. *DV xây Ngôi Sao Chết.*
 DV build CL star death
 ‘DV built the Death Star.’
- (8) a. *Bây giờ DV làm gì?*
 now DV do what
 ‘What does DV do now?’
- b. *DV xây Ngôi Sao Chết.*
 DV build CL star death
 ‘DV builds the Death Star.’
- (9) a. *Năm sau DV sẽ làm gì?*
 year after DV SE do what
 What will DV do next year?’
- b. *#DV xây Ngôi Sao Chết.*
 DV build CL star death
 (*Intended:* ‘DV will build the Death Star.’)

1. As discussed in more detail below, (6b) has a habitual viewpoint aspect, as it denotes that Darth Vader has the duties of being the builder of the Death Star now. However, (6a) can be either habitual or perfective.

One might wonder whether (9b) is unacceptable because Vietnamese requires the temporal particle in the question also to appear in the answer: in other words, (9b) is might be unacceptable simply because it lacks the preverbal particle *sẽ* that appears in (9a). However, this hypothesis is disconfirmed by the fact that there are other cases, such as in (10), in which the answer is still acceptable without having the preverbal particle from the question repeated.

- (10) a. *Tối qua DV đã làm gì?*
 night pass DV DA do what
 ‘What did DV do last night?’
 b. *DV xây Ngôi Sao Chết.*
 DV build CL star death
 ‘DV built the Death Star.’

While the preverbal particle *đã* is included in the question in (10a), it is not in the answer in (10b). In this regard, *sẽ* and *đã* behave differently as preverbal particles in the language. Nevertheless, both *sẽ* and *đã* appear to play a similar role in determining temporal reference in Vietnamese. Therefore, one of the goals of this paper is to investigate the interpretation and distribution of these preverbal particles in Vietnamese.

2.2 Preverbal particles

As shown in (6c) and (9b) above, clauses containing temporally unmarked verbs – that is, without preverbal particles – cannot be used to describe future eventualities. Such eventualities can only be described when the preverbal particle *sẽ* appears in the sentence, as illustrated below.²

- (11) a. *Năm sau DV sẽ làm gì?*
 year after DV SE do what
 ‘What will DV do next year?’
 b. *DV sẽ xây Ngôi Sao Chết.*
 DV SE build CL star death
 ‘DV will build the Death Star.’

Furthermore, as shown in (6a–b), (7), and (8), a bare verb predicate can get either a past or a present interpretation. However, as shown in (10a) above, as well as (12) and (13) below, the presence of the preverbal particle *đã* also gives rise to a past reading. As shown in (13), a clause containing *đã* is not true in situations in which the eventuality or habit is currently ongoing.

2. The preverbal particle *sẽ* is optional when the future event in question is planned.

SITUATION: Dart Vader built the Death Star last year.

- (12) *Darth Vader đã xây Ngôi Sao Chết.*
 Darth Vader DA build CL star death
 ‘Darth Vader built the Death Star.’

SITUATION: Darth Vader builds the Death Star right now.

- (13) *#Darth Vader đã xây Ngôi Sao Chết.*
 Darth Vader DA build CL star death
 ‘Darth Vader built the Death Star.’

Vietnamese verbs can also be preceded by markers of viewpoint aspect. In particular, clauses containing the preverbal particle *đang* are compatible with progressive aspectual reference, where the ET properly contains the RT.

SITUATION: Han began making his at 2 PM. At 2:10, Leia went into the kitchen to get a knife. At 2:15, Leia walked out of the kitchen with her knife, and Han was still in the middle of making his sandwich.

- (14) *Lúc Leia ở trong bếp, Han đang làm bánh mì.*
 when Leia LOC in kitchen Han PROG make sandwich
 ‘When Leia was in the kitchen, Han was making a sandwich.’

As shown by the Example (14), *đang* places the time of Leia being in the kitchen inside the time of Han making a sandwich. This sentence is then consistent with the sandwich-making still continuing at present, and thus it is true for the given situation. On the other hand, when the verbs are not marked with any overt aspectual marking, the viewpoint aspect can be interpreted as perfective, as illustrated below.

SITUATION: Leia was in the kitchen from 2 PM to 3 PM. At 2:10, Han walked into the kitchen to make a sandwich. At 2:15, he walked out of the kitchen with his freshly made sandwich.

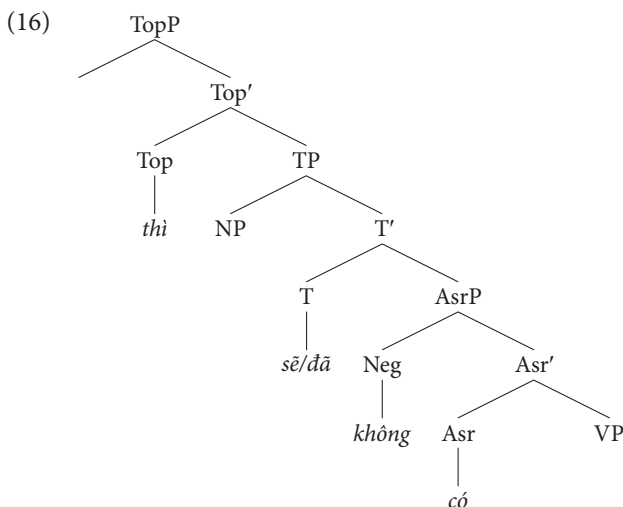
- (15) *Lúc Leia ở trong bếp, Han làm bánh mì.*
 when Leia locate in kitchen Han make sandwich
 ‘When Leia was in the kitchen, Han made a sandwich.’

While the sentence in (14) is unacceptable in the situation described in (15), the sentence in (15) is not good in the scenario in (14). Compared to (14), (15) has the reversed inclusion relation between the ET and the RT. In this case, it is the time of the sandwich-making that is placed inside the time of Leia being in the kitchen. Moreover, contrary to the normal interpretation of the clause containing *đang* in (14), the clause in (15) with no marking entails that the sandwich-making does not continue into the present. As a result, (15) is true of the given situation. The next section will then explore some of the analyses proposed in previous literature to account for the behaviors of these preverbal particles.

3. Previous literature

3.1 Duffield (2007)

One of the first works to discuss the system of preverbal particles in Vietnamese is that of Duffield (1999); see also Duffield (2007). Taking its theoretical inspiration from Klein (1998), the latter work claims that finiteness in Vietnamese is split into two separate components – tense and assertion – both of which are syntactically represented independently of grammatical aspect. Duffield (2007) proposes three functional categories above the thematic Verb Phrase (VP) in Vietnamese, namely, Topic Phrase (TopP), Tense Phrase (TP), and Assertion Phrase (AsrP). Although that paper does not focus on the semantics of tense and aspect in Vietnamese, it is implied that *sẽ* and *đã* should be taken as markers of future and past tense, respectively. While noting that tense marking in Vietnamese is “almost always” optional, contrasting this observation with the obligatory presence of tense morphology in English, Duffield suggests that the tense morphemes *sẽ* and *đã* occupy the Tense node at Spellout, with lexical verbs remaining in the Verb Phrase (VP): see Phan & Duffield (this volume), for an elaboration of this claim. This claim is based on the fixed position of *sẽ* and *đã* in matrix clauses, as they both directly follow the subject and precede the sentential negation *không*, as diagrammed below.



In Duffield’s (2007) paper, *sẽ* is taken to express future tense. Under a neo-Reichenbachian semantic approach, *sẽ* should then locate the RT after the UT. Conversely, if *đã* is taken to be a past tense morpheme then it imposes a precedence relation between the RT and the UT. This would explain why *đã* appears to play a role in excluding the present time reference from the matrix clauses in (13). Moreover, since *đã* locates the RT prior to the UT, the propositions containing *đã* are compatible

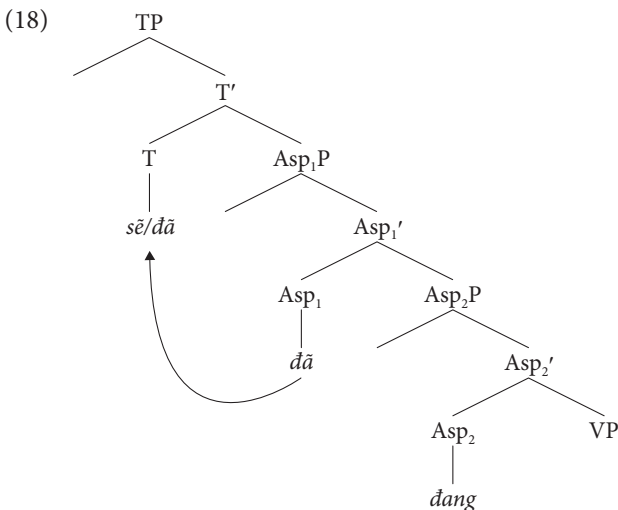
with past time adverbials like *tối qua* ‘last night’, as in (10), and should be true in situation denoting a past time eventuality, as in (12).

In addition, since *sẽ* and *đã* are placed under the same Tense node, they should always be in complementary distribution syntactically. The proposed syntax thus predicts correctly that *sẽ* and *đã* cannot co-occur, even in future perfect constructions like the following case.

- (17) **Han sẽ đã làm bánh mì.*
 Han SE DA make sandwich
 (intended: ‘Han will have made a sandwich.’)

3.2 Phan (2013)

Developing the proposals initially made in Duffield (2007), Phan (2013) focuses on how the preverbal particles *sẽ*, *đã*, and *đang* each contribute to determining temporal reference in Vietnamese. She claims that Vietnamese *sẽ* is essentially tense-related, a direct exponent of TP. Whereas *sẽ* is treated as a true tense marker designating futurity, *đã* is analyzed compositionally, as containing both temporal and aspectual properties (including allowing a pluperfect interpretation. At the other pole of this tense-aspect continuum *đang* is considered as a purely aspectual (imperfective) marker. Though Phan does not propose a formal semantics for these particles, she does argue for a syntactic structure in which *sẽ* and *đã* are base-generated in different positions. Specifically, while *sẽ* is directly merged into T, *đã* is (underlyingly) merged lower as the head of Aspect (Asp), and subsequently raised to T; see also Duffield (2013, 2017), Phan & Duffield (this volume). *Đang* is assumed to occupy a lower aspect head. These structural claims are schematised in (18) below.



Although *đã* is base-generated in Asp_1 , it must further move to T to check its inherent tense feature in addition to its aspectual feature. This movement is obligatory because it is feature driven; cf. Trinh (2005).

A major difference between Phan's (2013) and Duffield's (1999, 2007) analyses is that Phan – see also Phan & Duffield (this volume) – treats *đã* as a past perfect, in certain contexts, in addition to its being a (simple) past tense. This is supported by the contrast illustrated in (19) and (20) below. In particular, in the given situation, only (19), a clause that contains *đã*, is true:

SITUATION: Leia walks into the kitchen, and she finds Han standing next to a freshly made sandwich.

- (19) *Leia đi vào bếp. Han đã làm bánh mì.*
 Leia walk into kitchen Han DA make sandwich.
 'Leia walked into the kitchen. Han had made a sandwich.'
- (20) **Leia đi vào bếp. Han làm bánh mì.*
 Leia walk into kitchen Han make sandwich.
 'Leia walked into the kitchen. Han made a sandwich.'

Under a neo-Reichenbachian framework, and the assumption that the presence of *đã* is necessary for a pluperfect interpretation, the relations among the ET, the RT, and the UT of (19) and (20) will be as follows.

- (21) a. (19): ET < RT < UT
 b. (20): ET, RT < UT

In both (19) and (20), the first sentence, *Leia đi vào bếp* 'Leia walked into the kitchen,' established the RT for the second sentence. Then, in (20), the second sentence with a bare verb predicate requires the time of Han making a sandwich to take place at or after the time of Leia walking into the kitchen. Therefore, the sentence in (20) is false as a description of the given situation. On the other hand, the presence of *đã* in (19) puts the sandwich-making before Leia's walking into the kitchen, and thus (19) is true in the given situation. As a result, *đã* does require the second sentence to be interpreted within the past of the RT, which is the event of the first sentence.

Finally, as shown in the syntax in (18), *đang* occupies the lowest Aspect head, while *sẽ* and *đã* take higher positions in the structure. This syntax correctly predicts that while *sẽ* and *đã* cannot co-occur, they can freely combine with the progressive aspect *đang*. Then, the semantics proposed predicts that a clause containing *sẽ đang* would get a future progressive reading, as in (22).

- (22) *Darth Vader sẽ đang xây Ngôi Sao Chết.*
 Darth Vader SE PROG build CL star death
 'Luke will be building the Death Star.'

According to Phan (*ibid.*), *đã* may function either as a past tense and a pluperfect. Therefore, the combination of *đã* and *đang* might be predicted to yield either a past progressive or a pluperfect progressive interpretation, as shown in (23).³

- (23) *Darth Vader đã đang xây Ngôi Sao Chết.*
 Darth Vader DA PROG build CL star death
 ‘Luke was / had been building the Death Star.’

As discussed in this section, the analyses proposed in Duffield (1999, 2007) and Phan (2013) provide reasonable explanations and correct predictions for certain facts for Vietnamese temporal data. However, as I will argue in the following section, these accounts do not work for a larger set of data; furthermore, the claim that *sẽ* and *đã* are expressions of tense leads to some incorrect predictions.

4. Problems with the previous accounts

4.1 Non-future interpretations

The first point to observe is that neither Duffield (1999, 2007) nor Phan (2013) proposes an analysis of bare verb predicates. Consequently, neither can account for the fact that a bare verb predicate can receive either a past or a present interpretation, as shown in (6), (7), and (8), but they can never be interpreted in the future, as shown in (9). While both Duffield and Phan argue for *sẽ* and *đã* being overt optional tenses in Vietnamese, their analyses do not account for this contrast between non-future, which can be obtained with no overt tense marker, and future interpretations, which can only be obtained with an overt tense marker, in the language; though *cf.* Duffield (this volume).

4.2 ‘Future in the Past’ interpretations

Second, if the presence of *sẽ* requires a predicate to be interpreted after the UT, then the fact that *sẽ* can also give rise to ‘future in the past’ readings cannot be accounted for. As illustrated below, besides the ordinary future readings in (24), which have been examined in previous literature, *sẽ* also gives rise to ‘future in the past’ readings in (25).

3. In subsequent work – e.g., Phan & Duffield (in press), (this volume) – it is made clear that the pluperfect reading of *đã* is only available when in conjunction with the negative perfect particle *chưa*. One purpose of Phan & Duffield (this volume) is to derive just this result.

SITUATION: Rey is going to Jakku in a week's time.

- (24) *Tuần sau Rey sẽ đi Jakku.*
 week after Rey SE go Jakku
 'Leia will go to Jakku next week.'

SITUATION: Rey was going to go to Jakku last week, but the trip was cancelled.

- (25) *Tuần trước Rey sẽ đi Jakku.*
 week before Rey SE go Jakku
 'Rey was going to go to Jakku last week.'

Under a neo-Reichenbachian framework, (24) and (25) would have the following relations among the ET, the RT, and the UT.

- (26) a. (24): $UT < RT, ET$
 b. (25): $RT < UT \ \& \ RT < ET$

Both Duffield (1999, 2007) and Phan (2013) only predict the precedence relation between the UT and the RT in (24). However, since these previous accounts argue that *sẽ* is a future tense, which restricts the RT to be temporally located after the UT, they fail to account for the fact shown in cases like (25), where the relation between the RT and the UT is reversed.

4.3 Perfect interpretations

While Duffield (1999, 2007) and Phan (2013) propose that *đã* does have a function of an optional past tense, I argue that this claim cannot account for the contrast in event arrangement between (19) and (20). As shown in (6), (7), and (8), a bare verb predicate can also yield a past reading. If *đã* were an optional tense that also gives rise to past interpretations, then (19) and (20), – containing *đã*, and a bare verb predicate, respectively – should behave similarly to each other. In particular, both of these sentences are predicted to situate the sandwich-making at or after Leia's walking into the kitchen.

However, the fact that *đã* puts Leia's walking into the kitchen *after* the sandwich-making in (19) suggests that *đã* is not a past tense. Moreover, the presence of *đã* is required, when one event needs to be put further into the past than another. As a result, this seems to me to speak against Duffield's (2007) claim and part of Phan's proposal.⁴

If *đã* is in fact a pluperfect aspect like Phan (2013) proposes, then *đã* can only appear in past perfect constructions. However, as illustrated in (27) below, *đã* does

4. Here once again, compare Duffield (2017), Phan & Duffield (this volume).

appear in future perfect constructions. The fact that a clause containing *đã* may be felicitously used in such situations shows that *đã* is not only a marker of pluperfect aspect but can be used to express anteriority even in future time contexts: see Duffield (2017), Phan & Duffield (in press), for discussion of other relevant examples

SITUATION: It is 12 PM right now, the time at which Han starts making his sandwich and Leia leaves her office to go to the kitchen. It takes Han 3 minutes to make a sandwich, and Leia 5 minutes to get to the kitchen.

- (27) *Lúc Leia đi vào bếp, Han đã làm bánh mì.*
 when Leia walk into kitchen Han DA make sandwich
 ‘By the time Leia walks into the kitchen, Han will have made a sandwich.’

As mentioned earlier, the syntax structures proposed in Duffield (1999, 2007), as illustrated in (16), and Phan (2013) correctly predicts that *sẽ* and *đã* cannot co-occur. Therefore, in (27), instead of having both *sẽ* and *đã* appear to express the future perfect meaning, we can only have one of the preverbal particles, which ends up being *đã* in this case. One might wonder whether the future perfect meaning in (27) can still be obtained with the morpheme *sẽ*, instead of *đã*. However, if it is *sẽ*, and not *đã*, that appears, the sentence will no longer receive the future perfect interpretation, and thus it is no longer true for the given situation.

- (28) **Lúc Leia đi vào bếp, Han sẽ làm bánh mì.*
 when Leia walk into kitchen Han SE make sandwich
 ‘When Leia walks into the kitchen, Han will make a sandwich.’

The only interpretation we can get in (28) is the ordinary future reading. Thus, there is a contrast between the future readings, which are obtained with *sẽ* alone, and the future perfect ones, which can be obtained with *đã* alone. This contrast in the relation the ET and the RT between (27) and (28) are illustrated below, using a neo-Reichenbachian framework.

- (29) a. (27): UT < ET < RT
 b. (28): UT < ET, RT

In other words, the sentence in (27) receives only the interpretation in (29a), while the one in (28) receives only the interpretation in (29b). It is not clear to me how either Duffield’s (2007) or Phan (2013) accounts should deal with this contrast.

4.4 Progressive interpretations

Let us now consider the imperfective morpheme *đang*. While both Duffield (2007) and Phan (2013) correctly predict that *đã* can freely combine with *đang*, it seems that they fail to capture all the readings available in a clause containing *đã* and *đang*. In particular, both previous accounts predict that *đã đang* should give rise to past progressive readings, as they propose that *đã* is a past tense, and *đang* is a progressive aspect. However, this prediction is not correct, since the combination of these two preverbal particles does not yield past progressive readings. Such readings can be obtained with *đang* alone, as below.

SITUATION: Darth Vader was building the Death Star at 2:15 PM yesterday.

- (30) 2:15 tối qua, Darth Vader **đang** xây Ngôi Sao Chết.
 2:15 night pass Darth Vader PROG build CL star death
 ‘Darth Vader was building the Death Star at 2:15 yesterday.’

In the example in (30) without *đã*, the presence of *đang* alone in a temporally unmarked predicate is sufficient to express a past progressive meaning. However, if *đã* is placed next to *đang*, this interpretation goes away. Instead, a clause containing *đã đang* receive one of four alternative readings, namely, present perfect progressive, pluperfect progressive, future perfect progressive, and ‘future in the past’ perfect progressive, as illustrated in (31) below.

- (31) Darth Vader **đã đang** xây Ngôi Sao Chết.
 Darth Vader DA PROG build CL star death
 ‘DV have been/had been/will have been/would have been building the Death Star.’

In Examples (32)–(35), I further show that clauses containing *đã đang* can express different meanings, and that they are true when uttered in different situations.

SITUATION: Darth Vader has been building the Death Star since last year.

- (32) DV **đã đang** xây Ngôi Sao Chết từ năm ngoái.
 DV DA PROG build CL star death since year last
 ‘DV has been building the Death Star since last year.’

SITUATION: Darth Vader built the Death Star between 2014 and 2016. In 2015, he had been building it for a year.

- (33) Năm 2015, DV **đã đang** xây Ngôi Sao Chết được một năm.
 year 2015 DV DA PROG build CL star death can one year
 ‘In 2015, Darth Vader had been building the Death Star for a year.’

SITUATION: Darth Vader has built the Death Star since February 2017. This time next year, he will have been building it for a year.

- (34) *Đến tháng Hai năm sau, DV đã đang xây Ngôi Sao Chết được*
 by month two year after DV DA PROG build CL star death for
một năm.
 one year

‘DV would have been building the Death Star for a year by next February.’

SITUATION: Darth Vader started building the Death Star in February 2017. It is now June 2017, and he just learned that he is building another station, but not the current Death Star project, next year.

- (35) *Đến tháng Hai năm sau, DV đã đang xây Ngôi Sao Chết được*
 by month two year after DV DA PROG build CL star death for
một năm.
 one year

‘DV would have been building the Death Star for a year by next February.’

As mentioned earlier in (24), Phan (2013) predicts that besides a past progressive reading, *đã đang* can also yield a pluperfect progressive interpretation. While she incorrectly predicts the past progressive reading, her prediction about the pluperfect progressive one is correct. However, her proposal still cannot account for the other three interpretations.

Likewise, even though Duffield (1999, 2007) and Phan (2013) correctly predict that *sẽ* can freely combine with *đang*, they fail to capture all the interpretations that a clause containing *sẽ đang* can get. In particular, both of the previous accounts suggest that the combination of *sẽ* and *đang* would yield an ordinary future progressive reading. However, as illustrated below, this is not the only interpretation that sentences like (36) can receive.

- (36) *Darth Vader sẽ đang xây Ngôi Sao Chết.*
 Darth Vader SE PROG build CL star death

‘Darth Vader will be / would be building the Death Star.’

In this case, besides the predicted ordinary future progressive reading, a clause containing *sẽ đang* can also receive a ‘future in the past’ progressive reading, as further illustrated in the following situations.

SITUATION: It is February 2017. DV going to build the Death Star next season.

- (37) *Mùa sau Darth Vader sẽ đang xây Ngôi Sao Chết.*
 season after Darth Vader SE PROG build CL star death

‘Darth Vader will be building the Death Star next season.’

SITUATION: It is February 2017, and DV is telling you his life story. In Spring 2015, he learned that he was assigned to build the Death Star in Summer 2016.

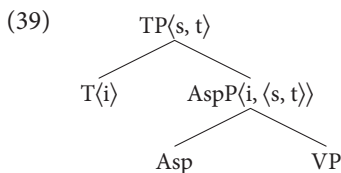
- (38) *Mùa sau Darth Vader sẽ đang xây Ngôi Sao Chết.*
 season after Darth Vader SE PROG build CL star death
 ‘Darth Vader would be building the Death Star next season.’

If *sẽ* were purely a future tense marker, and the combination of this morpheme with the progressive *đang* should not yield the intended ‘future in the past’ progressive reading that is true in situations like (38) above.

5. Analysis

5.1 The framework

Before introducing the analysis, I will outline the framework adopted, namely, the pronominal approach to the semantics of tense proposed in Kratzer (1998). In this framework, the Tense head, which is of type *i*, is analyzed as sister to the Aspect Phrase, which denotes a property of times. This AspP in turn takes the thematic VP as its complement. In combination, the whole TP spells out a proposition, as diagrammed in (39).



Under this proposal, instead of projecting a temporal argument, verbs are assumed to project an event argument. The lexical entry for a verb such as ‘build’ would then be as in (40):

- (40) $[[\text{build}]]^{\text{w,t,g,c}} = [\lambda x_e : [\lambda y_e : [\lambda e_g : \text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = x \ \& \ \text{Theme}(e)(w) = y]]]]$
 ‘In world *w*, *e* is a building event whose agent is *x* and whose theme is *y*’

Next, it is assumed that Aspect heads are of type $\langle\langle \varepsilon, t \rangle, \langle i, t \rangle\rangle$. These take as their argument a predicate of events, which is the denotation of the VP, and return a predicate of times, which then combines with the Tense head. The lexical entry for the imperfective (IMPFV) aspect is given in (41) below.

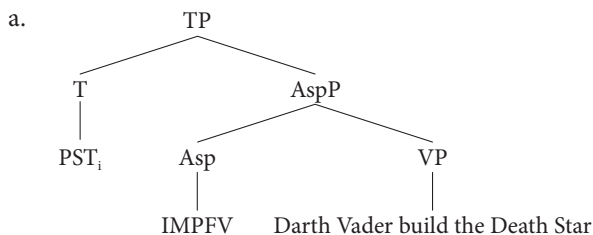
- (41) $[[\text{IMPFV}]]^{w,t,g,c} = [\lambda P_{\langle e,t \rangle} : [\lambda t'_i : \exists e. t' \subseteq \tau(e) \ \& \ P(e) = T]]$
 ‘The time t' is contained within the ‘temporal trace’ of an event of P ’

Finally, since i is the type of time interval, the tense morpheme itself introduces a variable over time intervals. The variable in T corresponds to the RT, and receives its value from the contextually determined assignment function. Following Heim (1994), the lexical entries of the tense morphemes then introduce presuppositions restricting the RT. Then, the lexical entry for the past (PST) tense morpheme is given as follows.

- (42) $[[\text{PST}_i]]^{w,t,g,c}$ is only defined if $g(i) < t_c$
 If defined, then $[[\text{PST}_i]]^{w,t,g,c} = g(i)$
 ‘The past tense morpheme is only defined if the context c provides a time interval $g(i)$ that precedes the UT.’

Then, the denotation of a simple sentence is as follows:

- (43) Darth was building the Death Star.



- b. $[[\text{TP}]] = [\lambda w : [\exists e : [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ g(i) \subseteq \tau(e)]]]$ (where $g(i) < t_c$)
 ‘There is an event e of Darth Vader building the Death Star, whose running time τ includes the contextually salient past time $g(i)$.’

I claim that Vietnamese also employs this same functional structure of the clause. Moreover, similarly to how the English PAST introduces a time interval that precedes the UT, the Tense head in Vietnamese also serves to restrict the set of possible RTs. As detailed below, the only difference is that the Vietnamese non-future tense morpheme is less restrictive than the English past tense morpheme, which was shown earlier in (42).

5.2 Tense and viewpoint aspects

First, as discussed earlier, bare verb sentences in Vietnamese can be used to describe past and present, but not future eventualities, as shown by the contrasts in (6), (7), and (8) above. Following Matthewson’s (2006) analysis for Lillooet, I propose

that non-future temporal reference is contributed by a phonologically empty tense morpheme, NONFUT. All finite clauses in Vietnamese are taken to introduce a variable over time intervals, the values for that variable being restricted to times that are not temporally located after the UT. In contrast to English, whose past tense morpheme restricts possible values for the RT to being past, the Vietnamese non-future morpheme restricts such values to the non-future, as illustrated below.

- (44) $[[\text{NONFUT}_i]]^{w,t,g,c}$ is only defined if $\neg(t_c < g(i))$
 If defined, then $[[\text{NONFUT}_i]]^{w,t,g,c} = g(i)$
 ‘The past tense morpheme is only defined if the context c provides a time interval $g(i)$ that precedes the UT.’

Secondly, as shown in (14) above, given the presence of *đang*, the ET, which is the time of Han making a sandwich, properly contains the RT, which is the time of Leia being in the kitchen. In that case, Duffield’s (1999, 2007) and Phan’s (2013) analyses are correct, as they suggest that *đang* is a progressive aspect. Therefore, I propose the following semantics for the preverbal particle *đang*.

- (45) $[[\text{DANG}]]^{w,t,g,c} = [\lambda P_{\langle e,t \rangle} : [\lambda t'_i : \exists e. t' \subset \tau(e) \ \& \ P(e) = T]]$
 ‘The time t' is properly contained within the ‘temporal trace’ of an event of P ’

Under the semantics proposed in (44) and (45), the denotation of the sentence in (46) will then be calculated, as in (47)

- (46) *Darth Vader đang xây Ngôi Sao Chết.*
 Darth Vader PROG build CL star death
 ‘Darth Vader is / was building the Death Star.’

- (47) a.
-
- ```

graph TD
 TP --- T
 TP --- AspP
 T --- NONFUT_i
 AspP --- Asp
 Asp --- đang
 AspP --- VP
 VP --- "Darth Vader xây Ngôi Sao Chết"

```

- b.  $[[\text{TP}]]^{w,t,g,c} = [\lambda w : [\exists e : [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ g(i) \subset \tau(e)]]]$  (where  $\neg(tc < g(i))$ )  
 ‘There is an event  $e$  of Darth Vader building the Death Star, whose running time  $\tau$  properly includes the contextually salient non-future time  $g(i)$ ’

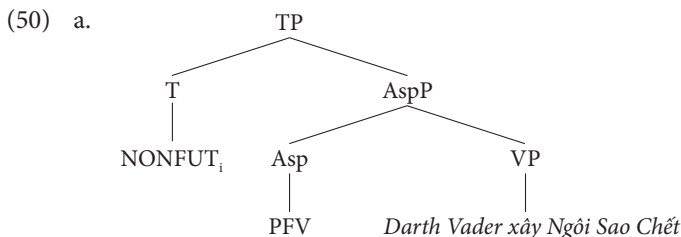
This semantics shows that the combination of *đang* with a bare verb yields both present progressive and past progressive interpretations. As a result, not only does it capture the facts presented in (14) and (30), but it also correctly predicts the two readings that are available to sentences like that in (46).

While the progressive aspect is marked overtly with the preverbal particle *đang*, not all semantic aspectual distinctions receive overt morphological expression. In particular, as was shown in (6) above, a sentence with no overt marking of viewpoint aspect can get either a habitual or a perfective reading. Then, the behavior of the Vietnamese viewpoint aspects shares parallels to that of the English ones in the sense that there is syncretism between habitual and perfective aspects. In this case, the morphology for perfective aspect, which is expressed in a null form, also conveys habituality. However, the discussion in this paper will only focus on the perfective function of this phonologically empty viewpoint aspect, whose semantics is proposed to be as follows.

- (48)  $[[\text{PFV}]]^{w,t,g,c} = [\lambda P_{\langle e,t \rangle} : [\lambda t'_i : \exists e. \tau(e) \subseteq t' \ \& \ P(e) = T]]$   
 ‘The time  $t'$  contains the ‘temporal trace’ of an event of  $P$ ’

Given this semantics for perfective aspect, the denotation of the sentence in (49) will then be calculated as in (50).

- (49) *Darth Vader xây Ngôi Sao Chết.*  
 Darth Vader build CL star death  
 ‘Darth Vader builds/built the Death Star.’



- b.  $[[\text{TP}]_{w,t,g,c} = [\lambda w : [\exists e : [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ \tau(e) \subseteq g(i)]]]]$  (where  $\neg(tc < g(i))$ )  
 ‘There is an event  $e$  of Darth Vader building the Death Star, whose running time  $\tau$  is included in the contextually salient non-future time  $g(i)$ ’

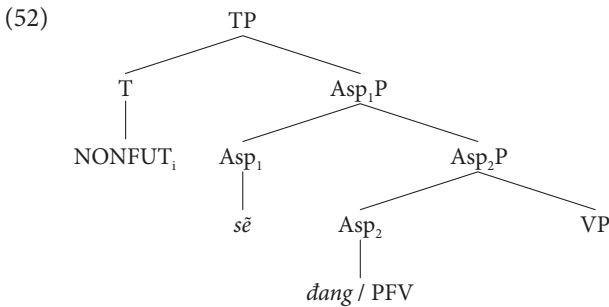
This proposed semantics captures the fact that sentences with no overt markings of tense and aspect like (47) can get both present perfective and past perfective interpretations. Therefore, it accounts for the non-future perfective readings obtained in (6), (7), and (8), as well as the contrast between the clause containing *đang* in (14) and the one with the null perfective aspect in (15). Next, we will investigate how these viewpoint aspects interact with the null non-future tense and pick out different relations between temporal intervals.

### 5.3 Futurity

As shown in (9) and (11) above, the presence of *sẽ* is required in questions and answers about future eventualities. Moreover, as shown in (24) and (25), *sẽ* can give rise to both ordinary future and ‘future in the past’ readings. I propose that *sẽ* is the Vietnamese overt spell-out of the English WOLL, originally proposed by Abusch (1985). This WOLL operator is the hypothetical untensed root underlying ‘will’ and ‘would’ in English. The surface forms ‘will’ and ‘would’ are then proposed to each contain WOLL plus tense, which is either present or past, respectively. I argue that equivalently to the English WOLL, the Vietnamese *sẽ* can then combine with the phonologically empty NONFUT tense morpheme, which picks out a non-future RT. Therefore, the semantics of *sẽ* is proposed to be as follows.

- (51)  $[[[SE]]^{w,t,g,c} = [\lambda P_{\langle i,t \rangle} : [\lambda t' : [\exists t'' . t'' > t' \ \& \ P(t'') = T]]]]$   
 ‘There is an interval  $t''$  that follows  $t'$ .’

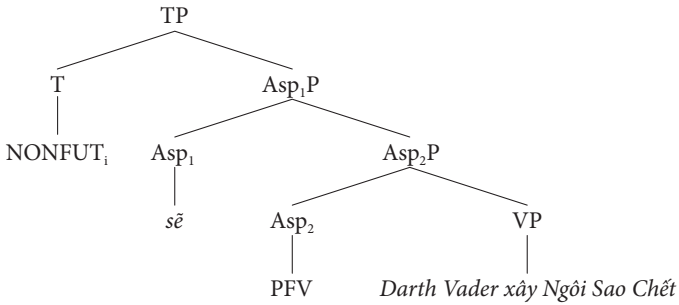
Future time reference in Vietnamese, then, is achieved by the co-occurrence of the obligatory null NONFUT tense morpheme with the preverbal particle *sẽ*. Furthermore, based on *sẽ*’s interaction with the NONFUT tense and the progressive *đang* shown in (36), (37), and (38), I propose that *sẽ* takes a high Asp head, which is above the one that the viewpoint aspects occupy. This head will also be lower than the Tense head, as illustrated below.



Under the proposed semantics and syntax in (51) and (52), the denotation of (53), a clause containing *sễ*, is then calculated in (54).

- (53) *Darth Vader sễ xây Ngôi Sao Chết.*  
 Darth Vader FUT build CL star death  
 ‘Darth Vader will / would build CL star death.’

(54) a.



- b.  $[[TP]]^{w,t,g,c} = [\lambda w: [\exists t': [g(i) < t' \ \& \ \exists e [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ \tau(e) \subseteq t']]]]$  (where  $\neg(tc < g(i))$ )  
 ‘There is an event  $e$  of Darth Vader building the Death Star whose running time  $\tau$  is included in a time  $t'$  following the contextually salient non-future time  $g(i)$ .’

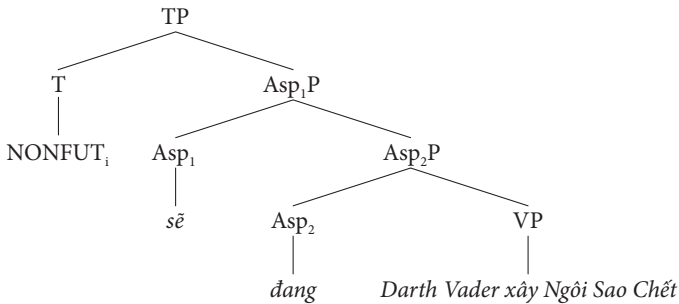
This proposed semantics captures the fact that *sē* appears when the RT is temporally located after the UT, as illustrated in (9), (11), (24), and (28). It can also account for the ‘future in the past’ interpretation in (25). Such cases are simply ones where  $g(i)$  lies strictly in the past of the UT. Meanwhile, the denotation of (55), a clause that contains both *sē* and *đang*, will then be calculated in (56).

(55) *Darth Vader sē đang xây Ngôi Sao Chết.*

Darth Vader FUT PROG build CL star death

‘Darth Vader will be/would be building the Death Star.’

(56) a.



- b.  $[[TP]]^{w,t,g,c} = [\lambda w: [\exists t': [g(i) < t' \ \& \ \exists e [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ t' \subset \tau(e)]]]]]$  (where  $\neg(tc < g(i))$ )  
 ‘There is an event  $e$  of Darth Vader building the Death Star, whose running time  $\tau$  properly includes a time  $t'$  which follows the contextually salient non-future time  $g(i)$ .’

As a result, the truth-conditions in (56) correctly predict that the combination of *sē* with the progressive aspect *đang* would yield either an ordinary future progressive

reading or a ‘future in the past’ progressive one, as shown in (36), (37), and (38) earlier. Since the semantics for the non-future tense, the viewpoint aspects, as well as the future marker *sẽ* have already been discussed, we will now examine the final preverbal particle, namely *đã*.

#### 5.4 The perfect aspect

In English, the present perfect cannot combine with specific past time adverbials like ‘yesterday.’ However, in other languages, including German, the meaning of the present perfect construction shares striking similarities to that of the preterite. Rothstein (2008) proposes that (57a) has at least one interpretation that is identical to (57b).

- (57) a. *Sigurd ist gestern angekommen.*  
 Sigurd is yesterday arrived  
 ‘Sigurd arrived yesterday.’ (lit. ‘Sigurd is arrived yesterday.’)
- b. *Sigurd kam gestern an.*  
 Sigurd came yesterday PTCP  
 ‘Sigurd arrived yesterday.’

As shown in (10a) above, *đã* in Vietnamese appears to share parallels to the German perfect in the sense that they both can combine with adverbs like ‘yesterday.’ Rothstein (2008) proposes that the difference in the way present perfect behaves cross-linguistically is due to the different interpretations of the present tense, and not the perfect aspect, in these languages. Pancheva & von Stechow (2004) propose that the semantic contribution of perfect is to set up an interval, called the Perfect Time Span (PTS), which does not have to contain the local evaluation time. In particular, this PTS may precede and partially overlap the RT, or it may entirely precede it, as described in the semantics below, proposed in Pancheva and von Stechow (2004), also Pancheva (2004).

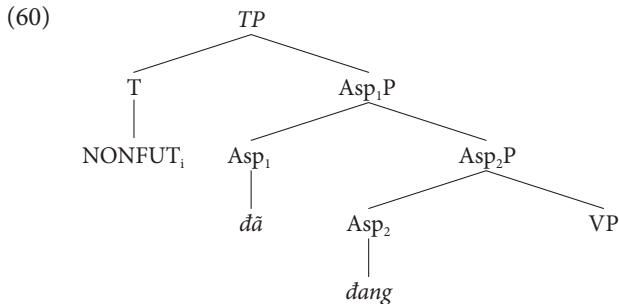
- (58)  $[[\text{PERFECT}]] = [\lambda P_{(i,t)} : [\lambda t : [\exists t'. t' \leq t \ \& \ P(t')]]]$   
 $(t' \leq t \text{ iff there is no } t'' \in t', \text{ such that } t'' > t)$

Given the Vietnamese data presented in (10a), (19), and (20), I argue that *đã* is a perfect marker in Vietnamese. Then, depending on the RT that the NONFUT tense picks out, a clause containing *đã* can get either a past perfect or a present perfect interpretation. Adopting the semantics for PERFECT in (58) above, the semantics of *đã* will then be as follows.

- (59)  $[[\text{DA}]] = [\lambda P_{(i,t)} : [\lambda t' : [\exists t''. t'' \leq t' \ \& \ P(t'')]]]$   
 ‘There is an interval  $t''$  that either strictly precedes  $t'$  or has  $t'$  as a final subinterval.’

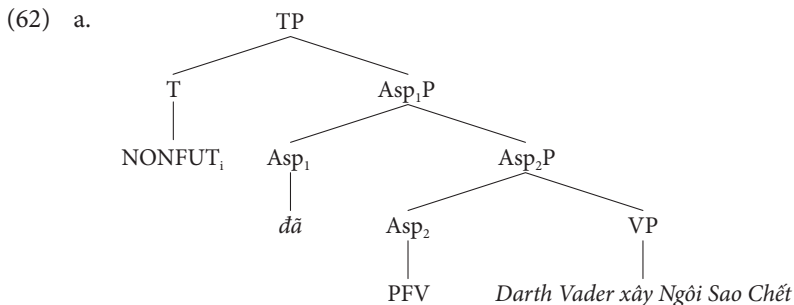


Given the interaction among the non-future tense, the perfect marker *đã*, and the viewpoint aspects presented in (31)–(35), I propose – in line with Phan (2013: Chapter 4), Duffield (2013), Phan & Duffield (2019), Phan & Duffield (this volume) – that *đã* occupies the head of an AspP higher than the one of the viewpoint aspects, but lower than the T head, as illustrated below.



With the proposed syntax and semantics for this perfect aspect *đã*, the denotation of a clause that contains *đã* in (61) will then be calculated in (62), as follows.

- (61) *Darth Vader đã xây Ngôi Sao Chết.*  
 Darth Vader PERF build CL star death  
 ‘Darth Vader has / had built the Death Star.’

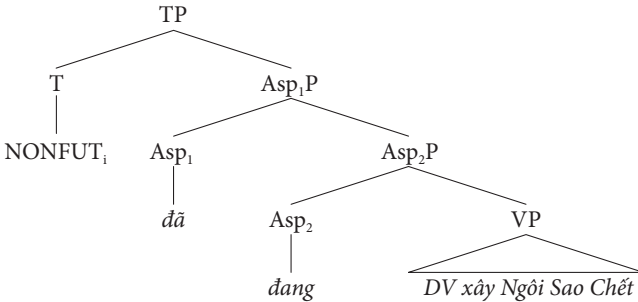


- b.  $[[\text{TP}]]^{\text{w,t,g,c}} = [\lambda w: [\exists t': [t' \leq g(i) \ \& \ \exists e [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ \tau(e) \subseteq t']]]]$  (where  $\neg(tc < g(i))$ )  
 ‘There is an event *e* of Darth Vader building the Death Star, whose running time  $\tau$  is included in a time  $t'$  which strictly precedes the contextually salient non-future time  $g(i)$  or has  $g(i)$  as a final subinterval.’

The proposed semantics accounts for the facts presented in (19), where *đã* picks out a time interval running from a salient point in the past up until the RT. Meanwhile, the denotation of (63), a clause containing both the perfect *đã* and the progressive *đang*, will then be calculated as follows.

- (63) *Darth Vader đã đàng xây Ngôi Sao Chết.*  
 Darth Vader PERF PROG build CL star death  
 ‘Darth Vader have been / had been building the Death Star.’

(64) a.



- b.  $[[TP]]^{w,t,g,c} = [\lambda w: [\exists t': [t' \leq g(i) \ \& \ \exists e [\text{build}(e)(w) \ \& \ \text{Agent}(e)(w) = \text{Darth Vader} \ \& \ \text{Theme}(e)(w) = \text{the Death Star} \ \& \ t' \subset \tau(e)]]]]$  (where  $\neg(tc < g(i))$ )  
 ‘There is an event  $e$  of Darth Vader building the Death Star, whose running time  $\tau$  properly includes a time  $t'$  which strictly precedes the contextually salient non-future time  $g(i)$  or has  $g(i)$  as a final subinterval.’

Then, the truth-conditions in (64) correctly predict that a clause containing both *đã* and *đàng* can yield a present perfect progressive interpretation, as shown in (32), as well as a pluperfect progressive one, as in (33). However, my analysis so far has not discussed how the future marker *sẽ* and the perfect aspect *đã* interact with each other, and thus it cannot account for the future perfect reading in (27). Moreover, the current proposed syntax and the semantics still cannot account for all the readings that clauses containing *đã đàng* like (31) can get. In particular, the combination of the progressive *đàng*, the perfect *đã*, and the NONFUT tense cannot yield the ordinary future perfect progressive reading in (34) as well as the ‘future in the past’ perfect progressive one in (35).

## 6. Conclusion

This study has focused on how temporal reference in Vietnamese is determined with different preverbal particles. The paper first proposes that every bare verb predicate in the language possesses an obligatory phonologically empty NONFUT tense morpheme, which restricts the RT to being non-future. This provides an explanation for the fact that the RT provided from the combination of this tense with the null perfective aspect is compatible with both past-time and present time sub-events simultaneously. Meanwhile, the other viewpoint aspect, which is overtly

marked with the expression *đang*, is proposed to contribute a progressive interpretation. The discussion relates directly to recent approaches to temporal reference in languages that lack overt tense morphology, and thus it offers data from Vietnamese to the debate on semantic variation on tense and aspect across languages.

The paper also offers a detailed investigation of other temporal markers, namely *sẽ* and *đã*. Contrary to some previous accounts, I argue that *đã* is not a past tense morpheme, nor does *sẽ* express future tense. Rather, they are a perfect aspect and an overt spell-out of WOLL-operator, respectively. As a result, *đã* allows pluperfect as well as present perfect readings, depending on the RT picked out by the NONFUT tense. Similarly, the combination of *sẽ* with this null tense yields both ordinary future and ‘future in the past’ interpretations. This line of analysis contrasts with other existing accounts of future time reference in Mandarin (Lin 2012) and Hausa (Mocha 2013), thereby contributing an argument against pure tenselessness to the debate about future discourse among tenseless languages.

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## Semantics of Vietnamese *đã*

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The analysis of *đã* has always been a highly controversial topic among Vietnamese linguists. Several accounts of the semantics of *đã* centre around the questions of whether it is used to locate a situation in the past (Bùi Đức Tịnh 1967, Lo-Cicero 2001) or to express an aspectual distinction (Nguyen 2006) – or both: see Trinh (2005), Phan (2013), and Phan & Duffield (this volume). In this article, it is claimed that *đã* does not function as tense marker, but that it is used instead to express a modal meaning which the speaker intends to provide for the situation she is communicating. Furthermore, *contra* those who assume that this marker is aspectual, it is claimed that the aspectual meaning is only derived from the interaction between *đã* and the semantics of the following predicate.

**Keywords:** tense, aspect, modality, data judgments

### 1. Introduction

In research on Vietnamese grammar, the meanings and functions of the word *đã* has been by far one of the most controversial topics, giving rise to heated debate. For linguists influenced by Western linguistic theories, *đã* has been treated as a past tense marker (e.g., Bùi Đức Tịnh 1952; Thompson 1965). In a different view, others would consider it a tense-aspect marker (Nguyễn Kim Thân 1997; Panfilov 2002; Nguyễn Minh Thuyết 1995; Nguyễn Văn Thành 2003). Other authors, including Cao Xuân Hạo (2003) and Nguyễn Hoàng Trung (2006), challenge the view that *đã* is a past tense marker, claiming instead that *đã* is a modal device from which its aspectual meanings can derive. The situation has become further complicated when this preverbal word is viewed as a multifunctional marker (Duffield 2014): that is, *đã* may occur either as a past tense marker or as a perfect, depending on the particular grammatical context – see Trinh (2005), Bui (2017), Phan & Duffield (this volume); moreover, the particular aspectual interpretation

vary according to the lexical-aspectual properties of the following predicate, as discussed in Phan (2013).

In this article, I shall claim that *đã* functions primarily as a modal marker, rather than either a past tense marker, or a perfective marker, or a perfect marker. This view is supported by the questionable acceptability of the linguistic data used by previous authors argue that *đã* is a past tense marker, as well as by some additional observations concerning the distribution of *đã* in Vietnamese.

## 2. *Đã* is not a past tense marker

Since the seminal work of Reichenbach (1947), it has been customary to situate events or situations along a time axis on which the utterance time functions as a landmark. So, if the event time is situated before, or at, or after the utterance time, the event is construed as past, present and future, respectively. The relations between the utterance time and the event time, and/or between the reference time and the event time, appear to be linguistically universal. However, it is often supposed that not all languages express tense as a grammatical category; though cf. Lin (2005, 2012).

Comrie (1985: 9) characterizes *tense* as grammaticalization of location in time. In many languages, tense morphemes are realized as bound affixes that must be expressed on verbs or other predicates in root contexts. The tense morphemes may form a paradigm, and the paradigmatic relations of tense morphemes are exposed in the grammatical opposition. In English, this opposition is often privative, and hence the tense system in English is classified into two tenses based on the presence or the absence of the morpheme expressing the past time ‘-ed’ as shown in (1):

- (1) *Tom loved/\*loves Mary ten years ago.*

In (1) the verb ‘love’ occurring in past tense must be semantically compatible with the adverbial phrase indicating the past reference *ten years ago* event though temporal information concerning the situation described by the sentence in (1) is sufficient to locate Tom’s love for Mary in the past time; though cf. Klein (1994, 1998), for a more nuanced discussion. However, the absence of inflectional morphology in Vietnamese means that verbs are never directly marked for tense; thus, tense is not obligatorily expressed in main clauses, in contrast to English. The most usual way to express past time in Vietnamese is by means of adverbial phrases, as in the examples in (2):

- (2) a. *Năm trước anh đi du lịch ở đâu?*  
 year before you go travel BE where  
 ‘Where did you travel last year?’

- b. *Hồi trẻ tôi thích đi câu cá.*  
 back young I love go catch fish  
 ‘When I was young, I loved fishing.’

The past time adverbial phrases function as a temporal frame bounding the situations described in the sentences in (2). Where there is no temporal device in the utterance, contextual information may be used to draw inferences about situation time. This is illustrated by the example in (3); see Smith (1997: 279).

- (3) *Cô mua quyển từ điển này ở đâu?*  
 you buy CL dictionary DEM BE where  
 ‘Where did you buy this dictionary?’

In Example (3), the fact that the speaker may be holding the hearer’s dictionary helps to locate the buying of the dictionary at a time prior to the speech time. As result, the situation in question is interpreted as a past situation.

Vietnamese also possesses a set of words that have been called ‘tense markers’, mainly by linguists influenced by older – pre-Chomskyan – Western linguistic traditions: this view is represented by Bùi Đức Tịnh (1967), Thompson (1965), Nguyễn Kim Thản (1997), Nguyễn Minh Thuyết (1995), Lo-Cicero (2001), Panfilov (2002), amongst others. The idea that a word like *đã* may function as past tense marker in specific contexts has been adopted by generative linguists (Trinh 2005; Phan 2013; Duffield 2017; Phan & Duffield this volume) albeit with differing approaches. For example, Trinh (2005: 14) and Duffield (2017: 361) both claim that *đã* must be interpreted as a preterite marker in the negative sentences in (4):

- (4) a. *Nó đã không đọc sách.*  
 he DA NEG read book  
 ‘He did not read books.’  
 b. *Hôm qua anh ấy đã không có đến nhà chị.*  
 yesterday PRN DA NEG ASR go house PRN  
 ‘He didn’t go to your house yesterday.’

First, the acceptability of the sentences in (4) must be considered. I tried to find the combination of *đã* and the negator *không* in Vietnamese novels, but the result of a text search of hundreds of pages speaks against the acceptability of sentences in (4).<sup>1</sup> In addition, I searched – in the Vietnamese translation of *Gone with the Wind* by

1. A reviewer notes that [*đã + không*] combinations are extremely common on Google searches. However, in my view data derived from Google searches are unrepresentative: even if a large number of [*đã+không*] combinations are found, they may not be qualitatively diverse. Consequently I discount these as relevant data.



Margaret Mitchell [*Cuốn theo chiều gió* transl. Dương Tường] – for the translations of all the negative sentences in past tense from English into Vietnamese: none of these translations supported the acceptability of the sentences in (4).

Second, it is hard to find an appropriate context in which the sentence in (4) could be uttered by a native Vietnamese. If any, *đã* can only appear in compound sentences in (5).

- (5) *Anh đã không yêu em thì đừng làm em tổn thương.*  
 you DA NEG love me SO NEG make me hurt  
 ‘If you don’t love me, please don’t hurt me.’

In Phan (2013), *đã* is labelled as a anteriority marker; that is to say, the *đã* construction expresses the anteriority of a situation with respect to a reference point and that is intrinsic to the definition of the past tense (see Michaelis 1998). While I agree with the idea that *đã* is a “tense-aspect complex which basically means ‘anterior’ (Phan 2013: 70), I disagree with the author concerning the idea that *đã* marks anteriority in every case. Consider the specific construction *đã X lại (còn) Y*, exemplified in (6) – examples from Phan (2013: 71):

- (6) a. *Mai đã giỏi lại còn xinh nữa.*  
 Mai ANT clever again still pretty more  
 ‘Mai is not only clever, she is pretty too.’  
 b. *Họ đã nghèo lại đông con.*  
 PRN ANT poor again many child  
 ‘They are poor, but still have many children.’

Phan (ibid.) claims that “‘*đã*’ always implies a comparison, either between the current and the previous situation, or between the old and the new information, or simply between the expectation and the reality (Phan 2013: 71).” However, in my view in the sentences in (6) *đã* does not express any anteriority, that is to say, *đã* does not convey any temporal information concerning two stative situations. The sentences in (6) merely describe two static situations that co-exist at the speech time, but they are not related either presuppositionally or causally.

Finally, in languages with verbal conjugations, almost all types of verbs, whether dynamic, can be inflected to express tenses, including the past tense. Consider the following examples in English and in French, respectively:

- (7) a. *When I was a child, I wanted to become a doctor.*  
 b. *Quand j’étais enfant, je voulais devenir médecin.*

It will no doubt be ungrammatical in Vietnamese if *đã* is used to translate the past tenses in both English and French. Consider their appropriate translations in Vietnamese:

- (8) *Hồi tôi còn nhỏ, tôi muốn trở thành một bác sĩ.*  
 back I still small I want become one doctor  
 ‘When I was a child, I wanted to become a doctor.’

Even when a dynamic verb is used instead of a stative one like in (8), the occurrence of *đã* before the verb to mark the past is grammatically unacceptable to my ear. Consider the sentence in (9):

- (9) *Hồi tôi \*đã còn học ở Pháp tôi sống ở Paris.*  
 back I DA still study in France I live in Paris  
 ‘When I studied in France, I lived in Paris.’

On the basis of the above examples, I conclude that *đã* does not function as a past tense marker in any context. Rather, whenever *đã* precedes a stative predicate it tells us that someone or something is in a state, at the speech time, which was not true or factual. This is more appropriate than the idea that *đã* in the construction [*đã* + stative predicate] marks the inception of a state prior to the speech time, as Phan (2013: 67) claims. Consider the sentences in (10):

- (10) a. *Năm nay mẹ tôi đã già.*  
 year this mother I DA old  
 ‘This year, my mother is already old.’  
 b. *Ngày đó mẹ tôi (\*đã) trẻ.*  
 day that mother I DA young  
 ‘That day, my mother was young.’

In (10a), *đã* simply conveys the idea that my mother has reached a state of being old at the speech time. In other words, Vietnamese listeners are chiefly concerned with the fact that the state marked by *đã* is present at the speech time, and as a result, [*đã* + stative] does not express the past time, but the present time that can be illustrated by its translation in English in (10a). Besides, the [*đã* + X] in which X is a state presupposes that X was not true. And it is by this presupposition that the construction [*đã* + stative predicate] is said to express a change of state (cf. Duffield 2017: 358), and this change of state can be inferred from what the construction presupposes, rather than from its behaviour. Another remarkable feature of *đã* is that it only appears before the second member of the antonymous pairs of adjectives like *xanh* ‘green’ vs. *chín* ‘ripen’, *sớm* ‘early’ vs. *trễ* ‘late’, *hết* ‘end’ vs. *còn* ‘remain’, *sống* ‘raw’ vs. *chín* ‘cooked’, etc. This semantic constraint for *đã* contributes to showing that it cannot behave as a past tense marker.

### 3. *Đã* is not a purely aspectual marker

In the previous section, I presented some evidence that challenges the idea of *đã* functioning as a past tense marker. I now consider whether it is any better to think of *đã* as the expression of aspectual meanings. Both Nguyễn (2006) and Phan (2013) observe that the interpretation of *đã* varies according to the lexical aspectual type of the predicate (Vendler 1957); this is illustrated in (11):

- (11) a. *Nam đã viết một quyển tiểu thuyết.*  
 Nam DA write one CL novel  
 ‘Nam wrote a novel.’ (= accomplishment)
- b. *Trái bom ấy đã nổ.*  
 CL bomb that DA explode  
 ‘That bomb exploded.’ (= achievement)
- c. *Nam đã yêu Hoa.*  
 Nam DA love Hoa  
 ‘Hoa is in love with Hoa.’ (= state)
- d. *Nam đã làm việc ở Pháp hai năm.*  
 Nam DA work in France two year  
 ‘Nam worked/has been working in France for two years.’ (= activity)

I will examine how well each of the sentence (11) supports the view that *đã* is a device for conveying aspectual meanings. In (11a), the predicate ‘*viết một quyển tiểu thuyết*’ (write a novel) is telic, so (11a) potentially describes a completed event, which is a perfective situation. The same telic situation in (11b) is also viewed as a perfective one. The stative situation in (11c) can be described in the same way as the stative situations mentioned in the Section 2. The dynamic situation in (11d) does not have any internal or natural endpoint, and is an atelic situation. Consequently, it can be conceptualized as imperfective one. However, it may be asked whether *đã* really functions as aspectual marker in these sentences. If one replaces *đã* with the pre-verbal morpheme *có*: *Nam có viết một quyển tiểu thuyết*, this sentence has the same perfective reading as (11a). In addition, perfectivity can be tested with adverbs of degree such as *rất/very*, *quá/too*, *khá/fairly*, *rather*. Consider a telic sentence with *rất* that expresses the speaker’s appreciation for the novel Nam wrote, as demonstrated in (12):

- (12) *Nam viết một quyển tiểu thuyết rất hay.*  
 Nam write one CL novel very good  
 ‘Nam wrote a very interesting novel.’

The adverb of degree *rất* is used with an adjective or a stative verb that expresses a real state “interesting” of an entity described by a noun phrase “a novel”. This modal status of *rất* allows us to infer that the event of composing a novel must have been

completed prior to the speech time. The role of *đã* in defining aspectual meanings seems to be blurred due to the prominence of context and adverbial phrases. As a result, it can be said that the behaviour of *đã* varies according to the semantic properties of predicates that it precedes.

In many languages, it is possible for aspectual distinction to combine with other aspectual distinction. In English, the present perfect progressive is treated as an aspectual combination of meanings are made of meanings of present tense, perfect and progressive aspects. Consider the sentence in (13), from Comrie (*ibid*: 62):

- (13) I have been speaking for ages.

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Some generative grammarians researching aspectual markers in Vietnamese, including Duffield (2017) and Phan (2013), have projected this aspectual combination onto Vietnamese. For example, Duffield (2017: 357) claims that progressive *đang* functions just like the English progressive *be-ing* and “is fully compatible with the perfect *đã* morpheme.” I reproduce his example in (14).

- (14) *Lúc tôi đến, nó đã đang ngủ rồi.*

time I come PRN ASP ASP sleep already

‘When I came, he had been sleeping.’

Furthermore, Phan (2013: 68) states that *đã* “is only confined to the initial boundary of the situation” and that it can co-occur with the progressive morpheme *đang*. This combination is exemplified in (15):

- (15) *Lúc tôi đến, cả bọn đã đang đánh chén rồi.*

when I arrive, all group ANT DUR hit dish already

‘When I arrived, all of them had been eating.’

Phan argues that in (15) *đã* marks the initial endpoint of the event, and *đang* only focuses on the internal stage of the same event (Phan 2013: 68). First, I would like to talk about the data these two authors used to describe the aspectual interaction in Vietnamese. The sentences in (14) and (15), which are treated as grammatical in generative research, are considered unacceptable by many native speakers<sup>2</sup> in communication – though *cf.* Duffield, this volume, who reports a significant number of speakers who judge the combination to be fully grammatically acceptable). I tried to find this combination in novels, newspaper articles in Vietnamese, but I could not. As additional support for my view, I also looked at the translations of

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2. Another anonymous reviewer claims that these examples are grammatical and natural in Vietnamese, but the combination *đã đang* is never found in novels, short stories, newspapers articles written in Vietnamese, to my knowledge.

the past perfect progressive from English into Vietnamese, but I could not either. However, the use of all the preverbal markers can be found in the title of political news as in (16).

- (16) *Chúng ta đã, đang và sẽ ủng hộ nhân dân Cuba.*  
 1PL DA DANG and SE support people Cuba  
 ‘We supported, are supporting and will support Cuban people.’

The first point to mention is that three markers are separated by the comma and the conjunction *và* ‘and’, rather than going together to describe a sole situation, but three different situations. The second thing is the sentence in (16) might not convey any temporal information, but has the pragmatic function of expressing Vietnam’s consistent support for the Cuban people.

Second, an atelic predicate preceded by *đã* or *đang* can express semantically similar situations. Consider the sentences in (17):

- (17) a. *Bây giờ đã là mùa mưa.*  
 now DA là season rain  
 ‘It’s already the rainy season.’  
 b. *Bây giờ đang là mùa mưa.*  
 now đang là season rain  
 ‘It’s now the rainy season.’

The sentence in (17a) tells us the rainy season started before the speech time and that this situation continues in the present. By contrast, the sentence in (17b) emphasizes the fact that the rainy season is concurrent with the speech time. Although the sentences in (17) are not synonymous, they might be said to describe the same situation viewed from different vantage points.

In some research on aspectual markers in Vietnamese, authors have used the term *perfect* to analyze the semantics of *đã*. This term does not inform us of its function because the *perfect* is a formal concept that indicates verbal forms consisting of an auxiliary and a past participle in inflectional languages such as English, French, German or Spanish. This construction functions differently in each language in spite of having some features in common as illustrated in (18).

- (18) a. Mary has arrived.  
 b. *Marie est arrivée.*

Both the English example in (18a) and the French example in (18b) express the resulting of Mary’s having arrived. However, a crucial difference between the English perfect and the French one consists in the fact that the French perfect can be used with adverbs of past time, as exemplified in (19).<sup>3</sup>

3. For important discussion of this restriction, see Klein (1992).

- (19) *Marie est arrivée hier.*  
 Mary be arrived yesterday  
 ‘Mary arrived yesterday.’

From the above mentioned examples, the perfect is said to be a grammaticalisation of the current relevance, at the speech time, of a situation that occurred prior to the speech time. So, I claim that is not appropriate to ascribe the concept of perfect, that is by its nature obligatory, to *đã* that functions in a different way from the perfect.

Bui (2007) argued that *đã* functions as present perfect marker as in her example reproduced in (20).

- (20) *Hôm qua Yoda đã luyện tập cực khổ.*  
 yesterday Yoda DA train hard  
 ‘Yoda trained hard/Yoda has trained hard yesterday.’

Bui does not present any reason why *đã* in this example can function as present perfect marker. It is not difficult to say that any of semantic features of English present perfect can be shared by *đã*. Indeed, *đã* is used here to lay emphasis on the fact that Yoda trained hard yesterday, and as a result, the hearer can infer that he does not need to train today. In her article, there are many examples which I suppose not many non-linguists Vietnamese would use in communication. Since *đã* has been by default considered a present perfect marker, it can occur with the adverb *luôn* ‘always’:

- (21) *Finn đã luôn là Stormtrooper.*  
 Finn DA always be Stormtrooper.  
 ‘Finn has always been / had always been / always was a Stormtrooper.’

[Bui 2017: 13]

The sentence in (21) is a translation from the English sentence presented in the Example (33) in her article which I reproduce in (22):

- (22) Finn has always been a Stormtrooper. [Bui 2017: 13]

The Vietnamese sentence in (21) is translated from the English one in (22). In my opinion, use of this kind of data cannot be acceptable in linguistic research. On the other hand, the co-occurrence of *đã* and *luôn* is hardly credible although it can be found in Google searches. But why is this combination so rarely observed in Vietnamese? It is because of semantic discrepancy between *đã* and *luôn* that the co-occurrence is not valid: *đã* is used to mark a change of state, whereas *luôn* marks constancy. So, one can say the English sentence in (22) should be translated into Vietnamese as “*Finn vẫn luôn là một Stormtrooper*” in which the word *vẫn* ‘perfect + always’ expresses something unchanged through time. In order to test the translation of the perfect in interaction with ‘always’, I tried to examine in the

English novels translated into Vietnamese the present perfect in interaction with *always* and of course their translations into Vietnamese,<sup>4</sup> but I was unable to find ‘*đã luôn*’ in Vietnamese translation. Consider the example in (23):

- (23) a. I’ve always been afraid of the rain.  
 b. *Khi nào em cũng sợ trời mưa.*

The English perfect with ‘always’ in (23) describes a consistent state that started prior to the speech time, which still persists at the speech time or the reference time. In his PhD thesis, Nguyễn (2006) proposes that the construction consisting of *đã* and a telic predicate can be used to represent a perfective situation. Indeed, *đã* itself does not represent aspectual meaning, but it must function in the frame of a predicate. However, like other researchers, Nguyễn only selected as data sentences containing *đã* and other markers as well to explore their semantic features, even though *đã* and other markers such as *đang* are rarely used, that is, they are almost always optional; this contrasts with the situation in an inflectional language such as English, where verbs are obligatorily marked for tense and aspect.

So, what type of temporal meanings can be indicated without *đã*? Let’s consider the following examples:

- (24) a. *Nam vẽ xong bức tranh tôi đặt.*  
 Nam draw finish CL picture I order  
 ‘Nam has drawn the picture I ordered him.’  
 b. *Bố mẹ tôi qua đời khi tôi mới hai mươi tuổi*  
 father mother I pass away when I just twenty age  
 ‘My parents passed away when I was twenty years old.’

Though the sentences in (24) do not contain *đã* or any aspect markers, they still express perfective situations. In (24a), the aspectual readings must have recourse to the modal meaning inferred from the affirmative statement. Based on this meaning, armed with semantic features of the verb *xong* following the head verb, one can say that the event of drawing the picture is completed. In the same way, one can define an aspectual meaning of the situation presented in (24b). When I uttered the sentence in (24b), undoubtedly, my interlocutors will understand that my parents’ death occurred at the reference time marked by the clause “when I was 20 years old”, and in aspectual terms, the mentioned situation is perfective.

In summary, aspectual readings of all types of situations must be based on many factors involving communication, which might be semantic, pragmatic, contextual and lexical devices.

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4. The sentence in (23a) is taken from Hemingway’s *A Farewell to Arms*, p. 139, and its translation from *Giã từ vũ khí* by Giang Ha, p. 118.

#### 4. *Đã* as modal operator

Modality is a crucial facet of utterance meaning and is often defined in terms of factuality. In English, verbs indicate the factuality of states of affairs by means of tense, aspect or mood. These grammatical categories as morphological devices appear all matrix clauses, or in other words, any root clause is marked in terms of tense, aspect and mood. Since Vietnamese lacks inflection it must have recourse to pragmatic, contextual or lexical factors to convey the time, or the factuality of situations, most noticeably, using modals and clause types. As mentioned in previous sections and according to Givón (2001: 306), the declarative sentence or the affirmative statement always has, by default, a realis modal reading without being marked. From this view, one can say that *đã* functions as a modal operator that marks the factuality, at a reference point, of a situation described by the phrase after it. So, I shall explore differences between a sentence with and another without *đã* as follows:

- (25) a. *Cô Hoa có gia đình.*  
 Ms. Hoa have family  
 ‘Hoa is married.’  
 b. *Cô Hoa đã có gia đình.*  
 Ms. Hoa MOD have family  
 ‘Hoa is already married.’

The sentences in (25) share a semantic feature: informing that the states in question started before a reference time that can be in the past, in the present or in the future. Yet they show a very important contrast: (25a) merely tells us that Hoa is married, while (25b), in addition, implies different things that can be interpreted in different contexts or different speakers’ intention. For instance, when I say a sentence like in (25b) to Nam, who has fallen in love with Hoa, I want to give him a warning that she is married, and he should stop pursuing her. The *realis* modal status of *đã* for other situation types is further illustrated in (26):

- (26) a. *Tàu đã chạy.* [Activities]  
 train DA run  
 ‘The train has departed.’  
 b. *Nam đã ăn một nải chuối.* [Accomplishments]  
 Nam DA eat one hand banana  
 ‘Nam has eaten a hand of bananas.’  
 c. *Taxi đã đến.* [Achievements]  
 taxi DA arrive  
 ‘The taxi has arrived.’



The sentence in (26a) describes the train's departure that occurred before or at the utterance time. The message can be understood in accordance with the place the speaker is as he speaks, on the train or at the train station. If he is on the train, the activities in (26a) is inchoative. However, if *đã* is removed, its meaning stays unchanged thanks to other contextual factors such as the starting of the train's engine. And if he arrives late and misses the train, then the sentence in (26a) can be used to express an event starts before the utterance time but is still happening when he speaks. Similarly, the accomplishments in (26b) modally marked by *đã* shows that Nam's having eaten a hand of bananas is true and implies that his eating of bananas completed. The sentence in (26c) also tells us that the taxi arrived at a reference time when someone, a tourist for example, was waiting for it. However, just like the other sentences in (26), the removal of *đã* has no semantic consequences on the sentential meaning. If a doorman says "*Taxi đến*" to a guest who is waiting for it to come, the guest understands that the taxi is already there for him. Since *đã* functions as modal marker or modal verb, its scope can change according to the speaker's choice.

Moreover, *đã* can occur in combination with different parts of speech, not only with verbs. Consider the following examples directly taken from *Nỗi buồn chiến tranh* by Bảo Ninh (1987), translated into English by Frank Palmos (1993):

- (27) a. *Tuần trước, Kiên đã thực sự vờn mặt với tử thần.*  
 week last, Kiên DA truly play face with death  
 'Just the week before, Kien had truly made fun of death.' (p. 13)
- b. *người lính vệ binh đã tự tay chôn Can ...*  
 soldier guardman DA self-hand bury Can  
 '... the military policeman who had buried Can.' (p. 20)
- c. *Kiên đã một lần [...] đến thăm ông...*  
 Kiên DA one time come visit PRN  
 'Kien had visited him just once ...' (p. 52)

The modal marker *đã* in (27) is used to lay emphasis on the parts that follow it. In (27a), *đã* emphasizes the fullest degree of a mortal danger, in (27b) it is used to assert that it was the military policeman, not someone else, who buried Can, and in (27c) *đã* informs that Kien visited his grandfather for one time only, and not more than once. Besides, *đã* can be used between the causing verb, instead of being before this one, and the result verb in the Vietnamese causative construction shown in (28b):

- (28) a. *Nam đã bẻ gãy một cành cây.*  
 Nam DA break broken one branch tree  
 'Nam broke/has broken a branch of tree.'

- b. *Nam bể đã gãy một cành cây.*  
 Nam break DA broken one branch tree  
 ‘Nam broke/has broken a branch of tree.’

Example (28a) expresses the completion of an event of *breaking* consisting of two subevents: a causing event expressed by the verb *bể*, and the caused event by the stative verb *gãy*, and the whole event of *breaking a tree branch* is modally marked. On the other hand, only the result of the event is modally marked in the sentence (28b). Of course, both sentences describe completed events in aspectual terms.

## 5. Conclusion

The marker *đã*, as described above, is a modal operator or a modal verb that locates a situation of any type as factual at unspecified time preceding a reference time in the present or in the future. The *đã*-construction does not indicate a past situation as many authors proposed because *đã* can be used in a past, present or even in a future context to provide a realis modal status to the situation described by the predicate. In aspectual terms, its role is still unclear although some aspectual meaning can be ascribed to it. Perhaps, when talking about a situation, Vietnamese speakers only care whether the situation is factual or not at a reference time. It is the factuality that is moved to the foreground in a communicative situation, and its aspectual meaning, therefore, is backgrounded.

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## (In)definiteness of Vietnamese noun phrases

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In this contribution we discuss the factors determining the definite or indefinite interpretation of Noun Phrases in Vietnamese. In contrast to what has been claimed in the literature, we find that NPs consisting of a bare noun and NPs consisting of a numeral, a classifier (CL) and a noun, while generally indefinite, may permit a definite interpretation in certain contexts (in contrast to NPs consisting of just a classifier and a noun, which are always definite). We then compare the relevant patterns in Vietnamese with their counterparts in Mandarin and Cantonese. Although the differences may seem striking we show that they can be captured by some simple morpho-syntactic parameters.

**Keywords:** bare nouns, classifier NPs, indefiniteness, definiteness, Mandarin, Cantonese, subject position, object position

### 1. Introduction

Vietnamese is a language that lacks definite and indefinite articles (Emeneau 1951; Thompson 1965; Dương 1971, among others).<sup>1</sup> It also lacks obligatory number marking. As in other languages without articles nominal arguments can be interpreted as either definite or indefinite in the sense of Heim (1982, 1983), which in English is encoded through the use of (in)definite articles. In Heim's system discourse referents are kept track of in terms of file cards. Indefinite NPs introduce a new card; definite NPs are linked to an already existing card. Our goal in the present article is to investigate which factors determine definiteness or indefiniteness in Vietnamese, with a special focus on the distribution of subject/object NPs in a sentence.

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1. T. C. Nguyễn (1975) is an exception in claiming that the language has three lexical determiners – namely, *một* 'one', *những* 'many', and *các* 'many' – that behave just like the English articles *the/a/an* in English. For instance, *một cuộc tình* 'one CL love' has an individual and indefinite reading due to the presence of the indefinite article *một* 'one'. However, it has been argued that, although these elements indeed function as determiners, they should not be put on a par with (in)definite articles: see H. T. Nguyễn (2004), Phan & Lander (2015), for discussion.

Much of the discussion in the literature on article-less languages involves languages like Russian or Serbo-Croatian where articles are simply absent (although there are expressions such as proper names, demonstratives, etc., that explicitly encode definiteness). It has been discussed in the literature whether nominal arguments in these languages have a full DP structure, or rather a lower cut-off point; see, for example, Chierchia (1998), Bošković (2008), Bošković & Gajevski (2011), Alexopoulou & Folli (2011, 2019). The same issue arises for Vietnamese and is addressed in Phan & Lander (2015), who convincingly show that Vietnamese is not a DP-language. Consequently, we will be using the label NP for the nominal projection in Vietnamese.

By and large, the interpretation of an article-less NP as either definite or indefinite in languages like Russian or Serbo-Croatian is determined by context. Languages like Vietnamese or Mandarin and Cantonese, however, have another potential way of encoding this contrast, namely, by means of classifiers. The question is then how classifiers make an independent contribution to the interpretation of NPs as definite or indefinite.

The distribution of (in)definite interpretations in Vietnamese has also been discussed by Simpson, Soh & Nomoto (2011) in a comparative study of Vietnamese, Hmong and Bangla. Their observations concerning Vietnamese are consistent with what is reported here, but we also address questions about the distribution of interpretive options across argument positions. That is to say, our concern is with the question of whether there are positions in the sentence, where, for instance, the absence of a classifier causes the noun phrase to be interpreted as an indefinite; conversely, where the presence of a classifier forces a definite interpretation. In order to check for such effects, we systematically assess a number of relevant positions in a sentence.

In order to set our discussion in a cross-linguistic perspective we include a comparison of our results with Cheng & Sybesma (1999)'s analysis of definiteness in Mandarin Chinese and Cantonese Chinese, and Trinh (2011)'s analysis of the difference between Mandarin and Vietnamese. Trinh's contribution is particularly important since it provides a very explicit semantic toolbox for the description of classifiers and classifier phrases. Trinh argues that differences with respect to the syntax and semantics of noun phrases between Mandarin and Vietnamese can be reduced to minimal differences in the lexical resources available in each variety. He argues further that in order to accommodate their difference with respect to English, languages must be able to vary not only with respect to lexical representation, but also in the inventory of interpretive rules.

At this point, there is no need to go into the technical machinery that Trinh develops, although we present some discussion of its outlines in Section 7. We will be primarily concerned with his proposal at a more general level. Our concern is that, if Trinh's assertion is correct – that is to say, if languages can also vary in the

their inventories of interpretive rules – this would have far-reaching consequences since it bears on what has become known as the Borer – Chomsky conjecture (see Baker 2008): *All parameters of variation are attributable to differences in the features of particular items (e. g., the functional heads) in the lexicon...* Rejecting this conjecture would raise non-trivial problems of learnability.

In this paper, we will show that rejection of the Borer-Chomsky conjecture is unnecessary because unwarranted: once context is taken into account – as also proposed in Simpson, Soh, & Nomoto (2011) – the patterns observed in Vietnamese can be explained without the need for any parameterization.

At this point, it should be noted that Trinh (2011) mainly focuses on a set of contexts that highlight the contrast between Vietnamese and Chinese dialects; and while Sudo & Trinh (2009) take a broader set of contexts into account, they fail to address the contextual effects analyzed in the present contribution. On the basis of the data presented here, we shall conclude that the contrast between Vietnamese, Mandarin and Cantonese does not challenge the Borer-Chomsky conjecture.<sup>2</sup>

In order to structure our findings, we provide a brief sketch of the main properties of the clause and the NP in Vietnamese. For practical reasons, the discussion will be mainly limited to NPs in subject and object positions.

## 2. An overview of Vietnamese clause structure

Vietnamese is an isolating language that shows no morphological case and agreement, which means that every lexical item is formally invariant. The order of the main constituents in the matrix clause is S (AUX) V O in pragmatically neutral contexts. Specifically, in such contexts the subject takes the initial position in the surface representation of a clause; then, between the subject and the main verb there is a position – indicated here as AUX – which hosts certain temporal and/or aspectual particles; this position precedes the negation (if projected), which in turn precedes the modal verb which precedes the main verb; the main verb precedes the object. This is illustrated in (1); cf. T. Tran (2009), Phan (2013), Duffield (2013).

(1) *Subject...(Tense/Aspect Particle...Negation...Modal Verb)...Verb...Object*

A concrete example is given in (2): see Phan & Duffield (2017); cf. Bui and Nguyễn (this volume), among others, for discussion of the temporal-aspectual nature of preverbal functional elements such as *đã*.

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2. Taking the role of context into account is also important for understanding the role of classifiers in the expression of plurality, as discussed by Lê & Schmitt (2016). We must leave that discussion to another occasion, however.

- (2) *Tôi đã không nên đánh nó.*  
 I PST NEG MOD hit 3SG  
 'I should not have hit him.'

In the example in (2) the main verb is separated from the subject by the preverbal particle *đã*, which is interpreted as past tense marker in this context. Following the particle is the clausal negation marker *không*, which precedes the modal verb *nên* 'should'. The main verb *đánh* 'hit' does not change its form; it takes the singular third person pronoun *nó* 'he/she' as its object argument. For the sake of exposition, we limit our discussion to the simple cases in (3), exemplified in (4).

- (3) *Subject... (AUX)... Verb... Object*  
 (i) (ii) (iii) (iv)
- (4) *Một con bò (đang) ăn cỏ.*  
 one CLF COW PROG eat grass  
 'A cow is eating grass.'

As can be seen in Example (4), the subject position (i) and the object position (iv) are occupied by the NPs *một con bò* 'a cow' and *cỏ* 'grass', respectively. Position (ii) may be occupied by an aspectual marker *đang*, which has a progressive meaning, and the verb *ăn* 'eat' is in position (iii).

The schema in (3) also serves to represent existential constructions, which are illustrated by the examples in (5)–(7).

- (5) *Có ma.*  
 have ghost  
 '(?)There are ghosts.'
- (6) *Tôi có hai cây bút rất đẹp.*  
 I have two CL pen very nice  
 'I have two very nice pens.'
- (7) *Trong nhà xuất hiện một con mèo.*  
 in house appear one CL cat  
 'In the house (there) appears a cat.'

In sentence (5) the preverbal position is empty, otherwise it may be filled by a possessor subject such as *tôi* 'I' in (6) or by a locative NP *trong nhà* 'in the house', as shown in (7). Existential verbs, such as *có* 'have' or *xuất hiện* 'appear', express the existence of the following argument NPs, namely *ma* 'ghosts' in (5), *hai cây bút* 'two pens' in (6), and *một con mèo* 'a cat' in (7).<sup>3</sup>

3. Cf. Duffield (2007), for an alternative analysis of existential *có*.

As for embedded clauses, the word order S (AUX) V O remains the same, except that the embedded clause is optionally marked by a complementiser *rằng* ‘that’, as in (8).

- (8) *Nam nghĩ (rằng) Mai đã mua quyển sách.*  
 Nam think (COMP) Mai PST buy CL book  
 ‘Nam thinks that Mai bought the book/a book.’

### 3. A template for Vietnamese noun-phrases

Let us now briefly sketch the structure of noun-phrases, taking the nominal head as our point of reference. A head noun can be followed by other material such as NP complements, prepositional phrases, possessive phrases, demonstratives, relative clauses, or adjective phrases. Nouns may, but need not, be accompanied by a classifier. It is standardly assumed in the literature that Vietnamese classifiers are derived from nouns; they appear to the left of the nouns they modify.<sup>4</sup> The pattern is sketched in the following schema: see T. C. Nguyễn (1975b).

- (9) Noun > Adjective phrase > Possessive phrase/Prepositional phrase >  
 Relative clause > Demonstrative

Some paradigmatic examples are given below.

- (10) *hoa [vàng]<sub>AdjP</sub>*  
 flower yellow  
 ‘a yellow flower/ yellow flowers’
- (11) *hoa này*  
 flower DEM  
 ‘this kind of flower/ a flower/ flowers’
- (12) *cây bút này*  
 CL pen DEM  
 ‘this pen’
- (13) *bức ảnh [của tôi]<sub>PossP</sub>*  
 CL photo of I  
 ‘my photo’

---

4. There is a tradition in which the classifier is considered to be the structural head of the NP (Cao 1988, 1989; T. C. Nguyễn 1975a, 1975b). In more current approaches, however, classifiers and nouns are each taken to head their own projection. In Section 7 we will see, however, that with a different implementation, this may still reflect a useful intuition.



- (14) *con chó [ở trong chuồng]<sub>PrepP</sub>*  
 CL dog at in cage  
 ‘the dog in the cage’
- (15) [*bản nhạc [(mà) tôi thích]<sub>RelCl</sub> này>* ]<sub>NP</sub>  
 CL music (REL) I like DEM  
 ‘the song that I like’

The noun *hoa* ‘flower’ can be modified by an adjective phrase *vàng* ‘yellow’ as in (10), which refers to one kind of flower whose colour is yellow. A noun and a classifier phrase can precede the demonstrative *này* ‘this’, as illustrated in (11) and (12) respectively. Additionally, a NP can be modified by the possessive phrase *của tôi* ‘of me’ as in (13) or a prepositional phrase as in (14). In (15) the noun is modified by a relative clause where the object *bản nhạc* ‘CL music’ is relativized and optionally marked by the relative marker *mà* ‘that’ (H. T. Nguyễn 2004; T. Tran 2009). Finally, the demonstrative *này* ‘this’ follows the relative clause.

A nominal head may be preceded by quantifiers, numerals, plural markers, the focus particle *cái* (which is homonymous with the classifier *cái* ‘piece’) and a classifier. The word order of prenominal modifiers is summarised in (16); see T. C. Nguyễn (1975b).

- (16) Quantifier > Numeral/Plural markers > Focus particle *cái* > Classifier > Noun

In Vietnamese, bare nouns have no overt number marking, and may be interpreted as either singular or plural, as illustrated in (17). By contrast, the classifier plus noun NP combination allows only a singular reading; cf. (18).

- (17) *sách*  
 ‘a/the book/books’
- (18) *quyển sách*  
 CL book  
 ‘the book’

Example (19) shows that classifiers may be directly preceded by numerals, however, as shown by the unacceptability of (20), numerals cannot directly modify bare nouns:

- (19) *ba quyển sách*  
 three CL book  
 ‘three books’
- (20) \**ba sách*  
 three book  
 ‘three books’

As noted by an anonymous reviewer, there are a few cases of direct numeral modification in the absence of an overt classifier, such as *ba người* ‘three people’ and *ba sinh viên* ‘three students’ (Sino-Vietnamese) that are well-formed, in contrast to (20). It seems, however, that these exceptional cases all involve nouns with [+human] referents. One may then assume that this feature acts as a classifier which denotes things having concrete shapes, functions and limited in space, hence an overt classifier is not needed (Cao 1989, 1999a, b; L. K. Nguyen 2001).

The classifier may be preceded by the focus particle *cái*, in which case it must be associated with a final demonstrative, as illustrated by the examples in (21)–(23) below; Example (23) shows that numerals appear before the focus particle *cái*, when they occur.

- (21) *cái con chó đen này*  
 CAI CL dog ADJ DEM  
 ‘this very black dog’
- (22) *cái con người chưa nói đã cười này*  
 CAI CL person NEG speak ASP grin DEM  
 ‘this very person who has not yet spoken but already grinned’
- (23) *hai cái miếng thịt này*  
 two CAI CL meat DEM  
 ‘these very two pieces of meat’

As indicated in (16) the NP also has a position for plural markers. Vietnamese has two plural markers, one of which *các* means ‘the totality’, whereas the other one, *những* means ‘some of the given things’; see T. C. Nguyễn (2001, 1975b), Cao (1999a, b); Phan & Lander (2015), Bùi (2000), Lê & Schmitt (2016), for more recent discussion).<sup>5</sup> The distribution of *các* is subject to a number of restrictions. These include the fact that it cannot be combined with a bare noun, nor can it precede a classifier (unless it is itself preceded by a quantifier such as *tất cả* ‘all’ or *hầu hết* ‘most’). See Bùi (2000), Lê & Schmitt (2016).<sup>6</sup> These facts are illustrated in (24)–(27).

5. Phan & Lander (2015) present arguments showing that *những* and *các* are not determiners: these elements may designate definiteness for a noun phrase, but only if its definiteness value is otherwise underspecified.

6. Plural markers and numerals are in complementary distribution, as exemplified in (i).

(i) \**tất cả các/những năm chiếc ghế*  
 Q PL NUM CL chair  
 ‘all of the five chairs/ five chairs’

- (24) \**các con bò*  
 PL CL COW  
 ‘the cows’
- (25) \**các bò*  
 PL COW  
 ‘the cows’
- (26) *tất cả các con bò*  
 all PL CL COW  
 ‘all of the cows’
- (27) *tất cả/hầu hết các/những quả táo trong giỏ*  
 all/most PL CL apple in basket  
 ‘All/most of the apples/apples in the basket’

There is some disagreement in the literature about the pattern in (24)–(27). The judgments in (24)–(27) reflect those reported in Bui (2000) and are consistent with those of the first author. Lê & Schmitt (2016), however, claim that *các* must be followed by a classifier. It is not quite clear what underlies this variation in judgment, whether it is regional, or perhaps context-dependent. The issue, however, is not central to our present concerns, so we leave it for further research.

As illustrated in (28), *các* can be felicitously combined with bare nouns that express the meaning of units such as *tỉnh* ‘province’, *thành phố* ‘cities’, *lớp* ‘class’, etc.

- (28) *các tỉnh/thành phố/lớp/ngày*  
 PL province/city/class/day  
 ‘the provinces/cities/classes/days’

The combination of *những* and classifiers is generally licit (29), though, just like *các*, *những* cannot be directly combined with bare nouns, as seen in (30) – except for bare nouns representing units, such as in (31); see Bui (2000).<sup>7</sup>

- (29) *những quả táo*  
 PL CL apple  
 ‘some apples’

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7. According to Bui (2000), *các* and *những* can directly associate with bare nouns borrowed from Mandarin (Sino-Vietnamese), as illustrated in the following examples:

- (i) *các học sinh*  
 PL student  
 ‘the students’
- (ii) *những học sinh trường tôi*  
 PL student school my  
 ‘some students in my school’

- (30) \**những táo*  
 PL apple  
 ‘some apples’
- (31) *những tỉnh/thành phố/lớp/ngày*  
 PL province/city/class/day  
 ‘some provinces/cities/classes/days’

The template in (32) summarises the sequence of elements in the Vietnamese NP:

- (32) *Pre-nominal elements:*  
 Quantifier > Numeral/Plural markers > Focus particle *CAI* > Classifier > Noun...
- Post-nominal elements:*  
 ...Noun > Adjective phrase > Possessive phrase/Prepositional phrase >  
 Relative clause > Demonstrative

In the next section, we investigate how the interpretation of indefiniteness and definiteness varies for a noun-phrase according to its clausal position.

## 4. Interpretive differences according to argument position

### 4.1 NPs in canonical subject position

In the literature on Vietnamese, classifier plus noun NPs and numeral-classifier-noun NPs are claimed to permit a definite reading only; by contrast, bare nouns are supposed not to allow a definite interpretation; see T. C. Nguyễn 1975a, 1975b; Cao 1988, 1989, 1999a, 1999b; L. K. Nguyễn 2001; Nguyễn & Hoang 2008; J. Tran 2011; Trinh 2011; Lê & Schmitt 2016). This is especially crucial for the claims in Trinh (2011). As it turns out, however, neither of these claims is accurate. The interpretation of bare noun NPs and numeral-classifier-noun NPs as definite or indefinite depends not only on syntactic positions, but also, on the discourse context. More specifically, in the proper context bare noun NPs can have a definite interpretation, *contra* Trinh, and depending on the context numeral-classifier-noun NPs not only allow a definite interpretation, but can also be interpreted as indefinite. (This applies to NPs modified by all numerals except the singular numeral *một* ‘one’; these always receive an indefinite interpretation regardless of the position and context of the NP. These facts are illustrated in turn. First, consider NPs in (33), containing only bare nouns.

- (33) *Gấu tấn công một đứa trẻ.*  
 bear attack one CL child  
 ‘A bear/bears attacked a child.’

In (33), the event of a bear or bears doing harm to people comes out of the blue. This, therefore, brings out an indefinite interpretation. This contrasts with (34), where a definite interpretation obtains.

- (34) *Bạn tôi cho tôi một con gấu và một con dê. Gấu tấn công tôi  
friend my give me one CL gấu and one CL goat bear attack me  
nhưng dê cho tôi sữa.  
but goat give me milk  
'My friend gave me a bear and a goat. The bear attacked me but the goat gave me milk.'*

In this example, the bare noun *gấu* 'bear' and *dê* 'goat' are construed as definite because we already know there are entities called *gấu* and *dê* introduced in the previous discourse.

The role of context in the interpretation of numeral classifier noun NPs is further illustrated in (35).

- (35) *Hai người đàn ông đang đi dạo trong rừng.  
two CL man PROG go walk in forest  
Two men are going for a walk in the forest.'*

In (35), the numeral classifier plus noun NP *hai người đàn ông* 'two men' is used without contextual introduction. Contrary to what the literature might lead us to expect, it may be interpreted as indefinite, not as a definite that has to be accommodated (Heim 1992), even though the latter reading is also available. In fact, the sentence in (35) could be used as an answer to the question "What happened in the forest?", which evokes an indefinite event or entity. Otherwise, the NP in (35) will be interpreted as definite if the two men are familiar with the speaker, as illustrated in (36).

- (36) *Tôi gặp Tom và Bill hôm qua. Hai người đàn ông đã đi dạo  
I see Tom and Bill yesterday two CL man PST go walk  
trong rừng.  
in forest  
'I saw Tom and Bill yesterday. The two men went for a walk in the forest.'*

The second sentence in (36) gives rise to a definite interpretation, as expected, because it represents previously established discourse referents, namely Tom and Bill.

For the sake of completeness, it should also be pointed out that also the interpretation of classifier plus noun NP shows an interesting complication. Not only does it allow definite readings – Cao (1989, 1999a, 1999b), Nguyễn & Hoang (2008) – but a generic interpretation is also possible, as shown by the following example (quoted from a Vietnamese song, composed by Trinh Cong Son):

- (37) *Con chim ở đậu cành tre.*  
 CL bird live on branch bamboo  
 ‘A bird/birds lives/live on bamboo branches.’  
*Con cá ở trọ trong khe nước nguồn.*  
 CL fish live temporarily in crack water origin  
 A fish/fishes lives/live temporarily in the crack of upstream head.’

In (37), *con cá* ‘a fish/fishes’ and *con chim* ‘a bird/birds’ in the subject position are not interpreted as definite. Rather, these phrases represent particular kinds of animal by picking out an individual as a representative of the whole species. In other words, these classifier plus noun NPs will be semantically generic.<sup>8</sup> Interestingly, this shows that Trinh (2011)’s account of why classifier phrases cannot have a generic interpretation in Mandarin does not carry over to Vietnamese.

The classifier plus noun NPs such as *người đàn ông* ‘CL man’ and *người đàn bà* ‘CL woman’ in (38) will, in line with what is reported in the literature, receive a definite interpretation since they refer to the individuals that introduced in the first sentence.

- (38) *John đã gặp một người đàn ông và một người đàn bà trên đường.*  
 John PST meet one CL man and one CL woman on way  
*Người đàn ông đang la mắng, người đàn bà đang khóc.*  
 CL man PROG scold, CL woman PROG cry  
 ‘John met a man and a woman on the way. The man was scolding, the woman was crying.’

As shown in (39), even when taken out of the context, the [classifier + noun] NPs in (38) continue to be interpreted as definite: in this case a context is implied (by accommodation, see Heim 1982).

- (39) *Người đàn ông đang la hét, người đàn bà đang khóc.*  
 CL man PROG scold, CL woman PROG cry  
 ‘The man is scolding, the woman is crying.’

In a context favouring an indefinite reading such expressions are unnatural. This can be illustrated in the mini-story in (40). Suppose that Nam, overhearing a loud noise in a corner of the street, turns to Mai and asks (a). In such a context, Mai’s answer in (b) would sound quite odd; on the other hand (c) – with the addition of the numeral *một* – is much more appropriate as a response.

8. As a reviewer notes, the generic interpretation of the CL -NP in (37) may be facilitated by the contrast between *con chim* versus *con cá*. If each of the CL -NPs occurs in isolation, the interpretation is switched to the definite singular. However, this does not affect our claim.

- (40) a. *Chuyện gì đã xảy ra?*  
 story what PST happen out?  
 ‘What happened?’
- b. *\*Người đàn ông đang la hét, người đàn bà đang khóc.*  
 CL man PROG scold CL woman PROG cry  
 ‘The man is scolding, the woman is crying.’
- c. *Một người đàn ông đang la hét, một người đàn bà đang khóc.*  
 one CL man PROG scold one CL woman PROG cry  
 ‘A man is scolding, a woman is crying.’

We now turn to the status of (in)definiteness of NPs in postverbal positions in Vietnamese.

#### 4.2 NPs in postverbal positions

For a proper understanding it is crucial to distinguish between NPs in the canonical object position and those in existential sentences.<sup>9</sup> In existential constructions the object follows an existential verb such as *có* ‘have’, *mọc* ‘grow’, *đến* ‘come’, *xuất hiện* ‘appear’, and so on. If the object NP numeral-classifier-noun in (41) follows the existential verb *có* ‘have’, this results in an indefinite interpretation. Specifically, the speaker is introducing two novel individuals that were absent from the previous discourse, hence this NP is indefinite.

- (41) *Nhà có hai người đàn ông.*  
 house have two CL man  
 ‘There are two men in the house.’

On the other hand, in a regular transitive clause such as the second sentence (42), the same numeral-classifier-noun *hai người đàn ông* will be interpreted as definite, since it refers to individuals that have been introduced previously.

- (42) *Hôm qua, Tom và Bill đi dạo trong rừng...*  
 yesterday, Tom and Bill go walk in forest  
 ‘Yesterday, Tom and Bill went for a walk in the forest...  
 ...tôi đã gặp hai người đàn ông ở đó.  
 I PST meet two CL man at there  
 ... I met the two men over there.’

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9. Alternatively – more conventionally perhaps – arguments following an existential predicate might be analyzed as post-verbal *subjects*, rather than objects; if so, the interpretive contrasts, including the definiteness effect discussed below, would follow directly. See, e.g., Duffield (2007, 2013).

Classifier plus noun NPs may only be interpreted as definite. As a consequence, the classifier plus noun NP cannot be used in existential sentences, as illustrated by the ill-formedness of (43); cf. Milsark (1977), Diesing (1992).

- (43) \**Trong vườn mọc lên cây chuối.*  
 in garden grow up CL banana  
 ‘In the garden (there) grows a banana tree.’

However, the sentence is perfectly acceptable if a singular numeral is added to the left of the classifier, as shown by the minimal contrast with the example in (44):

- (44) *Trong vườn mọc lên một cây chuối.*  
 in garden grow up one CL banana  
 ‘In the garden (there) grows a banana tree.’

When a classifier plus noun NP occurs as the object in an out-of-the-blue context, it becomes unnatural, as illustrated in the example below.

- (45) \**Tôi mới thấy con diều.*  
 I new see CL kite  
 ‘I have just seen the kite.’

In B’s response in (46) we can see that the use of a classifier plus noun NP is fine when it is intended to refer to a previously introduced discourse referent:

- (46) Two friends are going to school. A asks B:  
 A: *Cậu có mang theo sách toán không?*  
 you PRT bring along book math Q?  
 ‘Did you bring a mathematics book/mathematics books?’  
 B: *Đừng lo. Tôi mang cuốn sách theo rồi.*  
 no worry. I bring CL book along already  
 ‘Don’t worry. I brought the book with me already.’

Next we consider bare nouns. Postverbal bare nouns are interpreted as indefinite in existentials, see (47a); as canonical objects they allow either an indefinite interpretation as in (47b) or a definite interpretation, as in (48).

- (47) a. *Có sâu trong hộp.*  
 have worm in box  
 ‘There is/are a worm/worms in the box.’  
 b. *Nam đã đi mua sách.*  
 Nam PST go buy book  
 ‘Nam went to buy a book/books.’



- (48) Bà            tôi nấu một nồi súp.    Vậy mà,  
 grandma my cook one pot soup. but  
 con mèo của tôi ăn hết súp rồi.  
 CL cat of I eat up soup already  
 ‘My grandma cooked a pot of soup. Yet, my cat ate all of the soup already.’

In (47a), the bare noun *sâu* ‘a worm/worms’ following the existential verb *có* ‘have’, does not refer to a given entity. It is thus indefinite. Similarly, in a neutral context, the bare noun *sách* ‘a book/books’ in (47b) is also interpreted as indefinite. By contrast, in (48), the second instance of the bare noun object *súp* ‘soup’ is interpreted as definite in this context.

### 4.3 Interim summary

The results of this section are summarised in Table 1 below.<sup>10</sup>

**Table 1.** Interpretational contrasts according to clausal position

| NP type/Position | Canonical subject     | Canonical object    |
|------------------|-----------------------|---------------------|
| Bare N           | Indefinite / Definite | Indefinite/Definite |
| CL + N           | Generic/Definite      | Definite            |
| Num + CL + N     | Indefinite/Definite   | Indefinite/Definite |

## 5. Comparisons with Mandarin and Cantonese

In Cheng & Sybesma (1999), it is observed that in both Mandarin and Cantonese, Num-CL-Noun phrases are interpreted as indefinite whether in subject position, or

10. According to H. T. Nguyễn (2004), Kirby (2006) and Tran (2011), an indefinite preverbal reading of classifier plus noun NPs is allowed in the following example.

- (i) Con bò đang ăn lúa kia!  
 CL cow PROG eat paddy over-there  
 ‘(A/the) cow is eating (your/the) paddy over there!’

However, according to the first author an indefinite interpretation of the classifier plus noun NP in (i) seems unnatural. For instance, (i) is not felicitous as an answer to the question in (ii).

- (ii) Chuyện gì đã xảy ra?  
 story what PST happen out  
 ‘What happened?’

whether they appear in object position; see also Simpson, Soh, & Nomoto (2011).<sup>11</sup> As we have just seen, however, in Vietnamese such phrases can also have a definite reading. For that reason, in this section, we restrict attention to the differences in interpretation between bare noun NPs and CL + noun NPs in these three languages. (Note that the Cantonese and Mandarin examples are all taken from Cheng & Sybesma 1999.)

### 5.1 NPs in canonical subject position

Cheng & Sybesma (1999), show that Mandarin bare nouns in subject position must be interpreted as definite, as illustrated in (49). By contrast, bare nouns are not allowed in that position in Cantonese, as exemplified in (50a); instead, Cantonese makes use of [CL + N] to express a definite reading, as in (50b). In contrast to both of these two language varieties, Vietnamese bare nouns allow both a definite and indefinite interpretations, as shown (once more) in (51).

- (49) *Gou yao guo malu.* [Mandarin]  
 dog want cross road  
 ‘The dog wants to cross the road.’
- (50) a. \**Gau soeng gwo maalou.* [Cantonese]  
 dog want cross road  
 ‘A dog wants to cross the road.’  
 b. *Zek gau zungji sek juk.*  
 CL dog like eat meat  
 ‘The dog likes to eat meat.’
- (51) *Chó muốn qua đường.* [Vietnamese]  
 dog want cross road  
 ‘A/The dog/dogs want/s to cross the road.’

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11. As Cheng & Sybesma (1999) note, one way to make a numeral phrase definite is by adding a demonstrative. An apparent counterexample to their generalization is (i) (their (57b)):

- (i) San-ge xuesheng dou lai-le.  
 three-CL student all come-LE  
 ‘All three students came.’

However, in this case, the universal quantifier *dou* ‘all’ is present and the sentence is interpreted as ‘for all *x*, *x* is a member of three students, *x* came’. Thus, as they conclude, the noun phrase in (i) is strictly speaking not the equivalent of ‘the three students’, hence does not bear on their generalization. See also Cheng (2009) for further discussion of this issue.

Next, whereas Cantonese and Vietnamese [CL + N]<sub>NP</sub> in subject position are obligatorily interpreted as definite, as in (52) and (53), respectively, in Mandarin this combination is excluded from subject position, see (54).

- (52) *Gaa ce zo-zyu go ceot-hau.* [Cantonese]  
 CL car block-CONT CL exit  
 ‘The car is blocking the exit.’
- (53) *Chiếc xe đang chặn cửa thoát hiểm.* [Vietnamese]  
 CL car PROG block door exit  
 ‘The car is blocking the exit.’
- (54) \**Ben shu bu hao.* [Mandarin]  
 CL book not good  
 ‘The/A book is not good.’

These observations about bare nouns and classifier plus noun NPs in subject position in the three languages are summarized in Table 2 below.

**Table 2.** Cross-linguistic comparison of NPs in canonical subject position

|           | Mandarin | Cantonese | Vietnamese          |
|-----------|----------|-----------|---------------------|
| Bare noun | Definite | *         | Indefinite/Definite |
| CL + N    | *        | Definite  | Definite            |

## 5.2 NPs in canonical object position

### 5.2.1 Bare Noun-phrases

Mandarin bare nouns in object position display the same behavior as those in Vietnamese, in permitting both definite and indefinite interpretations; this is illustrated in (55) for Mandarin, and (56) for Vietnamese. By contrast Cantonese bare nouns are always indefinite, as shown in (57).

- (55) a. *Hufei mai shu qu le.* [Mandarin]  
 Hufei buy book go SFP  
 ‘Hufei went to buy a book/books.’  
 b. *Hufei he-wan-le tang.*  
 Hufei drink-finish-le soup  
 ‘Hufei finished the soup.’
- (56) a. *Nam đã đi mua sách.* [Vietnamese]  
 Nam PST go buy book  
 ‘Nam went to buy a book/books.’

- b. *Tí rửa hết rau cho mẹ rồi.*  
 Ti wash up vegetable for mother already  
 ‘Tí washed all of the vegetable for his mother already.’

- (57) *Wufei heoi maai syu.* [Cantonese]  
 Wufei go buy book  
 ‘Wufei went to buy a book/books.’

### 5.2.2 [CL + N] Noun-phrases

In object position, [CL + N]<sub>NP</sub> are seen to behave differently in each language, when we compare Mandarin, Cantonese and Vietnamese. Whereas Cantonese [CL + N]<sub>NP</sub> may be interpreted as definite or indefinite, as shown in (58), Mandarin [CL + N]<sub>NP</sub> permits an indefinite reading only, as in (59), while Vietnamese classifier + noun NPs receive only the opposite – i.e., definite – interpretation, as shown in (60):

- (58) a. *Keoi seung maai gaa ce.* [Cantonese]  
 he want buy CL car  
 ‘He wants to buy a car.’  
 b. *Keoi maai-zo gaa ce.*  
 he sell-zo CL car  
 ‘He sold the car.’
- (59) *Wo xiang mai ben shu.* [Mandarin]  
 I would-like buy CL book  
 ‘I would like to buy a book.’
- (60) *Nam thích cuốn sách nhưng Mai không thích.* [Vietnamese]  
 Nam like CL book but Mai not like  
 ‘Nam likes the book but Mai does not.’

## 5.3 Interim summary

The differences between the three languages are summarized in Table 3.

**Table 3.** Cross-linguistic comparison of NPs in canonical object position

|           | Mandarin            | Cantonese           | Vietnamese          |
|-----------|---------------------|---------------------|---------------------|
| Bare noun | Indefinite/Definite | Indefinite          | Indefinite/Definite |
| CL + N    | Indefinite          | Definite/Indefinite | Definite            |

## 6. An analysis of (in)definiteness marking in Vietnamese, Cantonese and Mandarin

We will now present an analysis of (in)definiteness marking in Mandarin, Cantonese and Vietnamese.

### 6.1 Minimalist considerations

In contrast to most Western Indo-European languages, Slavic languages do not generally employ a contrast between definite and indefinite articles to express (in-)definiteness; see Bošković (2008). Yet, Slavic languages still include definiteness as a grammatical category: it is necessary, for instance, to exclude definite-marked NPs from existentials (e.g., ‘\*there is that man in the garden’). Since in determinerless NPs (in)definiteness can only be determined at the discourse level, the question is how one can grammatically express the fact that this property is left open at the interface with the interpretation system (the C-I interface).

For sake of concreteness, we assume that definiteness is grammatically represented as an interpretable feature. The question then becomes whether this feature can be left unvalued at the C-I interface. It is generally assumed that leaving a feature unvalued at the interface causes a derivation to ‘crash’; see, for instance, Chomsky (2008), Bošković (2011). Nevertheless, Preminger (2011) argues that this does not necessarily apply to the interface with the realization system (i.e., the PF interface). In Preminger’s approach, an unvalued feature may be realized by a default value, for instance in the case of default agreement. Here, we will tentatively suggest that a similar option is also available at the C-I interface, in which a value is left unspecified. Intuitively, this means that the grammatical system has done all it can, leaving the ultimate valuation to the interpretive system.

We take it to be significant that in languages that mark definiteness in the form of articles, the definite article is generally a dedicated element, whereas for the encoding of indefiniteness a (weak) form of a numeral is employed in the singular and no marking in the plural. This suggests that cross-linguistically one of the possible patterns is for a definiteness requirement to be encoded in the presence of a D-projection, whereas the absence of a D-projection simply reflects the absence of any such obligation, hence is compatible with either value. This is, then, another way of expressing that the value for this property is *unspecified*.

This provides the theoretical basis for a proof of concept by which differences between Mandarin, Cantonese and Vietnamese in the expression of definiteness can be captured in terms of a simple set of parameters that only involve morpho-syntactic features (*contra* what is claimed by Trinh 2011). In the discussion

we will pay specific attention to the choice between the two ways of expressing the lack of specification.

In Mandarin and Cantonese, as we saw, there is an interplay between interpretation and position in the distribution of (in)definiteness. In Mandarin bare nouns can optionally be assigned a definite interpretation, but in Cantonese they are indefinite only. In Cantonese classifier noun NPs can be definite or indefinite. For Mandarin, the interesting feature is the fact that [CL + N] is obligatorily indefinite, as summarized in the tables of the previous section. What they share is the fact that in subject position a definite interpretation emerges. Vietnamese is different in that there is no definiteness requirement on the subject and that the classifier + noun combination is definite (or generic) but not indefinite. It is crucial to note that Mandarin is not the mirror image of Vietnamese, contrary to what is claimed in Trinh (2011).

## 6.2 Formal implementation

Let us now discuss the specifics of the implementation of our analysis, starting with the question of how the definiteness requirement on the subjects in Mandarin and Cantonese is morpho-syntactically encoded. It is easy to see that a definiteness requirement on a subject can be encoded by an unvalued D-feature on T, which is valued by the presence of a valued D in its local c-command domain, which it can attract. Suppose then that both Mandarin and Cantonese have a T with such an unvalued D-feature, but that Vietnamese T does not have an unvalued D-feature. If so, there is no definiteness requirement on subjects in Vietnamese. This yields a simple morphosyntactic encoding of the contrast observed.

Next we may assume that both Mandarin and Cantonese have the option of projecting a null D; we make the further assumption that being null, this D head must be licensed; see Li (1998) for Mandarin. One way to implement this in Minimalist terms is by assuming that the null D itself has an unvalued D-feature, which must be valued.

Given these technical assumptions, the difference between Mandarin, Cantonese and Vietnamese can now be derived as follows.

### 6.2.1 *Mandarin*

Consider the subject position first. In Mandarin N has a D-feature. But note that by itself it must be compatible with either a definite or an indefinite interpretation. So, the D-feature must be *unspecified*. If the null D attracts it, the latter becomes valued in turn. But being a D in a *marked=definite*-system only the definite value is activated, and values T's D-feature. Thus, the definiteness requirement is met

and the derivation converges. Consider now the case of a *prima facie* [CL Noun] DP. In order to meet the definiteness requirement there should also be a null D. Here the classifier is on the path between the Noun and the null D, as in [ $D_{\langle \text{unval } d \rangle}$  CL  $N_{\langle \text{val } d \rangle}$ ]. D cannot attract N's D-feature, since this would yield a minimality violation, due to the intervention of the classifier. Hence D stays unvalued, is unable to value T's D-feature, and the derivation crashes. In the object position nothing changes, except that there is no definiteness requirement. Merging a null D is optional. If it is merged a definite interpretation ensues; if it is not, we have an indefinite interpretation.

### 6.2.2 Cantonese

We assume that the contrast between Mandarin and Cantonese reduces to the fact that the valued D-feature is on the classifier in Cantonese, and not on N (as in Mandarin). Consequently, given a bare N the D-feature of the null D will not be valued – nor will the D-feature of T – and the derivation will crash. If a classifier with valued D-feature is present it is easy to see that the derivation will converge. In the object position the derivation will crash if a null D is merged to a bare noun. Since a definite interpretation is ruled out by the grammar, it cannot be assigned by the interpretation system due to reasons of economy; cf. the *Rejection is Final* principle in Reuland (2011). Hence only the indefinite interpretation remains.

### 6.2.3 Vietnamese

In Vietnamese there is no external definiteness requirement on the subject, and there is no need to assume that a D is generally projected, in line with Phan & Lander (2015)'s result that Vietnamese is a NP language.

The empirical challenge for our analysis of Vietnamese is that sometimes the classifier appears to mark definiteness, sometimes it does not. To explain this, we need to appeal to the feature value *unspecified* once more. It seems that the simplest solution for Vietnamese can be derived from the following assumptions: (i) there is a D-feature on the classifier (like in Cantonese), which cannot be interpreted on the classifier; (ii) a D with an unvalued interpretable D-feature can be optionally merged; (iii) numerals have an interpretable D-feature with its value *unspecified*. So, in the [CL N] case, the derivation will not converge due to the uninterpretable D-feature on the classifier, unless a D is merged to license it. This yields a definite interpretation due to the intrinsic effect of merging a D in a *marked=definite*-system. In the case of [Num + CL + N] the derivation will converge since the *unspecified* value on the numeral will license the D-feature on the classifier. In the case of NPs containing only bare nouns nothing special needs to be said, since these nouns don't bear a relevant feature: the system has nothing to say and its interpretation with respect to (in)definiteness is left open.

As mentioned in the introduction, Trinh (2011) provides an extensive semantic analysis of this pattern. Readers interested in the formal details of this analysis are referred to the original article. Trinh adopts Chierchia's (1998) theory of kind reference that includes the assumption that there is a linguistic operator ('*K*') that maps bare nouns, being nominal predicates, into names of kinds. Following Chierchia, Trinh assumes that nouns in classifier languages are 'cumulative' predicates, and that the function of the classifier is to make predicates 'atomic'. Here we will limit our discussion to his analysis of definiteness/indefiniteness.

Trinh argues that the possibility of indefinite objects in Mandarin follows from the assumption that verbs and objects in Chinese can compose *via* the rule of Restrict; see Chung & Ladusaw (2004). Existential Closure applies at the VP level, binding free variables inside the verb-phrase; Heim (1982), Diesing 1992). For Trinh, the impossibility of indefinite subjects in Chinese follows from the assumption that subjects in Chinese cannot reconstruct into VP, hence cannot be existentially closed; cf. Tsai (2001).

To account for the definite interpretation of bare nouns in Mandarin Trinh defines an operator '*EXT*', which takes an individual concept and applies it to the evaluation world. *EXT* combined with a kind expression will give the meaning of 'the *X*'. *EXT* can only apply to kind expressions. Since only bare nouns can yield kinds in Mandarin – *via* the *K* operator – only bare nouns can be definite.

Trinh argues that Vietnamese shows precisely the opposite pattern: classifier and numeral phrases can be definite in Vietnamese, whereas bare nouns cannot. His analysis involves two components. First, Trinh proposes that, instead of the operator *EXT*, Vietnamese makes use of an operator *THE*, which allows both classifier and numeral phrases to have a definite reading. Second, Vietnamese grammar contains a preference principle requiring that Chierchia's operator *K* yielding kinds is preferred over the operator *THE* when both would be possible. This entails that bare nouns cannot be definite in Vietnamese.

As we have seen, however, this is not borne out empirically, since bare nouns can in fact be definite in Vietnamese. It is unclear how this fact could be handled under Trinh's line of analysis.<sup>12</sup> His analysis also leaves open why, as we observed, numeral-classifier-phrases should allow an indefinite interpretation. From a more general perspective it is important to note that the choice between operators such as *EXT* or *THE* is not based on any independent morphosyntactic properties of Mandarin and Vietnamese. As a parameter of variation this choice is therefore

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12. Alternatively, it could be assumed that Vietnamese has the operator *EXT* also, optionally applying to kind expressions. It is unclear, however, whether this would have unwanted complications elsewhere. To explore the consequences of such an assumption is beyond the scope of this paper.



incompatible with the Borer-Chomsky conjecture. Of course, it would be interesting to explore in more detail whether and how access to such operators can be related to morphosyntactic features of the type we have been using in our analysis. However, *prima facie*, admitting parameters of the type Trinh suggests represents a loss in explanatory potential as compared to the feature-based analysis presented here, which allows the contrasts between Mandarin and Vietnamese to be captured without violating the Borer-Chomsky conjecture.<sup>13</sup>

Crucially, then, *contra* Trinh (2011), this intricate pattern of variation can be explained without the existence of novel parameters of variation.

## 7. Conclusion

The main points of this paper may be summarized as follows. In Vietnamese, bare nouns and Num-CL-N phrases can be interpreted as indefinite or definite in subject and object positions, whereas the classifier plus noun NPs will receive definite readings in both positions.<sup>14</sup> The latter point is in line with the literature in which classifiers have been argued to add definiteness to NPs in Vietnamese. In contrast, bare nouns in Mandarin must be definite in subject position while [CL + N] is not allowed there. In Cantonese, however, only [CL + N] can express definiteness in subject position, bare nouns do not qualify. In object position, Vietnamese bare nouns are comparable to their Mandarin counterparts in that they allow both

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13. Trinh concludes his analysis with a discussion of a possible difference between English and Mandarin/Vietnamese on the other reflected in the contrast in (i):

- (i) a. John bought dogs.
- b. \*John bought dog.

Chierchia (1998) proposes a rule of Derived Kind Predication (DKP) to account for this contrast. Under the assumption that plurals can denote kinds, but singulars cannot, this rule yields an object of the right type in (ia), but not in (ib). Trinh argues that this rule would yield the wrong results for Mandarin and Vietnamese, hence cannot be available in these languages. Conversely, rules like Restrict/Existential Closure should not be available for English since they would incorrectly derive (ib) as grammatical. He concludes that English has DKP but not Restrict/Existential Closure, and Chinese and Vietnamese have Restrict/Existential Closure but not DKP.

For Trinh, this is an argument that languages vary not only with respect to lexical representation, but also in the inventory of interpretive rules. Even without an extensive discussion of English it seems that this conclusion is unwarranted. In fact (ib) is not so much ill-formed but rather unusual, since *John bought lamb* is quite fine. Hence, no difference in the availability of interpretive rules is needed to account for the facts.

14. But note that classifier plus noun NPs can also have generic readings, preverbally.

definite and indefinite interpretations, whereas Cantonese bare nouns are always indefinite in that position.

On the other hand, while Mandarin [CL + N] is always indefinite, Vietnamese classifier plus noun NP and Cantonese [CL + N] can receive definite readings. An interesting difference between Vietnamese and Cantonese [CL + N] is that Cantonese [CL + N] can yield an indefinite interpretation, whereas Vietnamese classifier plus noun NPs cannot. In Section 6 we offered a demonstration that these intricate patterns of variation can be captured by a simple set of morpho-syntactic parameters for the encoding of (in)definiteness. Further research is required to understand how this proposal fares for a broader domain of facts.

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## Scalar implicatures and the semantics of *wh*-indefinites in Vietnamese

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In this chapter we attempt to account for the meaning of *wh*-indefinites in Vietnamese through a formal system of scalar implicatures and exhaustification (Chierchia, Fox & Spector 2012; Chierchia 2013). While Vietnamese *wh*-indefinites occur in a variety of licensing contexts, we conclude that the crucial condition is speaker ignorance, which can be derived compositionally from the interaction between a *wh*-indefinite, an exhaustification operator, and a speaker-oriented epistemic modal. We further discuss the interpretations of morphologically complex *wh*-indefinites and bare *wh*-indefinites in negative sentences and non-epistemic modal environments, and demonstrate how to derive their semantics uniformly. Our proposal presents an alternative to the syntactic analysis by Tran & Bruening (2013), which is critically reviewed.

**Keywords:** scalar implicature, modality, alternative semantics, indefinites, existential *wh*-phrases

### 1. Introduction: *Wh*-indefinites in Vietnamese

The purpose of this paper is to provide a compositional semantic account for the existentially interpreted *wh*-phrases in Vietnamese, one that is to be compared with the more syntactic approach of Tran and Bruening (2013) (hereafter T&B 2013). We refer to *wh*-words that are used as indefinites as *wh*-indefinites.

Vietnamese is a *wh-in-situ* language.<sup>1</sup> All *wh*-phrases remain in their base positions in *wh*-questions.

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1. The second author of this paper speaks the southern dialect of Vietnamese, but we also checked the data presented in this work with informants speaking Southern and Northern dialects.

- (1) *Lam ăn gì?*  
Lam eat what  
'What did Lam eat?
- (2) *Anh gửi gì cho Tan?*  
you give what to Tan  
'What did you send to Tan?'

Under certain conditions, Vietnamese (bare) *wh*-phrases can be interpreted not as interrogatives but as existential phrases. Michaelis (1989), Tsai (2009), Tran (2009), and T&B (2013) have documented a range of environments where the existential construal is possible. A quick summary is given in (3), and some examples from these studies are reproduced directly below.

- (3) Licensing contexts for Vietnamese (bare) *wh*-indefinites:
- Traditional NPI-licensing contexts: *Yes/No*-questions, conditional antecedents, comparatives, and in the scope of negation;
  - Epistemic contexts;
  - In the complement clause of nonfactive predicates such as 'think' and 'believe';
  - Within the scope of imperatives, certain non-epistemic modals such as 'must' or 'should,' and certain "non-realised" contexts;
  - Existential *có*-sentences (Tran 2009; T&B 2013)

### 1.1 Traditional NPI-licensing contexts

A conditional structure in Vietnamese can be introduced by *nếu* 'if' in the initial position of the antecedent clause. Under the licensing of *nếu*, *wh*-words have an existential indefinite reading.

- (4) *Nếu bạn muốn ăn gì thì cứ tự mua mà ăn.*  
if you want eat what then keep self buy come eat  
'If you want to eat something, just go and buy it yourself.' (Tsai 2009: 33)

Negation is another representative type of *wh*-indefinite licenser. While Vietnamese has a number of negative markers – see Tsai (2009), for details – in this work we will focus on *không*.

- (5) *Nam không mua gì (cả).*  
Nam NEG buy what at.all  
'Nam did not buy anything (at all).' (Tsai 2009: 35)

- (6) *Không ai chịu giúp đỡ anh ấy.*  
 NEG who willing help him  
 ‘No one is willing to help him.’ (Tsai 2009: 35)

*Yes/No*-questions are typically marked with sentence-final *không*, which is homophonous to the sentential negation marker ‘not’; see also Phan & Duffield (this volume). Example (7) is understood as a *Yes/No*-question, not a *wh*-question.

- (7) *Có phải Nam nhìn thấy gì rồi không?*  
 have must Nam see find what PFV NEG  
 ‘Did Nam see anything?’ (Tsai 2009: 36)

Finally, Michaelis (1989) provides an example of a comparative construction where an indefinite *wh*-word is also possible.

- (8) *Anh cao hơn ai hết.*  
 he tall more who complete  
 ‘He is taller than anyone at all.’ (Michaelis 1989: 69)

## 1.2 Epistemic modal contexts

A range of epistemic modal expressions that convey uncertainty or speaker-oriented judgments are licensors for existential *wh*-indefinites.

- (9) *Hình như ai vừa gặp Tân.*  
 seemingly who just meet Tân  
 ‘It seems someone just met Tân.’ (T&B 2013: 220)
- (10) *Chắc Nam ăn phải cái gì nên mới bị đau-bụng*  
 surely Nam eat obtain CL what so just PASS ache-stomach  
 ‘Nam must have eaten something, so his stomach is aching.’ (Tsai 2009: 33)
- (11) *E rằng có chuyện gì sắp xảy ra, nét mặt của mọi-người đều rất nghiêm-trang.*  
 afraid that have matter what forthcoming happen shape face of  
 everyone all very serious  
 ‘[I am] afraid that there is something going to happen, so everyone’s face looks very serious.’ (Tsai 2009: 34)



### 1.3 Complement clauses of nonfactive predicates

Example (12) illustrates the existential *wh*-indefinite inside the complement clause of nonfactive verbs such as ‘think’ or ‘believe’:

- (12) *Tân nghĩ/tin/\*biết là tôi mới mua gì cho Lan.*  
 Tân think/believe/\*know COMP I just buy what for Lan  
 ‘Tan thought/believed/\*knew I just bought something for Lan.’  
 (T&B 2013: 220)

### 1.4 In the scope of imperatives, certain non-epistemic modals and “non-realised” contexts

The examples below, from (13) to (17), constitute a somewhat heterogeneous group of contexts that license *wh*-indefinites: Examples (13) and (14) are imperatives; the example in (15) involves the deontic modal ‘must,’ while (16) and (17) show two cases of “desire”-type verbs taking clausal complements that instantiate “non-realised” or “irrealis” contexts.

- (13) *Các em, ai giúp chị rót ly trà với!*  
 you who help sister pour cup tea with  
 ‘You (all), someone make me (sister) a cup of tea!’ (Tsai 2009: 35)
- (14) *Lại đây ăn ?(cái) gì đã!*  
 come here eat CL what PART  
 ‘Come here to eat something!’ (T&B 2013: 221)
- (15) *Tôi phải đi mua ?(cái) gì cho anh ta.*  
 I must go buy CL what for him  
 ‘I must go buy something for him.’ (T&B 2013: 221)
- (16) *Tôi muốn làm ?(cái) gì để giúp cô ấy.*  
 I want do CL what to help her  
 ‘I want to do something to help her.’ (T&B 2013: 221)
- (17) *Cổ mong/mơ có việc nào tốt hơn.*  
 she hope/dream have job which good more  
 ‘She hopes/dreams that she will have a better job.’ (Michaelis 1989: 71)

Note that there is a strong tendency (but not an absolute requirement) for a classifier to co-occur with the *wh*-indefinites in this group in order for the latter to be existentially interpreted. The issue of classifiers is taken up in Section 4.

## 1.5 Complex/non-bare morphological forms

Finally, *wh*-indefinites can be formed *via* one of the three morphological means in (18), examples of which are given in (19)–(21) below. Their common property is that they all contain a post-nominal particle, *đó* or *đấy*, which in other contexts is a demonstrative but serves as an indefinite marker of some sort when combined with a *wh*-word; see Nguyen, Ho & Nguyen (2005), for some dictionary definitions.

- (18) a. *một* (CL) *wh* *đó* ‘one (CL) *wh* that’ (Tsai 2009)  
 b. *wh* *đó* ‘*wh* that’ (Michaelis 1989; Tran 2009; T&B 2013)  
 c. *wh* *đấy* ‘*wh* that’ (Michaelis 1989)
- (19) *Nam đã thấy một ai đó.*  
 Nam PFV see one who that  
 ‘Nam has seen someone.’
- (20) *Nam ăn một cái gì đó rồi.*  
 Nam eat one CL what that PFV  
 ‘Nam has eaten something.’ (Tsai 2009: 37)
- (21) *Tân không gặp ai đó.*  
 Tân NEG meet who DEM  
 ‘There is someone that Tân does/did not meet.’ (T&B 2013: 225)
- (22) *Anh đó đang trốn đâu đấy.*  
 he that PRESENT hide where that  
 ‘He is hiding somewhere.’ (Michaelis 1989: 67)

Readers who are familiar with the literature of existential *wh*-phrases in Mandarin (Huang 1982; Li 1992; Lin 1998) will immediately notice that Vietnamese *wh*-indefinites behave strikingly similarly to the Mandarin counterparts, except that Mandarin lacks the morphologically complex, non-bare forms. Indeed, T&B (2013) consider the following *Non-Entailment of Existence Condition* (NEEC), initially proposed by Lin (1998) for Mandarin, to generally hold for Vietnamese *wh*-indefinites as well.<sup>2</sup>

- (23) Non-Entailment of Existence Condition (Lin 1998: 230)  
 The use of a [*wh*-indefinite] is felicitous *iff* the proposition in which the [*wh*-indefinite] appears does not entail the existence of a referent satisfying the description of the [*wh*-indefinite].

2. *Wh*-indefinites in Mandarin are called “existential polarity *wh*-phrases” (EPWs) in Lin (1998).

Nevertheless, T&B point out that there are a number of cases with which the NEEC doesn't seem to fare well. Let us concentrate on bare *wh*-indefinites. First, the factive verb *remember* presupposes the truth of its complement clause, even when the former is negated (because presupposition survives negation), and therefore a bare *wh*-indefinite that observes the NEEC is predicted to be unlicensed in such complement clause. This is not borne out, because bare *wh*-indefinites in both Mandarin and Vietnamese are licensed; this is shown in Examples (24) and (25), respectively.

(24) *Wo bu jide (you) shei lai zhao-guo ni.*  
 I not remember have who come look-for you  
 'I do not remember that anybody came to look for you.' (Lin 1998: 236)

(25) *Tôi không nhớ cô ấy đã gặp ai rồi.*  
 I NEG remember she ASP meet who already  
 'I don't remember she already met someone.' (T&B 2013: 232)

Second, the consequent clause of a conditional does not entail existence, but does not license a bare *wh*-indefinite. Example (26), for instance, is predicted to be grammatical.

(26) \**Nếu Anh Thơ đến [thì ai sẽ rất vui].*  
 if Anh Tho arrive then who FUT very happy  
 \*'If Anh Tho arrives, anyone will be very happy.' (T&B 2013: 233)

Finally, Vietnamese bare *wh*-indefinites are licensed in existential sentences such as (27), contrary to the NEEC. Example (27) below does entail that someone exists who met/meets Tan.

(27) *Có ai gặp Tân.*  
 have who meet Tan  
 'Someone met/meets Tan.' (T&B 2013: 233)

To recap, the three contexts in which the occurrence of Vietnamese bare *wh*-indefinites cannot be accommodated by the NEEC are (i) the complement clause of nonfactive verbs, (ii) the consequent clause of conditionals, and (iii) existential sentences headed by *có* 'have.' To account for the aforementioned problematic cases, T&B provide a slightly different licensing condition for Vietnamese bare *wh*-indefinites than Lin's NEEC, which will be reviewed below. As will also be discussed, however, T&B's own account does not fully resolve these cases, and there are additionally a number of problems in their framework that call for a critical reassessment.

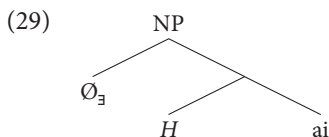
## 2. Tran & Bruening (2013)

### 2.1 The proposal

Following Tran (2009), T&B first propose that Vietnamese bare *wh*-phrases denote sets of Hamblin alternatives (Hamblin 1973; Kratzer & Shimoyama 2002). For instance, the denotation of *ai* ‘who’ is (28), a set of people.

$$(28) \quad [[ai]] = \{x: \text{person}(x)\}$$

Since a Hamblin denotation is not quantificational, this treatment is consistent with the *wh*-in-situ pattern in Vietnamese. Further, since alternatives can “expand” through pointwise functional application until they are captured by a relevant operator, this treatment also accounts for the island-insensitivity of such *wh*-phrases. However, a simple Hamblin denotation does not explain why the distribution of Vietnamese *wh*-indefinites is restricted. T&B therefore posit a special null operator *H* syntactically merged with a *wh*-element, and argue that it is *H* that requires licensing.<sup>3</sup> Their analysis is shown in (29), the logical formula for each node being given in (30a–d); T&B (2013: 230).



- (30)
- a.  $[[H]] = \lambda z \subseteq D_{eH} \lambda x. x \in z$
  - b.  $[[H(ai)]] = \lambda x. x \in \{z: \text{person}(z)\}$
  - c.  $[[\emptyset_3]] = \lambda Q. \lambda P. \exists x. Q(x) = 1 \ \& \ P(x) = 1$
  - d.  $[[NP]] = \lambda P. \exists x. x \in \{z: \text{person}(z)\} \ \& \ P(x) = 1$

Semantically, the special operator *H* takes a set of individuals and returns an expression of type  $\langle e, t \rangle$ , as in (30a–b). On top of *H* and the *wh*-element, there is a null existential operator, (30c), which takes the constituent [*H-wh*] to yield the type of a generalised quantifier, as in (30d). T&B then stipulate that the operator *H* observes the following condition in (31), one that is modeled on Lin’s (1998) NEEC.

- (31) *Licensing Condition on H* (T&B 2013: 233)  
*H* is licensed if and only if it is in the scope of an operator with an [NE] feature.

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3. The analysis that a *wh*-indefinite is structurally richer than a *wh*-element is also motivated by the fact that *wh*-indefinites are morphologically derived from simple *wh*-words in many languages; see Haspelmath (1997).

An operator that has the [NE] – which presumably stands for ‘Non-Entailment’ – feature has the semantic property defined in (32):

- (32) [NE] Operators (T&B 2013: 233)  
 Let  $p$  be a proposition of the form  $\exists x.P(x) \ \& \ Q(x)$ . Then a propositional operator  $OP$  has an [NE] feature if and only if  $OP(p)$  does not entail  $\exists x.P(x) \ \& \ Q(x)$ .

While (31) appears quite similar to the NEEC, the former is more of a syntactic than a semantic condition: as long as  $H$  is in the scope of an [NE] operator, the *wh*-indefinite is licensed. Note further that an [NE] operator is defined by (32) to only apply to an (existential) proposition. Thus, if [NE] is possessed by a non-propositional  $OP$ , the requirement that  $OP(p)$  does not entail  $\exists x.P(x) \ \& \ Q(x)$  is regarded irrelevant.

For the environments where a *wh*-indefinite can appear without a classifier (CL), such as (4)–(12), T&B’s proposal makes the right prediction, as does the NEEC. For example, the conditional (4) and all the (epistemic) modal sentences in (9)–(11) do not entail the existence of an individual denoted by the *wh*-indefinite; the negative sentence does not entail there is something Nam didn’t buy, either. The value of T&B’s revised condition lies in how it deals with the three problematic cases to the NEEC.

T&B’s explanation for (25) is quite straightforward: since the negation marker *không* has the [NE] feature and  $H$  is in the scope of negation (i.e., in the complement clause), the *wh*-indefinite is licensed by virtue of the Licensing Condition (31). On this analysis, it doesn’t matter that *nhớ* ‘remember’ presupposes the truth of its complement (in violation of the NEEC), because (31) is a syntactic condition. For the existential *có*-sentence (27), T&B hypothesise that *có* is the overt realization of the existential quantifier ( $\emptyset_{\exists}$ ) in (29) which renders (32) irrelevant because *có* does not take a proposition in this case, and they further propose that *có* is lexically specified with the [NE] feature. It follows that  $H$  gets licensed in (27) due to [NE] being built directly into the existential quantifier position. Finally, T&B assume that the *if*-operator endowed with [NE] in (26) scopes over the protasis only but not the consequent clause, which is why  $H$  is only licensed in the former but not in the latter. They further suggest that the consequent clause of conditionals generally behave like a simple declarative (e.g., in an English conditional only the protasis may have subject-auxiliary inversion, but not the consequent), in which case the absence of an [NE] operator that can license a *wh*-indefinite is expected.

## 2.2 Objections to T&B's approach

In this section, we explain why we believe T&B's approach based on (31) and (32) falls short with respect to these three contexts. For (25), their account amounts to saying that whenever *H* appears in the scope of negation the former can be licensed, because negation is [NE] and the licensing condition is purely syntactic. But this cannot be the whole story because not all negated factive verbs license *wh*-indefinites, e.g., (33a)–(33b):

- (33) a. \**Nam không nghĩ là ai đã đến.*  
 Nam NEG think COMP who ASP arrive  
 \*‘Nam didn’t think that WHO has arrived.’  
 b. \**Nam không biết (là) Tân đã gặp ai.*  
 Nam NEG know COMP Tân ASP meet who  
 \*‘Nam didn’t know that Tân met WHO.’

(Acceptable on the indirect question reading)

In fact, the factive verb *nhớ* ‘remember’ can already license a *wh*-indefinite even when it is not negated. For instance, the *wh*-word in (34), an example that T&B did not consider, can also be interpreted existentially.

- (34) *Tôi nhớ anh ấy có nói chuyện này với ai rồi.*  
 I remember he have say matter this with who already  
 ‘I remember he already talked with someone about this matter.’

These observations suggest that the presence of negation in (25) is neither a sufficient nor a necessary condition for licensing a *wh*-indefinite in Vietnamese.

Second, the treatment of (27), which takes *có* to be lexically specified with [NE], is counterintuitive at best. The reason is that, as T&B (p. 233) have observed, *có* is an existential verb that asserts the existence (of some individual); the main function of the [NE] feature, by contrast, is to *exclude* an existential entailment. It therefore seems inconsistent to endow *có* with [NE]. Moreover, given that *có* is assumed to be a run-of-the-mill existential operator, which connects two properties and is non-propositional, the *semantic* character of the [NE] feature that T&B claim as part of *có* has remained undefined. As a result, we still have no real explanation of how the *wh*-indefinite is licensed in (27).<sup>4</sup>

On the empirical side, we find the judgment on the existential interpretation in (27) to be controversial. The second author of this paper accepts the interrogative

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4. One might argue that [NE] in this case could be a formal feature of some sort that does not necessarily have semantic import. This, however, is simply rephrasing the licensing problem of *có*-sentences in different terms.

use of (27) but finds it very difficult to interpret (27) as an existential sentence. This is the case regardless of the form of the *wh*-phrase: *có* cannot be a licenser for the indefinite reading of the following *wh*-phrase. Further examples are given in (35a–b).

- (35) a. *Hôm nay có phim gì hay?*  
 today have movie what good  
 ‘What good movies are there today?’ (*wh*-question reading only)
- b. *Ở đây có bạn nào đã tốt nghiệp rồi?*  
 here have classmate which ASP graduate already  
 ‘Which classmate here has already graduated?’  
 (*wh*-question reading only)

Turning finally to (26), while we do not object to the idea that consequent clauses may resemble declarative clauses syntactically, it is not obvious what the [NE] operator may be that T&B have in mind for the *if*-clause. In the standard Kratzerian semantics of modals (Kratzer 1981, 1986, etc.), an *if*-clause is a proposition that restricts the quantificational domain of a modal operator; there is no special operator inside the *if*-clause. A more serious concern, though, is that conditionals without an overt modal are generally considered having an implicit (epistemic) one in the consequent clause; see Heim (1982). This means the consequent clause of (26) too, would be under an [NE] operator (probably associated with the future marker *sẽ*) on T&B’s account, which then wrongly predicts that the *wh*-indefinite ‘who’ can be licensed.

There are two further empirical issues which have yet to be resolved. The first is the role of CLs in the use of *wh*-indefinites. As mentioned, T&B have observed that in modal and imperative sentences or in the complement clauses of verbs like ‘want’ and ‘plan,’ the CL *cái* is preferred to co-occur with the *wh*-indefinite.<sup>5</sup> We repeat their data in (36)–(38) below.

- (36) *Tôi phải đi mua ?(cái) gì cho anh ta.*  
 I must go buy CL what for him  
 ‘I must go buy something for him.’ (= (15))
- (37) *Lại đây ăn ?(cái) gì đi!*  
 come here eat CL what PART  
 ‘Come here to eat something!’ (= (14))
- (38) *Tôi muốn làm ?(cái) gì để giúp cô ấy.*  
 I want do CL what to help her  
 ‘I want to do something to help her.’ (= (16))

5. A similar pattern holds for Mandarin as well. Lin (1998) claims that a CL is required (not just preferred) for Mandarin *wh*-indefinites in these environments.

T&B remark that the occurrence of *cái* is a matter of preference, as indicated by the single question mark in each example, and that they have no account for such preference. As this pattern is absent in other licensing contexts, there must be something in the Vietnamese grammar that distinguishes the licensing contexts that prefer the presence of a CL from those that do not. We take this to be an empirical problem that should be addressed, and we return to it in Section 4.<sup>6</sup>

Second, T&B's approach is silent on one crucial semantic property of Vietnamese *wh*-indefinites: *speaker ignorance*. For each example of *wh*-indefinites cited above, there is a strong inference that the speaker of the sentence lacks the knowledge of, or is uncertain about, the actual identity of the individual denoted by the *wh*-indefinite. Such an inference can be demonstrated by the minimal pair in (39a–b) below. In (39a) where the object is an ordinary indefinite *một người* 'a/one person,' the continuation is felicitous; in contrast, in (39b), where the object is a *wh*-indefinite, such continuation sounds contradictory.

- (39) a. *Hình như Nam gặp một người, người đó là Tân.*  
 seem Nam meet one person person that be Tân.  
 'Nam seems to have met a person; that person was Tân.'
- b. *Hình như Nam gặp ai: #người đó là Tân.*  
 seem Nam meet who person that be Tân  
 'Nam seems to have met WHO; #that person was Tân.'

This observation also shows that it is not the epistemic modal *hình như* alone that contributes to the ignorance effect, since otherwise (39a) and (39b) should both be infelicitous. The *wh*-indefinite clearly has a distinctive role to play here. Perhaps even better support comes from examples such as those in (40) where (*cái*) *gì* can be construed existentially in the absence of any overt epistemic licenser.

- (40) a. *Hôm nay có (cái) gì là lạ.*  
 today have CL what be strange  
 'Something is strange today.'
- b. *Ở đây thiếu thiếu cái gì.*  
 here lack lack CL what  
 'Something is missing here.'

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6. A note on judgments. For the second author of this paper and three of our informants, (37) and (38) are grammatically acceptable (with or without the CL) on the intended existential meaning, but (36) can barely be interpreted existentially unless the numeral *một* 'one' is added before the CL or unless the indefinite marker *đó* is added after the *wh*-word. Even if the existential reading can be forced out without *một* or *đó*, the intuition is still that there is an omitted 'one' or 'some,' without which (36) would have the interrogative interpretation only.



Lin's (1998) NEEC for Mandarin *wh*-indefinites does not seem to be applicable, either. We think the crucial point about (40) is not whether it has an existential entailment or any syntactic [NE] operator, but that it exhibits the *ignorance effect* that the speaker is uncertain as to what exactly is missing here. Notice once again such effect is tied to the *wh*-indefinite but not to a non-*wh* indefinite NP, as indicated by the fact that (41) below, with the common noun 'pen,' can be uttered by someone who knows which pen is missing, whereas (40b) is infelicitous in the same context.<sup>7</sup>

- (41) *Ở đây thiếu cây bút.*  
 here miss CL pen  
 'A/the pen is missing here.'

We conclude that T&B's [NE]-based approach is inadequate in covering the range of data discussed above. The obligatory ignorance effect of *wh*-indefinites does not automatically follow from (extensional) existential quantification; it must be derived through a different mechanism.

The next section introduces our own proposal on how ignorance can be obtained compositionally.

### 3. An implicature-based alternative account

#### 3.1 Outlining the framework

We assume with Tran (2009) and T&B that Vietnamese *wh*-indefinites start out with a Hamblin denotation, namely a set of individuals – see (28) above – and that such set will expand via pointwise functional application to create a set of propositions. The latter can then be “closed” by the  $\exists$ -closure that comes with a modal: see Kratzer & Shimoyama (2002). We however depart from T&B in proposing a semantic analysis where Vietnamese *wh*-indefinites are a kind of *epistemic indefinites*, i.e., existential phrases that are obligatorily associated with a speaker-oriented epistemic modal (overt or covert). In addition, the modalised proposition where a *wh*-indefinite occurs must be “exhaustified” by an implicit exhaustification operator *O* (an instance of covert *only*). The basic logical form that we will posit for such proposition is as in (42), the technical details of which will be presented as we proceed.

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7. It is likely that, in cases like (40a) and (40b), the reduplicated (partial or total) verbal predicate provides the source of epistemic modality. (41), which conveys that the speaker knows exactly what is missing, does not accept the reduplicated form of *thiếu*; this may be an indication that reduplication morphology reflects epistemic modality.

- (42)  $O[\text{Modal}_s [\dots \textit{wh}\text{-indefinite} \dots]]$  ( $\text{Modal}_s$  = speaker-oriented epistemic modal)

One signature property of the *wh*-indefinites being epistemic indefinites is that they deliver an epistemic *ignorance* effect similar to that in epistemic modal sentences: a proposition *p* with the LF in (42) will convey that the speaker of *p* lacks the knowledge of, or is uncertain toward, the identity of the referent denoted by the *wh*-indefinite. Therefore, *p* is felicitous only if it bears the inference that the speaker of *p* has no direct evidence for the identity of such referent, and is infelicitous if otherwise.

To illustrate, let us first consider the simple *wh*-sentence *ai vừa gặp Tân* ‘WHO just met Tan.’ The set of individual alternatives denoted by *ai* expands to a set of propositions, as shown in (43a) with {A, B, C} being the only relevant individuals in the discourse. When the existential epistemic modal *hình như* ‘seem’ is added, the resulting LF is (43b), which is logically equivalent to (43c).

- (43) a.  $[[\textit{ai vừa gặp Tân}$  ‘WHO just met Tan’]  
       = {A just met Tan, B just met Tan, C just met Tan}  
    b.  $[[\textit{Hình như ai vừa gặp Tân}$  ‘It seems someone just met Tan’]  
       =  $\diamond(\exists\{A \text{ just met Tan, B just met Tan, C just met Tan}\})$   
    c.  $\diamond(A \text{ just met Tan} \vee B \text{ just met Tan} \vee C \text{ just met Tan})$   
       (abbreviated as  $\diamond(A \vee B \vee C)$ )

Note that (43c) is a weak statement (‘it is possible that someone just met Tan’), relative to the alternative propositions  $\diamond(A)$ ,  $\diamond(B)$  and  $\diamond(C)$ , all of which entail (43c) but not the other way around. Why would a speaker make a weak statement rather than a stronger one (e.g.  $\diamond(A)$ )? We adopt Kratzer & Shimoyama’s reasoning on the speaker’s strategy of *avoiding a false exhaustivity inference*.<sup>8</sup> The basic idea is that if one utters “John just met Tan” in response to the question “Who just met Tan?” the hearer would naturally infer that the speaker conveys the following exhaustive interpretation: “John *and no one else* just met Tan,” or equivalently, “*only* John just met Tan.” The fact that the speaker of (43a) chooses a wider domain (with three individuals) rather than any narrower (thus stronger) one suggests that she believes the exhaustive inference that would otherwise be implicated by a narrower domain is false.

More formally, the exhaustivity inference just mentioned can be characterised with the *O* operator (mnemonic for *only*) attached to the root level of a sentence (see Fox 2007; Chierchia et al. 2012; Chierchia 2013, among others). For our purposes, *O* can be defined as in (44) (à la Chierchia 2013: 31): it requires its prejacent (*p*) be

8. See Alonso-Ovalle & Menéndez-Benito (2010) for a similar account for the Spanish epistemic indefinite *algún*.

true, and that all alternative propositions in the set of alternatives  $Alt$  that are not entailed by  $p$  be false.

$$(44) \quad O(p) = p \ \& \ \forall q \in Alt[q \rightarrow p \subseteq q] \ (\subseteq = \text{'entail'})$$

where  $Alt$  is the set of propositional alternatives relevant to  $p$

In answering the question “Who just met Tan?” the sentence “John just met Tan” is interpreted as if there is a covert  $O$  at the matrix level, taking the latter as its pre-jacent. That John just met Tan does not entail anyone else also did, and this is how we obtain the exhaustivity inference compositionally.

To avoid a false exhaustivity inference in the case of (43b), we firstly apply  $O$  to each singleton alternative that competes with the assertion (i.e.,  $\diamond(A \vee B \vee C)$ ), as in (45a), and then negate each of the exhaustified propositions.<sup>9</sup> Negating  $O(\diamond A)$  is equivalent to  $\diamond A \rightarrow (\diamond B \vee \diamond C)$  (‘if  $\diamond A$  is true, then at least one of  $\diamond B$  and  $\diamond C$  is true’), as in (45b). By repeating this process on  $O(\diamond B)$  and  $O(\diamond C)$ , we obtain (45c), which states that if one alternative is true then some other one is also true.

$$(45) \quad \begin{array}{l} \text{a. } O(\diamond A), O(\diamond B), O(\diamond C) \text{ (application of } O \text{ to singleton alternatives)} \\ \text{b. } \neg O(\diamond A) = \neg(\diamond A \ \& \ \neg(\diamond B \vee \diamond C)) = \neg \diamond A \vee (\diamond B \vee \diamond C) = \diamond A \rightarrow \\ \quad (\diamond B \vee \diamond C) \\ \text{c. } (\diamond A \rightarrow (\diamond B \vee \diamond C)) \ \& \ (\diamond B \rightarrow (\diamond A \vee \diamond C)) \ \& \ (\diamond C \rightarrow (\diamond A \vee \diamond B)) \end{array}$$

Taking (45c) in conjunction with the asserted meaning of (43b) – namely  $\diamond(A \vee B \vee C)$  – we derive the strengthened meaning of (43b) that can be paraphrased as follows: ‘Someone may have met Tan, and if one of the relevant individuals may have, another one may also have.’ This is the ignorance effect: the speaker is ignorant as to the identity of the person that just met Tan. Such a derived meaning is equivalent to the LF in (46) where  $O$  applies to the entire modal sentence, per (44): since none of the (pre-exhaustified) alternatives in (45a) is entailed by the pre-jacent,  $O$  excludes them.

$$(46) \quad \begin{array}{l} \text{Strengthened meaning of } \diamond(A \vee B \vee C) \\ O(\diamond(A \vee B \vee C)) = \diamond(A \vee B \vee C) \ \& \ (45c) \end{array}$$

Thus far, we have only considered *singleton* alternatives. What happens when we factor in “larger” competing alternatives, such as  $O(\diamond(A \vee B))$ ? Excluding  $O(\diamond(A \vee B))$  is equivalent to  $\diamond(A \vee B) \rightarrow \diamond(C)$ , as shown in (47a) and repeating this step on  $O(\diamond(B \vee C))$  and  $O(\diamond(A \vee C))$  gives us (47b):

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9. The first step is to derive the exhaustivity inference for each alternative proposition; the second step is to derive the “avoidance” of these inferences. This process is called “recursive exhaustification” in the formal system of Chierchia (2013), one that we follow closely.

- (47) a.  $\neg O(\diamond(A \vee B)) = \neg(\diamond(A \vee B) \ \& \ \neg\diamond(C))$   
 $= \neg\diamond(A \vee B) \vee \diamond(C) = \diamond(A \vee B) \rightarrow \diamond(C)$   
 b.  $(\diamond(A \vee B) \rightarrow \diamond(C)) \ \& \ (\diamond(B \vee C) \rightarrow \diamond(A)) \ \& \ (\diamond(A \vee C) \rightarrow \diamond(B))$

The combination of (47b) and (45c) would then be the derived implicature associated with the assertion of (43b) in this case. Now, suppose  $\diamond A$  is false (i.e., the speaker believes that A didn't meet Tan) whereas  $\diamond B$  and  $\diamond C$  are both true. Then, the second conjunct of (47b) is false (by the truth condition of  $p \rightarrow q$ ), a result that is not permitted. What this means is that, once we include larger alternatives in the computation of implicatures, we obtain the interpretation that *every* alternative in the domain must be considered a possibility (cf. the free choice effect of certain polarity items such as English *any* and German *irgendein*-indefinites; see the works cited above). But this seems too strong a requirement for the Vietnamese *wh*-indefinites under discussion: the key observation is that they are felicitous even when the speaker is aware of exceptions, which can be demonstrated by (48) where the second clause is coherent with the first.

- (48) *Hình như Tân vừa gặp ai, nhưng tôi biết chắc người đó không*  
 seem Tan just meet who but I know surely person that not  
*phải là An hay là Nam.*  
 must be An or be Nam  
 'Tan probably has just met someone, but I know for sure that person is not An or Nam.'

We therefore take (45c) to be the proper analysis, rather than (45c) in conjunction with (47b). In other words, Vietnamese *wh*-indefinites do *not* exhibit the strong free choice effect; they are more on a par with Spanish *algún* (Alonso-Ovalle & Menéndez-Benito 2010), or the Romanian indefinite *vreun* (Fălăuș 2014), in allowing for what has been called *partial variation* in the literature of epistemic indefinites. In the case of (43b) this means the speaker is uncertain as to who Tan just met, but at the same time does not require that all alternatives in the relevant domain be open options.

Where a Vietnamese *wh*-indefinite is licensed in a sentence that has no overt modal, we follow Kratzer & Shimoyama in assuming that there is a null assertoric modal operator scoping above the indefinite.<sup>10</sup> Thus (49a) – repeated from (40) – receives the LF shown in (49b) (“ $\Box_s$ ” stands for the assertoric modal operator, the meaning of which can be paraphrased as ‘the speaker believes that’; see also Chierchia (2013), and Meyer (2013), among others).

10. Null modal operators are pervasive crosslinguistically: see Chierchia (2013: 256).

- (49) a. Ở đây thiếu thiếu cái gì.  
 here lack lack CL what  
 ‘Something is missing here.’
- b.  $O(\Box_S(A \text{ is missing} \vee B \text{ is missing} \vee C \text{ is missing}))$   
 (abbreviated as  $O(\Box_S(A \vee B \vee C))$ )

Assuming, once again with Kratzer & Shimoyama (2002), that an implicature can be evoked to *avoid a false claim* (i.e., a statement is made instead of an alternative one, so the hearer infers the latter is false), we obtain the result in (50) as strengthened meaning of (49a), which can be rendered as follows: ‘The speaker believes/is certain that at least one of A, B and C is missing here, but for each (singleton) alternative  $x$  she is not certain whether  $x$  is missing here or not.’

$$(50) \quad O(\Box_S(A \vee B \vee C)) = \Box_S(A \vee B \vee C) \ \& \ \neg\Box_S(A) \ \& \ \neg\Box_S(B) \ \& \ \neg\Box_S(C)$$

This derived logical representation, we believe, indeed captures the ignorance effect of (49a), and the same result obtains as well when a *wh*-indefinite scopes below an overt epistemic necessity modal, e.g. in the case of (10).<sup>11</sup>

Note that, without the posited modal  $\Box_S$ , this formula will yield contradiction:  $(A \vee B \vee C) \ \& \ (\neg A \ \& \ \neg B \ \& \ \neg C) = \perp$ . Postulating an implicit modal in the LF of (49a) is therefore crucial (and so is  $O$ ): it “weakens” the declarative, effectively allowing for the exhaustification by  $O$  that is consistent with the assertion. Under our analysis, the *wh*-indefinite is “licensed” because the assertoric operator is available (which may come as a kind of last resort when no other epistemic modal is present) to generate the ignorance effect, in contrast to T&B’s approach that relies on a stipulated lexical feature such as [NE].

The reader may be wondering at this point how the present approach deals with the negative sentences such as (5) and (6) above, or (51) below:

- (51) Tân không gặp ai.  
 Tân NEG meet who  
 ‘Tan does/did not meet anyone.’ (T&B 2013: 222)

The interpretation that T&B attributes to (51) is the same one that the English translation has, namely, the standard narrow scope reading of the existential under negation ( $\neg > \exists$ ). Thus, on this semantics, (51) is true *iff* Tan met/meets nobody at all. For our analysis, on the other hand, some sort of (implicit) epistemic modality is required to scope above a licensed *wh*-indefinite with Existential Closure

11. This strategy does not, however, apply to sentences with an existential modal, which would end up contradicting the assertion; see Alonso-Ovalle & Menéndez-Benito (2010: 20).

applied directly below the modal. (This is because EC is introduced by the modal; see Kratzer & Shimoyama (2002)). This means that (51) should have one of the two LFs in (52):

- (52) a.  $\neg > \square_s > \exists$   
 b.  $\square_s > \exists > \neg$

The scope relation in (52a) states that “it is not true that the speaker believes there was someone that Tan met” (considering, for simplicity, the past reading only). This reading is compatible with the one T&B assigns to (51), though there is the question of whether the negation *không* can really scope above an epistemic modal: e.g. in Duffield (2007) *không* is located at the specifier of an Assertion Phrase above *vP*. The LF in (52b), in contrast, conveys that “the speaker believes there was someone who Tan didn’t meet.” This requires the  $\exists$ -operator to scope above the negation, which T&B explicitly reject (p. 222) but without justification.

The interpretation in (52b) nonetheless appears to be the correct one. The key observation is the minimal pair in (53): whereas the two clauses in (53a) are congruent, those in (53b), which contains the the additional emphatic particle *cả* or *hết* are not.<sup>12</sup>

- (53) a. *Nam không mua gì, mà chỉ mua một cái bánh.*  
 Nam NEG buy what CONJ only buy one CL cookie  
 ‘Nam didn’t buy WHAT; he only bought one cookie.’  
 b. *Nam không mua gì cả/hết, \*mà chỉ mua một cái bánh.*  
 Nam NEG buy what at.all/complete CONJ only buy one CL cookie  
 ‘Nam didn’t buy anything at all; #he only bought one cookie.’

What this demonstrates is that a negative sentence in the form of [...*không*...wh...] does *not* express total negation; instead, a slight “existential inference” seems to be lurking under the surface of such sentence, one that may be paraphrased as ‘... though he actually bought something (but I am not telling you what it was).’

Here is how we think such existential inference may come about. The crucial step is that the formula of (52b) gets exhaustified by *O*, as in (54a). This then generates the implicature in (54b), as usual, which states that the speaker believes Nam didn’t buy something but is ignorant as to which thing he didn’t buy. Put differently, ‘Nam didn’t buy something, but it is not necessary that there be a particular thing that Nam didn’t buy.’ We take this to be the correct interpretation.

12. Consider the following context: Nam went to a handicrafts shop, and at the end he didn’t buy anything in this shop but decided to buy a cookie outside the shop. Seeing this, Tan can felicitously utter (53a). Several informants that we consulted also agree that (53a) is fine in this context whereas (53b) sounds weird.

- (54) a.  $O(\Box_S(\exists x(\text{Nam didn't buy } x))) =$   
 $O(\Box_S(\text{Nam didn't buy } A \vee \text{Nam didn't buy } B \vee \text{Nam didn't buy } C))$   
 (abbreviated as  $O(\Box_S(A \vee B \vee C))$ , where “A” stands for “Nam didn’t buy A,” etc.)
- b.  $\neg\Box_S(A) \ \& \ \neg\Box_S(B) \ \& \ \neg\Box_S(C)$

Of course, neither the prejacent of (54a) or (54b) entails that Nam actually bought something. But note that they do *not* entail Nam bought nothing, either. If we assume that some scalar alternative of  $\exists$ , e.g.,  $\forall$ , is also factored into the process of exhaustification, we get the implicature in (55a) ‘The speaker does not believe Nam didn’t buy all the things,’ which can be further strengthened to (55b) through what Sauerland (2004) calls an “epistemic step”: ‘The speaker believes it is false that Nam didn’t buy all the things.’<sup>13</sup>

- (55) a.  $\neg\Box_S(\forall x(x \in \{A, B, C\} \rightarrow \text{Nam didn't buy } x))$   
 b.  $\Box_S(\neg\forall x(x \in \{A, B, C\} \rightarrow \text{Nam didn't buy } x))$

This, then, is our proposal on the special “existential inference” of (51), and the like: it emerges as a standard scalar implicature based on the representation (55a). It is unclear how the inference could be derived if the assertion of (51) has  $\neg$  over  $\exists$ . Notice furthermore that this existential inference is quite strong, almost obligatory: the continuation in (56) sounds contradictory to the first negative sentence.

- (56) *Nam không mua gì, #mà anh ấy không mua gì hết.*  
 Nam NEG buy what CONJ he NEG buy what complete  
 ‘Nam didn’t buy WHAT; #he didn’t buy anything at all.’

We therefore conclude that our modal analysis is fully consistent with (maybe even required for) the negative sentences where the licensed *wh*-indefinite appears below clausemate negation.<sup>14</sup>

To sum up, our implicature-based approach sets out with the same basic assumption as T&B with regard to the denotation of Vietnamese *wh*-indefinites, namely a set of Hamblin alternatives. We however take a different route by highlighting the epistemic ignorance effect, which we argue is a result of the interaction of (i) a *wh*-phrase denoting a Hamblin set of alternatives, (ii) an epistemic

13. Specifically, Sauerland’s epistemic step is a reasoning process where an inference of the form  $\neg\Box_S(p)$  (‘the speaker is not certain that *p*’) is strengthened to  $\Box_S(\neg p)$  (‘the speaker is certain that  $\neg p$ ’), if the latter does not contradict the former.

14. Another way to derive the existential inference is to say that the first clause of (53a) competes with that of (53b) which contains the emphatic focus marker *cả/hết*. Thus, the exhaustification applied to a simple Neg-Wh sentence will exclude its counterpart with *cả/hết* added which enforces total negation.

or assertoric modal operator, and (iii) the exhaustification operator *O*. Moreover, the observed ignorance effect signals that there is more than one alternative in the speaker's epistemic state but not necessarily every alternative is regarded as an option, i.e. the partial variation effect. It is easy to verify that both (45c) and (50) remain true when “ $\diamond A$ ” is false.

On the other hand, note that in non-epistemic licensing contexts, there is no similar ignorance effect associated with the *wh*-indefinitie. For example, (16) repeated below as (57) does not imply the speaker does not know what she wants to do to help her. Rather, this sentence conveys the subtly different interpretation that there is nothing specific that she wants to do. There is still a sense of “indeterminacy” in it, but what is undetermined is not the speaker's state of knowledge but her state of desire. Notice, for instance, that it would be odd to continue with “... but I don't know what to do.”

- (57) *Tôi muốn làm ?(cái) gì để giúp cô ấy.*  
 I want do CL what to help her  
 'I want to do something to help her.' (T&B 2013: 221)

We return to the issue of how to obtain such interpretation in non-epistemic contexts in Section 4.

### 3.2 A note on the null assertoric operator

Before proceeding to the next section, some remarks on the null assertoric operator  $\square_s$  are in order. While we claim that  $\square_s$  is available in (49a), and this is how (49a) receives an existential reading,  $\square_s$  does not always come for free: (27) and (35a–b), for instance, do not allow  $\square_s$  (otherwise these examples would be similarly interpreted). Whether a given declarative proposition *p* which contains no explicit modal can take  $\square_s$  or not may depend on the idiosyncratic lexical property of the matrix predicate of *p*. On a descriptive level, we contend that  $\square_s$  can adjoin to *p* if the matrix predicate in *p* can easily signal speaker uncertainty, i.e., if the main predicate is inherently “modalised” with respect to the speaker's epistemic state. For (27) and (35a–b), the function of the existential verb *có* is simply to assert the existence of individuals; without explicit contextual enrichment, it is difficult to interpret such propositions as modalised, “weakened” propositions, the meaning of which consists of the assertion-level content along with the calculation of scalar implicatures (using *O*). Such meaning is presumably more complicated than that of an ordinary *wh*-question, a set of propositions. This is arguably why *wh*-phrases in Vietnamese – also in Mandarin, see Li (1992), Lin (1998) – cannot generally be interpreted as non-interrogative existential indefinites in unembedded, non-modal



contexts: there is no reason for a speaker/hearer to force a modalised interpretation on a modal-less proposition.

On the other hand, once a sentence is overtly marked with epistemic modality, the ignorance effect can emerge effortlessly. Such marking can be realised through a typical modal adverb such as *chắc* 'surely' or a modalised verb with an epistemic flavor. T&B have pointed out (p. 220) that *nghĩ* 'think' and *tin* 'believe' can license a *wh*-indefinite because of their nonfactivity. We think the real reason is instead that these verbs are *epistemic* in nature, wearing on their sleeve the ignorance inference that there is more than one alternative in the speaker's epistemic worlds. The same can be said for (49a) in which the predicate *thiếu thiếu* 'be missing' is compatible with the speaker being ignorant as to what exactly is missing. Finally, for the factive Example (34) we contend that *nhớ* 'remember' can also infer that the speaker holds (at the utterance time) some doubts over the truth of its complement clause. In the context of (58), Tan can felicitously utter the given sentence, which infers that he at the moment is fully aware that, unlike what he remembers from before, the spring rolls are not good anymore.

- (58) *Context*: Tan takes Nam to his favorite restaurant. After their dishes are served, Tan finds that the spring rolls are not as great as before.

*Tôi nhớ là nem rán quán này ngon lắm mà!*

I remember COMP spring.roll restaurant this delicious very PART

'I remember the spring rolls of this restaurant were quite good!'

We suggest it is the epistemic character of *nhớ* that makes it a "licensor" for *wh*-indefinites – rather than (non-)factivity. More concretely, the epistemic ignorance effect in (34) signals that the speaker is uncertain about the referent of *ai*, as evidenced by incoherence of the continuation in (59)

- (59) *Tôi nhớ anh ấy có nói chuyện này với ai rồi. #Người*

I remember he have say matter this with who *already person*

*đó là Mary.*

that be Mary

'I remember he already talked with someone about this matter. #That person is Mary.'

The ignorance effect associated with *nhớ* can be derived by adding *O* at the root level, as in (60a), and taking the set of propositions in (60b) as the alternatives to be exhaustified away by *O*. Note that the alternatives differ from the assertion not only in the form of the object phrase but also in the form of the main predicate ('remember' vs. 'know').

- (60) a. *O*(I remember he talked with WHO)  
 b. {I know he talked with A, I know he talked with B, ...}

#### 4. Types of modality and the role of classifiers

As mentioned, in the licensing contexts outlined in (14)–(16) T&B claim that a *wh*-indefinite “prefers” the co-occurrence of a classifier (CL), though the classifier is regarded – at least by some speakers, including the second author and those informants that we consulted – as obligatory in the same contexts. In this section, we take up this issue and suggest that whether a CL is optional or not (to the indefinite reading) is determined by the semantics of the different types of modalities involved: modals equipped with some sort of “free choice potential” require a CL, whereas epistemic ones do not.

Let us first provide a descriptive summary of the distribution of CLs as follows: *cf.* also Đòàn et al. (this volume).

- (61) When a CL is optional:
- a. Traditional NPI-licensing contexts. Examples (4)–(8);
  - b. Epistemic contexts. Examples (9)–(11);
  - c. The complement clause of nonfactive predicates such as ‘think.’ Example (12)
- (62) When a CL is required – “preferred” on T&B’s account:  
In the scope of imperatives, certain non-epistemic modals such as ‘must’ or ‘should,’ and certain “non-realised” contexts. Examples (13)–(17)

Setting aside the contexts in (61a) for now, the obvious question is what the crucial difference should be between epistemic contexts and those in (62). We believe the key factor here is that while an epistemic statement such as *must p or q* is made based on a speaker’s *indirect* evidence and therefore permits the inference *p might be false* (based on what the speaker knows), other types of modalities such as deontic, bouletic and imperative do not (Chierchia 2013; Fălăuş 2014). Rather, the latter types of modalities have a stronger “free choice potential.” For example, the use of the deontic modals in (63a) conveys that any room in the relevant context should meet the requirement/permission; by contrast, Example (63b) with an epistemic modal is compatible with the speaker knowing that John cannot be in the bedroom; that is to say, it tolerates some “epistemic exceptions.”

- (63) a. John must/may go to one of the rooms upstairs. (Fălăuş 2014: 163)  
b. John must/might be in one of the rooms upstairs.

The behaviour of deontic modals extends fairly generally to imperatives as well as to bouletic modal verbs expressing desires, such as ‘want’ or ‘plan’; see Chierchia (2013: 292). If I say *Bring me a book!*, the natural interpretation is that you are required to bring me a book but any book meets this request. Likewise, the default understanding of the utterance *I want/plan to buy a book* is that every book should

qualify as an option. The following pair contrasting the use of so-called ‘supplementary *any*’ in English – the term due to Dayal (2004) – further exemplifies the free choice potential in bouletic modals and the lack of it in epistemic ones.

- (64) a. John imagined/dreamt of a unicorn, (\*any unicorn). (Dayal 2004: 20)  
 b. John wanted/was looking for a unicorn, any unicorn.

In brief, for a modal proposition in the form  $M(p)$  where  $M$  has a deontic, imperative or bouletic modal base,  $M(p)$  does not bear the inference  $\diamond(\neg p)$ , where  $\diamond$  shares the same modal base as  $M$ . These kinds of modalities are referred to as “free choice” modalities in Chierchia (2013: 263–267). Epistemic modals, on the other hand, is subject to the opposite pattern. Such distinct lexical semantics in epistemic vs. non-epistemic modals has been shown to be consequential to the distribution and interpretation of modal indefinites in other languages; e.g., in German *irgend-* (Kratzer & Shimoyama 2002) and Romanian *vreun* (Fălăuș 2014). From the perspective of Vietnamese *wh*-indefinites, it seems to be that they are happy without a CL when licensed under epistemics, but require or prefer a CL when under a non-epistemic, free choice modal (or modalised verb). We believe this is indeed the right generalization, drawing from the semantics of modality. What remains to be explained is why this should be the case.

To appreciate the contribution of the CL, we shall first consider a simple CL-N object phrase without the *wh*-element, e.g., (65a). Our claim is (65a) is underlyingly (65b) with the silent singular numeral ‘one,’ the latter further obligatorily triggering the scalar implicature ‘not more than one’ in (65c) through the LF in (65d), where  $O$  is the familiar exhaustification operator that rules out scalar alternatives that are not entailed by the assertion of (65a); that is, propositions with numerals greater than one.

- (65) a. *Nam vừa mua cuốn sách.*  
 Nam just buy CL book  
 ‘Nam just bought a/the book.’  
 b. *Nam vừa mua một cuốn sách.*  
 Nam just buy one CL book  
 ‘Nam just bought a book.’  
 c.  $\neg$ (Nam bought more than one book)  
 d.  $O$ (Nam bought one book)

Evidence for such implicature comes from (66), which differs from (65a) crucially in the absence of CLs and lacks the inference (65c); see Nguyen (2004), Kirby (2006), Bisang & Quang (to appear).

- (66) *Nam mua sách rồi.*  
 Nam buy book already  
 ‘Nam bought a/the book/books already.’

When the CL-N phrase appears in the scope of a deontic modal, e.g. in (67a), it gives rise to the scalar implicature (67b) derivable from the LF in (67c), which states that I have to buy one book but do not have to buy more than one.<sup>15</sup>

- (67) a. *Anh phải mua cuốn sách (cho anh ta).*  
 I must buy CL book for he  
 ‘I have to buy a book (for him).’  
 b. ‘I don’t have to buy more than one book (for him).’  
 c.  $O(\Box_{\text{deo}}(\text{I buy one book}))$   
 $= \Box_{\text{deo}}(\text{I buy one book}) \ \& \ \neg\Box_{\text{deo}}(\text{I buy } n \text{ books}), \text{ where } n > 1$

In short, we hypothesise that the function of CLs is to introduce an implicit numeral ‘one,’ which in turn obligatorily activates a quantity-based scalar implicature, compositionally obtainable by adding the operator *O* at a propositional level.

Returning now to those crucial cases where a CL-*wh* phrase scopes under a non-epistemic modal, let us show how a uniform analysis may be achieved. Consider (68), adapted from (15) above:

- (68) *Tôi phải đi mua cái gì cho anh ta ăn mới được.*  
 I must go buy CL what for him eat just fine  
 ‘I must go buy something for him to eat.’

First of all, suppose (68) contains no classifier. Its LF would be the now familiar (69a), with the implicature (69b) (“ $\Box_{\text{deo}}$ ” stands for the deontic necessity modal, and “A” stands for the proposition “I buy A for him to eat,” etc.)

- (69) a.  $O(\Box_S(\Box_{\text{deo}}(A \vee B \vee C)))$   
 b.  $\neg\Box_S(\Box_{\text{deo}}(A)) \ \& \ \neg\Box_S(\Box_{\text{deo}}(B)) \ \& \ \neg\Box_S(\Box_{\text{deo}}(C))$

In plain words, ‘I am certain I must buy something for him to eat, but I am not sure what exactly I must buy.’ This is not an interpretation that is actually available; without the CL, Example (68) can only be understood as a *wh*-question, one that is pragmatically odd due to the choice of the subject. There is no ignorance effect. *Wh*-indefinites require epistemic modality, which however is not accessible when the epistemic modal is covert and an “intervening” deontic modal is overt.

15. Putting (67a) in a specific context makes it more natural; for example, where *Em đợi ở đây một chút...* (‘You wait here for a moment...’) precedes the sentence.

With the CL *cái*, the LF of (68) is shown in (70a). The crucial difference is that, in addition to the root-level *O* associated with the *wh*-indefinite, there is another *O* interacting with the deontic modal, which has been justified in the discussion of (67a). The result of the lower-level exhaustification is shown in (70b): adding the root-level *O* gives us the representation in (70c) (the second conjunct in (70b) is omitted in the second line of (70c), assuming the former does not affect the root-level exhaustification, which targets singleton or “subdomain” alternatives only but not scalar alternatives).

- (70) a.  $O(\Box_S(O(\Box_{\text{deo}}(\text{I buy one thing}))))$   
 b.  $O(\Box_{\text{deo}}(\text{I buy one thing}))$   
     $= \Box_{\text{deo}}(\text{I buy one thing}) \ \& \ \neg\Box_{\text{deo}}(\text{I buy more than one thing})$   
 c.  $O(\Box_S(\Box_{\text{deo}}(\text{I buy one thing}) \ \& \ \neg\Box_{\text{deo}}(\text{I buy more than one thing})))$   
     $= \Box_S(\Box_{\text{deo}}(\text{I buy one thing})) \ \& \ \neg\Box_S(\Box_{\text{deo}}(A)) \ \& \ \neg\Box_S(\Box_{\text{deo}}(B)) \ \& \ \neg\Box_S(\Box_{\text{deo}}(C))$

Note that Sauerland’s (2004) epistemic step (see footnote 13) is applicable here without contradiction. Applying this step to each of the last three conjuncts of (70c) yields the “secondary implicature” (71): ‘I believe there is nothing in particular that I have to buy.’

- (71)  $\Box_S(\neg\Box_{\text{deo}}(A)) \ \& \ \Box_S(\neg\Box_{\text{deo}}(B)) \ \& \ \Box_S(\neg\Box_{\text{deo}}(C))$

The strengthened meaning of (68), therefore, is the prejacent of the higher *O* in (70a) plus (71): ‘(I believe) I have to buy (only) one thing for him, and it does not have to be a particular thing.’ This sounds to us to be the right approximation of the meaning of (68). It is crucial that the epistemic step allows us to preserve the epistemic requirement of the *wh*-word from the beginning but with the speaker ignorance effect undetectable in the end, a welcome result. As the reader can verify, the further strengthened meaning in (71) is consistent with (70a) not having  $\Box_S$  at all, thanks to the epistemic step.

By contrast, applying the epistemic step without the CL can yield the same result as in (71) but, as was mentioned earlier, when an existential occurs in the scope of a deontic modal we tend to get a “free choice” interpretation that each alternative should meet the rule or obligation. Thus, a statement that asserts (69a) (without the CL) with the implicature would amount to one that says A, B and C all qualify as my options and at the same time there is also the inference that I am free *not* to choose any of them, a violation of the “free choice potential” of the deontic modal. The epistemic step therefore should not be applicable. On the other hand, in the case of (68) with the CL, the object phrase has an implicit numeral with its own scalar implicature; the assertion does not bear the “free choice potential” on the domain of singleton alternatives, allowing itself to be compatible with the derived implicature in (71).

In short, we argue that this is how a CL can “rescue” the *wh*-indefinite in non-epistemic contexts: it “offsets” a potential semantic conflict between the assertion and implicatures, because the presence of a CL creates an environment in which exhaustification by *O* can be made consistent with the assertion.<sup>16</sup>

## 5. Further issues: Complex *wh*-indefinites and the (wide) scope of *wh*-indefinites

In this section we consider two final issues, both discussed and analyzed by T&B. The first one concerns the distribution and scope property of the complex (“non-bare”) *wh*-definites of the kinds shown in (19)–(21), from which we repeat two examples below.

(72) *Nam đã thấy một ai đó.*  
 Nam PERF see one who that  
 ‘Nam has seen someone.’

(73) *Tân không gặp ai đó.*  
 Tân NEG meet who DEM  
 ‘There is someone that Tan does/did not meet.’ (T&B 2013: 225)

T&B observe that *wh* *đó* phrases, unlike bare *wh*-indefinites, can occur as existential indefinites freely in any contexts (including declaratives) without any licensing condition. They propose that the demonstrative marker *đó* ‘that’ is lexically endowed with the [NE] feature (i.e. the same analysis for the existential *có*), which is why *wh* *đó* phrases do not require another licensor: the *H* element is automatically licensed by *đó*. T&B moreover note that such complex phrases generally take very wide scope with respect to other scope-bearing units. Thus, the only scope relation available to (73) is  $[\exists > \neg]$  and not the other way around. T&B attribute such wide-scope character to the indefinite marker *đó* and claim that it introduces a choice function (CF) that can be  $\exists$ -closed at any clausal level (following Reinhart 1997). *Ai đó* in (73) would then denote a CF which ranges over a set of individual alternatives and which gets  $\exists$ -closed at the root level, resulting in the  $[\exists > \neg]$  reading.

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16. An anonymous reviewer asks whether the presence *vs.* absence of a CL yields differences in meaning in cases where the CL is optional. For our informants, a *wh*-phrase can only receive the interrogative interpretation in non-epistemic deontic sentences if without a CL. Thus, a CL is “optional” in the sense that a *wh*-sentence remains grammatical with or without it, but different interpretations result. We have not found a speaker to whom the CL is entirely optional to the existential/indefinite reading of a *wh*-phrase in these modal contexts.

While we agree on the CF-based analysis which can straightforwardly account for the scope property of complex *wh*-indefinites, we find that stipulating the [NE] feature on  $\acute{d}o$  is somewhat *ad hoc*; after all, why should a CF license a *wh*-indefinite? In addition, how should one make sense of the semantic content of [NE] given that it is not a propositional operator in this case and therefore is not regulated by (32)?

Finally, under the CF analysis the complex *wh*-indefinite as a whole is assimilated to an English *a*-indefinite. Since a CF does not predict epistemic ignorance, this leaves the ignorance effect associated with a complex *wh*-indefinite unaccounted for, e.g., (72) does not accept the continuation "...*His name is John.*"

We suggest an alternative analysis to capture the perceived "wide scope" of complex *wh*-indefinites while also maintaining the modal component as proposed above. We argue that the function of the indefinite marker  $\acute{d}o$  is to explicitly *restrict the contextual domain* of *ai* 'who' to a specific one that is identifiable to the speaker but not to the hearer. One can think of  $\acute{d}o$  as a domain modifier, similar to an (implicit) post-nominal modifier in English that can restrict the domain of an NP contextually. Schwarzschild (2002) uses (74a) (from Reinhart 1997) and other examples to demonstrate that an indefinite such as *some problem* can be implicitly restricted and interpreted along the lines of (74b). Since the relative clause modifier signals a singleton domain relative to each linguist, we obtain the impression that *some problem* has an "intermediate scope" below *most linguists* but above *every analysis*, i.e., [*most* > *some* > *every*]. Indefinites so restricted are referred to as *singleton indefinites* by Schwarzschild (2002).

- (74) a. Most linguists have looked at every analysis that solves some problem.  
 b. Most linguists have looked at every analysis that solves some problem that they have worked on most extensively.

By the same token, we can spell out the contextual domain restriction obligatorily introduced by  $\acute{d}o$  in (73) the italicised part in (75):

- (75) 'There is someone *in a speaker-identifiable contextual domain* that Tan did not meet.'

Restriction of this kind is entirely contextual; the relevant speaker-identifiable domain could be a domain of participants in a particular conference, a domain of students in our class, or simply a domain of people mentioned in a previous discourse. What is crucial is that, with this function,  $\acute{d}o$  will always enforce a wide-scope illusion on a *wh*  $\acute{d}o$  indefinite phrase with respect to another scope element, for the same reason as a singleton indefinite in English gets interpreted as a wide-scope indefinite.

However, domain restriction does not have to shrink the contextual domain of an NP to a *singleton* one; nothing forces it to. Thus,  $\acute{d}o$  being an overt domain

restrictor can still take a set-denoting *wh*-expression as its argument. For (73), this yields a set of individuals in a specific (to the speaker) contextual domain who Tan didn't meet, and that the speaker is uncertain which individual it was. (76) below would be the exhaustification formula for this interpretation, cf. (54a).

(76)  $O(\Box_s(\exists x \in D'(D' \subset D \ \& \ \text{Tan didn't meet } x)))$ , where  $D'$  is a smaller subdomain of  $D$

The intended interpretation that follows this representation is that the speaker believes there was an individual from a specific, more restricted domain  $D'$  who Tan didn't meet. This leads to the impression that *ai đố* takes scope above negation, the “wide-scope” reading.<sup>17</sup> Moreover, although the complex *wh*-indefinite denotes a smaller subdomain, the latter is still a *non-singleton* domain. Therefore, the procedure of exhaustification over alternatives through  $O$  that generates the speaker ignorance effect applies as usual.

The final issue to consider in this paper is the “wide-scope” phenomenon, in which a bare *wh*-indefinite, once licensed, can take scope over another operator as long as the indefinite stays within the scope of the (higher) licenser, according to T&B. Two examples are provided in (77) and (78); in each of them, the *b*-interpretation indicates that the indefinite takes scope above the negation *không*.

- (77) *Nếu anh không muốn mời ai thì báo cho tôi biết.*  
 if you NEG want invite who then report for I know  
 a. ‘If you do not want to invite anyone, let me know.’ or  
 b. ‘If there is someone you do not want to invite, let me know.’

(T&B 2013: 222)

- (78) *Hình như cô ấy không thích ai.*  
 seemingly she NEG like who  
 a. ‘It seems she does/did not like anyone.’ or  
 b. ‘It seems there is someone she does/did not like.’

(T&B 2013: 223)

Scope patterns almost identical to those above have also been reported by Lin (2004) for Mandarin existential *wh*-phrases. T&B claim that such scope ambiguity is due to the *wh*-indefinite undergoing covert movement, and this is where the null existential operator  $\emptyset_{\exists}$  in (29) and (30) has a role to play: it turns the entire *wh*-indefinite into a genuine generalised quantifier which can undergo QR.

17. Note that while (53a) has the “existential inference” that Nam did buy something, as mentioned earlier, (73) does not seem to trigger such an inference – at least not obviously so – although the latter is compatible with Tan having actually met someone. We presume this is because the scalar alternative  $\forall$  is not activated in the latter case.



By contrast, on our approach the two scope interpretations have the same LF, because the  $\exists$ -operator associated with the epistemic modal has to immediately close its nuclear scope (see Section 3, following Kratzer & Shimoyama). The basic LF of (78), for instance, would be (79) by our account, where  $\exists$  scopes below  $\diamond$  but above negation.

$$(79) \quad \diamond(\exists x(\text{she doesn't like } x)) = \diamond(A \vee B \vee C), \text{ where "A" = "she doesn't like A," etc.}$$

This readily accounts for the reading in (78b) – further implicit domain restriction on the set of alternatives being possible, depending on the context. (78a) can be derived by exhaustifying (79) (again, with  $O$ ), which gives us the same implicature as (45c) discussed earlier, i.e. (80a). Notice however that the exhaustification can also derive another implicature, where the relevant alternatives include not only the singleton (“subdomain”) ones but also the scalar alternative of  $\diamond$ , namely the necessity modal  $\square$ . This results in (80b); cf. (54b).

$$(80) \quad \begin{array}{l} \text{a. } (\diamond A \rightarrow (\diamond B \vee \diamond C)) \ \& \ (\diamond B \rightarrow (\diamond A \vee \diamond C)) \ \& \ (\diamond C \rightarrow (\diamond A \vee \diamond B)) \\ \text{b. } \neg\square(A) \ \& \ \neg\square(B) \ \& \ \neg\square(C) \end{array}$$

The intuition behind this is that the speaker, by saying (78) could be asserting that she (the subject) possibly doesn't like someone while implicating ‘it is not necessarily the case that she doesn't like a particular person.’ This paraphrase indeed seems to underlie the reading assigned by T&B in (78a). More importantly, the (apparent) “scope ambiguity” is accounted for not by QR of the *wh*-indefinite but by the calculation of scalar implicatures in our analysis. This allows us to dispense with the stipulation that the structure of Vietnamese *wh*-indefinites embodies a null  $\exists$ -quantifier; see (29).

## 6. Concluding remarks

What we have sketched in this chapter is an exhaustification-based compositional approach (Chierchia et al. 2012; Chierchia 2013) to the meaning of *wh*-indefinites in Vietnamese, the existential interpretation of which emerges only in certain contexts. We argue that the key notion governing the semantics and distribution of the *wh*-indefinites is *speaker ignorance*, i.e., the inference that the speaker lacks the knowledge of, or is not sure about, the identity of the referent denoted by a *wh*-indefinite. Ignorance is not a lexical property of *wh*-indefinites; it has to be derived through the interplay of *wh*-indefinites (denoting a set of alternatives), an epistemic modal (covert or overt), and the grammatically encoded exhaustification operator  $O$  above the epistemic modal which drives the calculation of scalar implicatures. Tran & Bruening (2013) ascribe the requirement of licensing of *wh*-indefinites

to a hypothesised null element *H* in the morphology of *wh*-indefinites; our proposal contrasts with theirs in appealing to implicature-based operations that are independently needed for modal indefinites in other languages.<sup>18</sup>

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## Abbreviations

|      |                |      |            |
|------|----------------|------|------------|
| ASP  | aspect         | FUT  | future     |
| CL   | classifier     | NEG  | negation   |
| COMP | complementiser | PART | particle   |
| CONJ | conjunction    | PASS | passive    |
| DEM  | demonstrative  | PFV  | perfective |

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18. An anonymous reviewer observes that T&B’s approach addresses Haspelmath’s (1997) finding that there is no language where the indefinite use of *wh*-expressions is basic and the question use involves additional morphology, and that this point appears lost in the present analysis. We think that it is also possible to fit Vietnamese *wh*-expressions with this generalization on our approach, if (covert) epistemic modals and the *O* operator can be considered the grammatical components associated with the *wh*-indefinites in highly analytic languages like Vietnamese that correspond to the “additional morphology” of *wh*-indefinites in more synthetic languages. Interrogative *wh*-expressions in Vietnamese, on the other hand, are the more “basic” forms that are interpreted with a question operator by default.

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SECTION D

**Language acquisition and use**



# Vietnamese children's interpretation of definite noun phrases

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Most work on the acquisition of definiteness examines languages with definite determiners and grammaticalised number, and finds slower acquisition of definiteness compared to number. We replicate an act-out task from Munn et al. (2006) testing comprehension of definites in Vietnamese – a language with neither of these characteristics. In contrast to the results from English and Spanish children, Vietnamese children are found to make few definiteness errors, instead struggling with number, casting doubt on a universal difficulty with definiteness. We argue that this difference stems from the way in which children integrate information from number and definiteness. Given a high level of task difficulty, children acquiring languages with definite determiners and grammatical number, such as English and Spanish, sacrifice definiteness in favour of number, while those acquiring Vietnamese prioritise definiteness, resulting in number errors.

**Keywords:** definite noun phrases, number, definiteness, plurality, pluralisers, classifiers, Vietnamese, classifier languages, first language acquisition, act out task

## 1. Introduction

In order to acquire the basic meanings of different types of noun phrases, children must establish mappings between sets of features (number, gender/class, definiteness, etc.) and the individual morphological pieces that make up the noun phrase (determiners, nominal inflections, etc.). This mapping is almost never one-to-one, and the fact that children still acquire these mappings quickly and efficiently is truly impressive. It is also an argument in favour of the existence of a biologically endowed capacity to learn language, which restricts the range of hypotheses that children consider when learning a language. Since the learner must be capable of acquiring any form-meaning mapping attested in natural language, our



understanding of this device can be greatly enriched by studying how children acquire languages that realise the same semantic primitives in vastly different ways.

Vietnamese is a particularly useful language to study if we wish to examine how the Language Acquisition Device (LAD) handles the mapping of definiteness and number. Unlike inflectional languages with number morphology, which must encode number in nearly every noun phrase using an (at least partially) dedicated morpheme, Vietnamese does not always require number marking, and its plural morphemes – henceforth, *pluralisers* – have other properties besides encoding plurality, as their distribution depends on other syntactic and semantic properties of the noun phrase. In the same way, definiteness is not marked by dedicated determiners such as *a* and *the*, but rather with a combination of classifiers and pluralisers; for a full review, see Lê & Schmitt (2016). So it is an interesting language to compare against many Indo-European languages with overt determiners, which are far more well studied. This paper contributes data on the interpretation of singular and plural definite noun phrases by Vietnamese children ages 3 to 7 and compares their behaviour to that of children in the same age range acquiring Spanish and English.

The paper is organized as follows. We begin with a description of the acquisition problem, followed by a summary of previous findings on the acquisition of definite noun phrases and a description of how number and definiteness are realised in Vietnamese. We then present two comprehension studies that use modified versions of the task designed by Munn, Miller & Schmitt (2006) for English- and Spanish-acquiring children. Our results show an early ability to use definiteness cues and a later ability to use plural information in comprehension tasks in Vietnamese, contrasting with English- and Spanish-acquiring children who can use number early but continue to make certain definiteness errors. We close with some thoughts about how differences in the morphological realisation of number and definiteness in Vietnamese, on the one hand, versus Spanish and English, on the other, could be responsible for the two different learning paths that children take.

## 2. The acquisition problem

Regardless of how definiteness and number features are realised morphologically across languages, children must learn to extract the relevant information from them. To interpret a definite noun phrase in any given language, the child must combine three different pieces of information: first, the meaning of the noun and any accompanying modifiers; second, the number properties of the noun phrase; and third, the information from the definite that there is a discourse referent that *uniquely* satisfies these properties.

The uniqueness presupposition of a definite noun phrase is satisfied differently depending on the number of the noun phrase. For plural noun phrases like “the dogs next to the tree,” the uniqueness presupposition is satisfied by finding a plural set of dogs-next-to-the-tree that is the maximal set of dogs next to the tree. In contrast, to interpret a singular definite noun phrase like “the dog next to the tree,” the uniqueness presupposition is satisfied by restricting the noun phrase’s domain of reference to include only a single, unique dog close to the tree. This is easily satisfied in situations where there is only one dog next to the tree in the context, but if there is more than one, it is necessary to interpret the noun phrase more strictly, if the statement is to be felicitous. In other words, an implicit restriction must be added to accommodate the definite noun phrase to mean something like “the dog closest to the tree.”

This rather complex coordination of different pieces of information makes the acquisition of definite noun phrases a non-trivial task – and an especially interesting case to study across languages that realise number and definiteness differently. The next section describes previous work on the acquisition of definiteness, while the following sections expand on that literature by looking at a new language: Vietnamese.

### 3. Acquisition background

Previous work on the acquisition of number and definiteness markers finds that number is acquired earlier than definiteness. English-speaking children master the conceptual distinction between one and more-than-one around 20–24 months of age; see Fenson, Dale, Reznick et al. (1994), Barner, Thalwitz, Wood et al. (2007). Within the next year, i.e., by 24–36 months, they produce the plural marker in the correct contexts and even use it in novel words; see Brown (1973), Mervis & Johnson (1991), Kouider, Halberda, Wood & Carey (2006). While not much work has been done on the acquisition of number in classifier languages like Mandarin, Korean or Japanese, the results that do exist suggest that children take a longer time to acquire plural morphology in these languages, perhaps because number is not grammaticalised and/or because number markers tend to be portmanteau morphemes; see Munn, Zhang & Schmitt (2009), Nakano, Park & Schmitt (2010).

As for definiteness, the acquisition path appears to be much more protracted. Children as old as 5 use the definite determiner to refer to non-unique objects, saying things like “Give me the ball!” even when multiple identical balls are present; see Maratsos (1976), Karmiloff-Smith (1979), Schaeffer & Matthewson (2005). However, the results from comprehension tasks indicate that children do at least understand the contrast between definites and indefinites; they are aware that definites

maintain reference whereas indefinites introduce new referents; see Maratsos (1976), Karmiloff-Smith (1979), Modyanova & Wexler (2007), De Cat (2011).

A number of different hypotheses have been advanced to explain children's misuse of definites. Early proposals by Maratsos (1976) and Karmiloff-Smith (1979) suggested that errors stem from an egocentric tendency to use definite forms for referents under the child's own focus of attention, ignoring the interlocutors' attentional state.<sup>1</sup> Observing that children overextend definites even when no elements are in focus, Wexler (2003, 2011) proposes alternatively that definiteness errors arise because children's initial representation of the definite determiner lacks the uniqueness presupposition – dubbed the “No Maximality Hypothesis” in Wexler (2011: 25).

More recent work by Drozd (2001) and Munn et al. (2006) proposed that children have the uniqueness presupposition but are simply unable to satisfy it when doing so requires them to implicitly restrict the domain of reference. This explains an otherwise puzzling result observed in Munn et al. (2006), who report that English- and Spanish-acquiring preschoolers were able to associate plural definite noun phrases like “the dogs next to the tree” with a unique plural (i.e., the maximal set) but were unable to associate singular definite noun phrases such as “the dog next to the tree” with a unique singleton set. The difference lies in the fact that the definite singular – but not the definite plural – requires the child to implicitly restrict the noun phrase's domain of reference to mean something like “the dog *closest* to the tree.”

A major limitation of these proposals is that they are based almost exclusively on results from Indo-European languages, which realise definiteness through dedicated determiners (such as *the* (English) or *el/la/los/las* (Spanish)) and which also have a grammaticalised binary number distinction. In order to obtain a more complete picture of the cross-linguistic acquisition of definite noun phrases, we study the comprehension of definite noun phrases in Vietnamese – a language with neither of these properties.

#### 4. Vietnamese noun phrases

In common with other classifier languages, Vietnamese allows bare noun phrases, which are underspecified for definiteness and number (in certain structural and pragmatic contexts: cf. Trinh (2011), Doan, Everaert & Reuland (this volume)). Depending on the predicate and the context in question, bare nouns can have

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1. These authors nevertheless assume different underlying reasons for children's ‘egocentric’ behaviour. Maratsos suggests that children are aware that definites must signal specificity of reference for speakers but not necessarily hearers, while Karmiloff-Smith suggests that children have a more deictic representation of definite noun phrases than adults do.

generic, existential, indefinite and definite readings, as well as singular and plural readings. Hence, depending on the context, a bare noun like *chó* 'dog' may mean either "a dog," or "the dog," "the dogs," or just "dogs."<sup>2</sup>

Nouns preceded by a classifier (1a) are interpreted as singular and definite.<sup>3</sup> This fact might make it seem as though Vietnamese classifiers are portmanteau morphemes, encoding both singularity and definiteness, but in fact, classifiers can also be found in indefinite noun phrases and in plural noun phrases. For example, adding the numeral *một* 'one' to the [CL-N] sequence forces a singular indefinite interpretation (1b); conversely, adding the pluraliser *các* triggers a plural, definite interpretation, as in (1c).<sup>4</sup>

- (1) a. *con chó*  
 CL dog  
 'the dog'  
 b. *một con chó*  
 a/one CL dog  
 'a dog'  
 c. *các con chó*  
 CAC-PL CL dog  
 'the dogs'

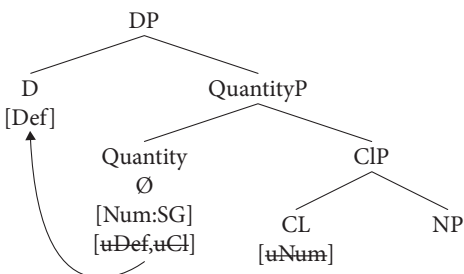
2. In Vietnamese most nouns cannot enter a count structure without the help of a classifier (ex. *một\*(con) chó* 'one CL dog' is ungrammatical without the intervening classifier, *con*) and are therefore considered to be mass-like; cf. Chierchia (1998). All the nouns tested here are of the type that requires a classifier to enter a count structure. It is worth mentioning, however, that there exists a small number of exceptions: some nouns can appear in a count structure either with or without a classifier. Hence, some linguists have used two dimensions, rather than the usual mass-count distinction, to divide Vietnamese nouns: mass vs. unit [a semantic distinction] and non-count vs. count [a syntactic distinction]; see Cao (1998), L. K. Nguyễn (2001), Lê (2008), among others. Within this framework, all unit nouns are count nouns but not all mass nouns are non-count: a few mass nouns can enter a count structure with a classifier – in which case they behave like a 'mass' noun – or without, where they behave like a 'count' noun; see L. K. Nguyễn (2001: 222–239) for a list of such nouns. The exact number of count nouns in Vietnamese varies among authors. Cao (1998) provides a list of only 350 unit nouns in Vietnamese, which are also count nouns; Cao (1998: 268, 577–581). L. K. Nguyễn (2001) provides a list of 854 unit nouns. Both authors consider classifiers a type of unit noun. Both lists are still very small in comparison with the list of non-count mass nouns, the type of nouns that require classifiers to enter a count structure.

3. This is different from many other classifier languages (e.g., Japanese, Korean, and Thai) which do not allow a [CL-N] sequence to appear in isolation; see Lê & Schmitt (2016: 153–154).

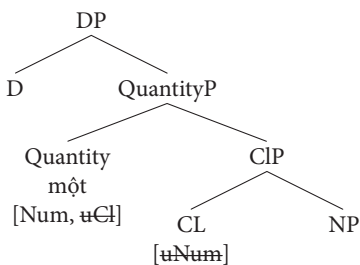
4. Again, while other classifier languages disallow the co-occurrence of a classifier and a pluralizer in the same noun phrase, in Vietnamese, the presence of a classifier is obligatory when combining a pluralizer with a non-count mass noun.

In Lê & Schmitt (2016), we argue that the underlying syntactic structure of phrases (1a–c) is as in (2a–c), respectively. All three structures contain the same fully articulated DP structure, consisting of: a DP layer, where (in)definiteness is interpreted; a QuantityP layer, where number is interpreted; and a CLP, which helps to mediate between the QuantityP and the bare NP that – in the typical case – cannot directly select for a QuantityP. The difference between the singular definite (CL-N) and the other two lies in the fact that the Quantity head is null rather than overt. The difference between the singular *indefinite* (*một*-CL-N) and the two definite phrases is that the Quantity head, although overt, fails to select for a definite D; the underspecified D head that surfaces in this position is therefore interpreted as indefinite.

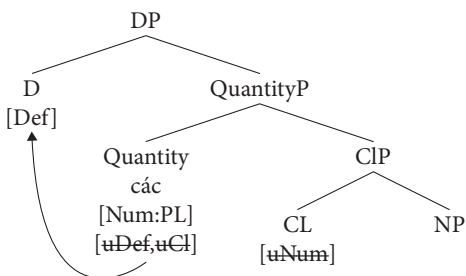
- (2) a. Structure of a Vietnamese noun phrase containing [CL-N]  
(singular, definite):



- b. Structure of a Vietnamese noun phrase containing [*một*-CL-N]  
(singular, indefinite):



- c. Structure of a Vietnamese noun phrase containing [*các*-CL-N]  
(plural, definite):

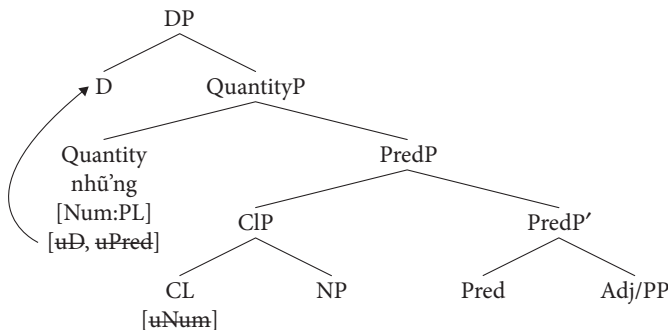


Vietnamese also has a second pluraliser element *những*, which triggers a plural interpretation but whose definiteness status remains unclear. One of the most striking properties of *những* is that it imposes the additional requirement that the noun phrase be further modified; for example, (3a) would be grammatically unacceptable if it lacked the attributive adjective *to* 'big'. While all studies agree that the noun phrases pluralized by *các* are definite – see T. C. Nguyễn (1975), T. H. Nguyễn (2004), among others – most authors claim that the pluraliser *những* indicates only a subset of a given set – see Thompson (1965), T. C. Nguyễn (1975) – and that its interpretation is that of a specific indefinite; see T. H. Nguyễn (2004). However, while others argue that the interpretation of *những* varies on a continuum somewhere between indefinite and definite – see Cao (1998), Bui (2000) – Lê & Schmitt (2016) argue that noun phrases with *những* are not inherently definite, but rather vary with the context, being able to appear also in indefinite contexts such as existential sentences or question phrases, as illustrated in (3b) and (3c).

- (3) a. *những con chó \*(to)*  
 NHUNG-PL CL dog big  
 'the big dogs'
- b. *Có những cuộc vui không bao giờ tàn.*  
 have NHUNG-PL CL fun no always cease  
 'There are fun times that never end.'
- c. *Những quyển sách nào cần chuyển đi?*  
 NHUNG-PL CL book which need move go  
 'Which books need to be moved?'

We propose the simplified structure in (4) to account for the properties of the pluraliser *những*; see Lê & Schmitt (2016: 170). A crucial point to observe is that (i) the pluraliser has a D feature but this feature is not valued in the morpheme itself and (ii) *những* selects not for an NP but rather for a small clause of sorts, which we are here labelling as PredP.

- (4) Structure of a Vietnamese noun phrase containing [*những*-CL-N-Modifier]:



Finally, the quantifier *tất cả* ‘all’ can be adjoined to the pluralized DP to produce a maximal reading. Once again, if the pluraliser used is *những*, the nominal must be modified, as shown in (5b).

- (5) a. *tất cả các con chó*  
 all CAC-PL CL dog  
 ‘all the dogs’  
 b. *tất cả những con chó \*(to)*  
 all NHUNG-PL CL dog big  
 ‘all the big dogs’

With this sketch of the DP in Vietnamese, we can begin to ask whether children can associate definite noun phrases such as those in (1a), (1c), and (3a) to sets with the correct number and definiteness properties.

## 5. Research questions

The research reported here was concerned with three questions.

Q1: Do Vietnamese-acquiring children know number, that is, do they correctly associate [CL-N] sequences to singleton sets and [*các/những*-CL-N] sequences to plural sets?

Q2: Do Vietnamese-acquiring children know definiteness, that is, do they correctly associate both [CL-N] and [*các*-CL-N] sequences to unique sets? What about [*những*-CL-N] sequences?

Q3: How does their behaviour compare to that of children acquiring languages such as English or Spanish?

In order to answer these questions, we replicate Munn et al.’s (2006) task testing the comprehension of singular and plural definite noun phrases; this allowed us to make direct cross-linguistic comparisons with English- and Spanish-acquiring children.

## 6. Hypotheses and predictions

Since number restricts the potential referents for the definite noun phrase, a logical hypothesis is that number will be acquired before definiteness, across languages. If so, we would expect Vietnamese children to have the same behaviour as English- and Spanish-acquiring children who participated in this task, showing adult-like interpretation of number morphology but committing at least some definiteness

errors. However, the “No Maximality” and “No Implicit Domain Restriction” hypotheses make contrasting predictions about what those definiteness errors should look like. If children lack the uniqueness presupposition (as per “No Maximality” – Wexler (2003, 2011)), then they may associate singular definite noun phrases to non-unique singleton sets and plural definite noun phrases to non-maximal plural sets. Alternately, if children do have the uniqueness presupposition but instead have trouble with some form of domain restriction (as per “No Domain Restriction” – Drozd (2001), Munn et al. (2006)), then they should produce more definiteness errors in the singular condition, as this requires an implicit restriction.

On the other hand, it is also reasonable to hypothesise that the ability to use number and definiteness in comprehension tasks is partially dependent on the morphological realisation of these features in the target language. For Vietnamese, this could lead to one of two scenarios. One possibility is that the general lack of a one-to-one correspondence between individual morphemes and individual number and definiteness features delays Vietnamese children's acquisition of both features. If so, they should fail to distinguish between singular and plural definite noun phrases and show no tendency to associate either one to a unique/maximal set. The other possibility is that children initially associate the classifier with definiteness, since it can appear alone in a noun phrase and yield a singular definite interpretation. If so, they should treat any noun phrase with a classifier as definite and ignore the singular-plural distinction until later on in acquisition.

## 7. Experiment 1

### 7.1 Subjects

Ninety-nine children were recruited from three kindergartens in Ho Chi Minh city, Vietnam; thirty four of these children were subsequently excluded for refusing to participate or failure to name relevant animals and landmarks during the pretest. Of the remaining 65 children who completed the test, seven were excluded from analysis for failing to provide at least three out of eight correct answers during the training and control conditions.

The data presented here come from 58 subjects, including eleven three-year-olds ( $M = 3;7$ , range: 3;2–3;11), twelve four-year-olds ( $M = 4;5$ , range: 4;0–4;10), fifteen five-year-olds ( $M = 5;4$ , range: 5;0–5;11), thirteen six-year-olds ( $M = 6;6$ , range: 6;0–6;11), and seven seven-year-olds ( $M = 7;4$ , range: 7;0–7;7). Eight native Vietnamese-speaking adults (ages 25 to 47), who were studying or working at Michigan State University, also participated as controls.



## 7.2 Materials

Our experiment was a replication of the act-out task reported in Munn et al. (2006), illustrated in Figure 1. For logistic and cultural reasons, we used a toy tree (rather than a toy barn) as one of the two landmarks; we also used animal types more familiar to Vietnamese children: *mèo* ‘cat’, *chó* ‘dog’, *gà* ‘rooster’, and *cá* ‘fish.’ Additionally, we used groups of four animals per side, rather than the original three.<sup>5</sup>



Figure 1. Experimental setup

Participants were instructed to choose the appropriate animal or animals using prompts as in (6). Three test conditions used definite singular and definite plural noun phrases (the latter containing either the pluraliser *các* or *những*). Three control conditions used noun phrases which either lexically specified a singleton set using the numeral “one” or which lexically specified the maximal set with the quantifier “all,” accompanied by a pluraliser (*các* or *những*). Target responses are shown in Table 1.

(6) Sample test item:

- a. *Đưa cho cô {ø /các /những} con chó đứng kế cái cây.*  
 give for aunt {ø /CAC-PL /NHUNG-PL} CL dog stand next CL tree  
 ‘Give me the dog/dogs next to the tree.’

Sample control item:

- b. *Đưa cho cô {một /tất cả các /tất cả những} con chó đứng kế cái cây.*  
 give for aunt {one /all PL /all PL} CL dog stand next  
 CL tree  
 ‘Give me one/all the dogs next to the tree.’

---

5. The rationale for this change was that some studies show an effect of set size on children’s comprehension of definites; see Modyanova & Wexler (2007), De Cat (2011). A replication of this task, using only three animals per side, as in Munn et al. (2006), is discussed in Section 8 below.

Table 1. Noun phrase types used in Experiment 1

|              | Condition          | Noun phrase type         | Target referent   |
|--------------|--------------------|--------------------------|-------------------|
| Experimental | SG-def             | CL N                     | closest dog       |
|              | PL-def             | <i>các</i> CL N          | all the dogs      |
|              | PL-def (?)         | <i>những</i> CL N        | all the dogs (?)* |
| Control      | SG-indef 'one'     | <i>một</i> CL N          | any single dog    |
|              | all + <i>các</i>   | <i>tất cả các</i> CL-N   | all the dogs      |
|              | all + <i>những</i> | <i>tất cả những</i> CL-N | all the dogs      |

\* If *những* is indefinite, subjects could pick out non-maximal sets. However, as discussed in Lê & Schmitt (2016), there is a near-categorical preference for interpreting *những* noun phrases as definite, *contra* previous claims made in the literature; cf. also Doan et al. (this volume).

The full set of prompts was generated by crossing these six noun phrase types with four animal types and two landmark types to produce 48 items. Each child was tested on twelve items (two of each noun-phrase type) plus four fillers.

Participants were randomly assigned to one of four different versions of the 12-item test, each with a different order. In all versions, control items were presented *after* experimental items to prevent children from developing a contrast strategy for interpreting the experimental items. In three of the four versions, experimental items were presented in blocks, with either the [*những*-CL-N] block first (version 1), the [*các*-CL-N] block first (version 2), or the [CL-N] block first (version 3); items were ordered randomly within each block. In the remaining version, each block contained a [*những*-CL-N] item, a [*các*-CL-N] item, and a [CL-N] item, presented in random order. No significant differences were found between versions; therefore, we collapse them when reporting the results.

### 7.3 Procedure

The task included three phases: (i), a pretest, in which children were asked to name the animals and landmarks, and to demonstrate their understanding of the prepositional phrase *đứng kế* 'standing next to' and the overall setup, by answering the question *Đứng kế con chó/mèo/etc. là con gì?* 'What is standing next to the dog/cat/etc.?'; (ii), a training phase, in which children responded to prompts using the numerals 2 through 4; and (iii), the presentation of test and control stimuli. The entire procedure lasted approximately thirty minutes in total. Adults were tested, either individually or in a group, on a pencil and paper version of the task (which did not include the pretest or training phases).

## 7.4 Results

Overall, the adults performed as expected, producing 100% target responses in all control and test conditions. Importantly however, in the singular control condition (e.g., “Give me *one CL dog* next to the tree”), which had multiple potential target responses, adults chose the closest singleton dog for all trials, which is also the answer expected in the [CL-N] condition. In the plural test condition with pluraliser *những*, whose definiteness status was unclear, adults chose the plural definite response (maximal set of dogs) for all trials.

We present the children’s results below, beginning with control items and then proceeding to test items.

### 7.4.1 Control sentences

Table 2 below gives the percentage and frequency of children’s responses in control conditions, grouped by number (singular *vs.* plural responses) and definiteness (closest/maximal *vs.* non-closest/non-maximal responses). Expected responses are in shaded cells. Across all three conditions, children provided mostly expected responses, showing that they understood the task. In the singular control condition, children showed a distinct preference for the closest animal, similarly to adults, something which should be taken into account when assessing children’s behaviour in the [CL-N] experimental condition.

**Table 2.** Percentage (frequency) of children’s response types in control trials

| Condition:    |             | <i>one-CL-N</i> | <i>all-các-CL-N</i> | <i>all-những-CL-N</i> |
|---------------|-------------|-----------------|---------------------|-----------------------|
| Response type |             |                 |                     |                       |
| Singular      | Closest     | 87.93% (102)    | 7.76% (9)           | 9.48% (11)            |
| Singular      | Non-closest | 11.21% (13)     | 4.31% (3)           | 0% (0)                |
| Plural        | Maximal     | 0.86% (1)       | 81.90% (95)         | 84.48% (98)           |
| Plural        | Non-maximal | 0% (0)          | 7.76% (9)           | 6.03% (7)             |

Figure 2 divides children’s responses by age group, collapsing across the two plural control conditions, that is [*all-các-CL-N*] and [*all-những-CL-N*] sequences. Even children in the youngest age group produced a majority of target responses.<sup>6</sup>

6. Key: response types in Figures 2, 3, 5 & 6 (below) include: singleton closest to the landmark (green), singleton but not the closest one (yellow), plural proper subset (red) and plural maximal set (blue).

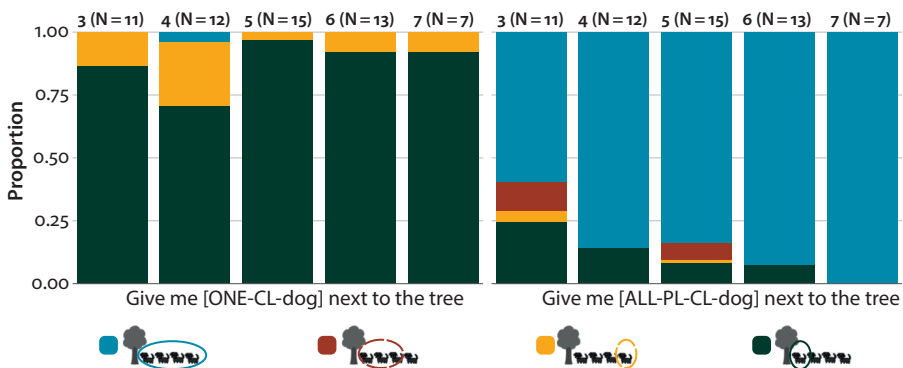


Figure 2. Proportion of children's response types, by age group, in singular control condition (left) and plural control conditions (right). See fn. 6 for key.

#### 7.4.2 Experimental sentences

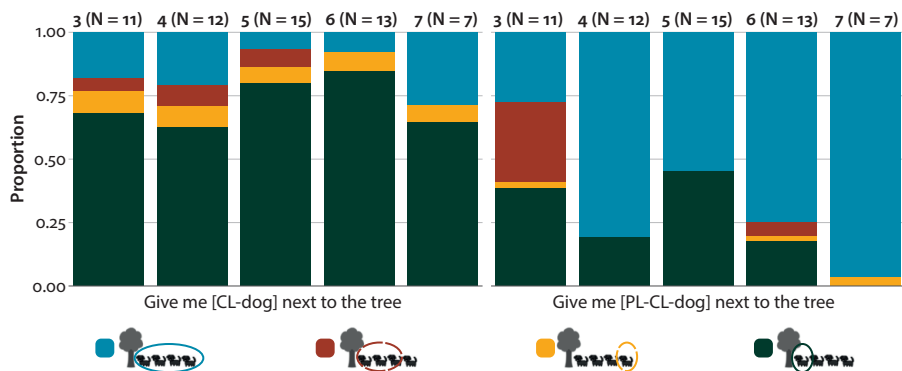
Table 3 presents the percentage and frequency of children's responses in the three experimental conditions. Like adults, children treated [*các*-CL-N] and [*những*-CL-N] sequences similarly, with no significant differences in the distribution of responses ( $\chi$ -squared = 0.39,  $df = 3$ ,  $p = 0.94$ ). Thus, we collapse across these conditions in all subsequent analyses.

Table 3. Percentage (frequency) of children's response types in experimental trials

| Condition:    |             | SG. def.<br>CL-N | PL. def.<br><i>các</i> -CL-N | PL. def. (?)<br><i>những</i> -CL-N |
|---------------|-------------|------------------|------------------------------|------------------------------------|
| Response type |             |                  |                              |                                    |
| Singular      | Closest     | 73.27% (85)      | 26.72% (31)                  | 26.72% (31)                        |
| Singular      | Non-closest | 7.76% (9)        | 0.86% (1)                    | 1.72% (2)                          |
| Plural        | Maximal     | 14.66% (17)      | 64.66% (75)                  | 64.66% (75)                        |
| Plural        | Non-maximal | 4.31% (3)        | 7.76% (9)                    | 6.90% (8)                          |

Figure 3 divides children's responses by age group, collapsing across the two plural conditions. In the singular definite condition (ex. "Give me *CL dog* next to the tree"), children of all age groups produced a majority of target responses, choosing the closest dog to the tree. This is not surprising, given their preference for this response in the singular control trials. Interestingly, however, the second most common response – and therefore their most common error – was the maximal set of dogs, which is the expected answer if they are looking for a unique set, independent of number.

Turning to the plural conditions (ex. "Give me *các/những CL dog* next to the tree"), we find a similar pattern. Children age four and older produced a majority of target answers, that is to say, they chose the maximal set of dogs. Just as in the



**Figure 3.** Proportion of children's response types, by age group, in singular (left) and plural experimental conditions (right). See fn. 6 for key.

singular condition, their most common error was a definite response of the wrong number, namely the closest single dog. The three year-old children were evenly split between number and definiteness errors.<sup>7</sup>

We now turn to children's comprehension of number and definiteness, each property examined independently.

#### 7.4.3 Results: Number

To address the question of whether children distinguish singular from plural definite noun phrases, we compared the proportion of plural responses provided in singular (CL-N) test conditions relative to plural (*các/những*-CL-N) test conditions, collapsing across definite and indefinite responses. Two-tailed *t*-tests revealed a significantly higher number of plural responses in plural conditions relative to singular conditions, for every age group (all  $p < 0.05$ ).

Despite distinguishing between singular and plural, however, three- and five-year-olds produce a surprisingly low rate of plural responses in the plural conditions (59% and 55%, respectively) – at least when compared with what has been reported for children's number comprehension in other languages, as well as with their own behaviour in the control condition. Indeed, whereas Munn et al. (2006) report 80–95% target number responses in this task among English- and Spanish-acquiring children at ages 5 and younger, the Vietnamese-acquiring children did not reach that same level of accuracy on number until age 6; see Table 4. This is in line with what has been found for pluraliser comprehension in Mandarin, Japanese, and Korean; see Munn et al. (2009), Nakano et al. (2010).

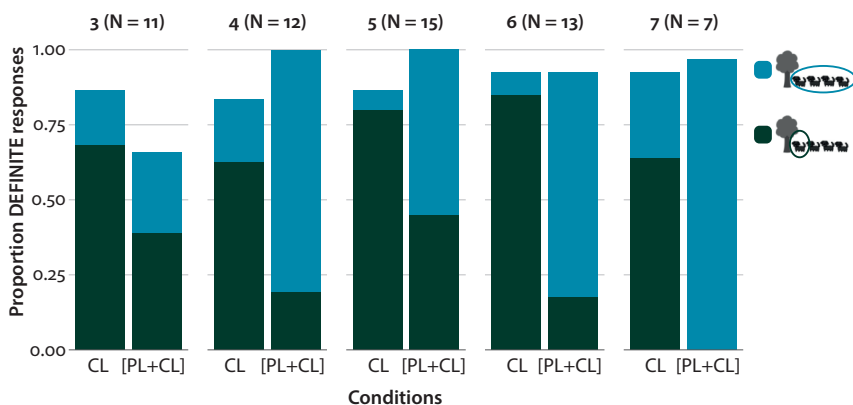
7. The split mostly occurred *between*, rather than *within*, subjects. Four children were responsible for most of the plural indefinite responses, while four different children were responsible for most of the singular definite responses.

**Table 4.** Percentage of target number responses, ignoring definiteness accuracy. Comparison of English and Spanish children in Munn et al. (2006) with our Vietnamese children in Experiment 1

| Language and age group           | sg. def. | PL. def. |
|----------------------------------|----------|----------|
| English ( $N = 15$ ) 3;0–5;5     | 83.8     | 81.3     |
| Spanish ( $N = 20$ ) 3;2–4;11    | 90       | 95       |
| Vietnamese ( $N = 11$ ) 3;2–3;11 | 77       | 59       |
| Vietnamese ( $N = 12$ ) 4;0–4;10 | 71       | 81       |
| Vietnamese ( $N = 15$ ) 5;0–5;11 | 87       | 55       |
| Vietnamese ( $N = 13$ ) 6;0–6;11 | 92       | 81       |
| Vietnamese ( $N = 7$ ) 7;0–7;7   | 71       | 96       |

#### 7.4.4 Results: Definiteness

Turning to the second research question, we assessed Vietnamese children's comprehension of definiteness by examining the proportion of definite responses they produced in the test conditions, whether plural (i.e., the maximal set) or singular (i.e., the closest animal to the landmark). For convenience, we refer to these as plural definite and singular definite responses, although we are aware that, strictly speaking, such terms are our interpretation of children's behaviour. Figure 4 presents the proportion of plural definite responses in blue and singular definite responses in green. Children showed a strong tendency toward definite responses – even if these responses did not always match the number of the noun phrase in question. Even the 3-year-olds produced a majority of definite responses (86.3% in the singular condition and 65.9% in plural conditions).



**Figure 4.** Proportion plural maximal responses (blue) and singleton responses closest to the landmark item (green) in experimental conditions: CL-N (singular, definite; left) and PL-CL-N (plural, right)

To check for developmental trends in the rate of what we refer to as definite responses, we ran a two-way ANOVA with condition (singular, plural) as a within-subjects factor and age group (3, 4, 5, 6, 7) as a between-subjects factor. There was a significant effect of age group ( $F = 8.049$ ,  $p < 0.001$ ), reflecting an overall increase in definite responses over time, as well as a significant interaction between condition and age group ( $F = 4.219$ ,  $p < 0.01$ ). Sub-*t*-tests between age groups, using Bonferroni-adjusted alpha levels of 0.005 per test (alpha 0.05 divided by 10 comparisons) revealed that the rate of definite responses produced in singular conditions remained equally high across age groups (all  $t > -0.952$ , all  $p > 0.346$ ), while in plural conditions 3-year-olds produced fewer definite responses relative to other age groups (all  $t < -3.245$ , all  $p < 0.002$ ). In sum, the overall rate of definite responses remains high over the course of development, with only 3-year-olds producing fewer definite responses than the rest – and then only in the plural conditions.

What does change over the course of development appears to be the ratio of *plural* definite responses (in blue) relative to *singular* definite responses (in green). In the plural conditions, the ratio of plural definite responses increases from 41.38% among 3-year-olds to 100% among 7-year-olds, as children gradually learn that [*các*-CL-N] and [*những*-CL-N] sequences encode plurality. In the singular conditions, the ratio of plural maximal responses remains low throughout, between 7.69% (5-year-olds) and 30.77% (7-year-olds), as even the youngest children seem to assume that [CL-N] sequences are to be interpreted as definite and singular.

## 7.5 Discussion

The major difference between our results and those of Munn et al. (2006) is that Vietnamese children commit number errors rather than definiteness errors. Spanish- and English-acquiring children from Munn et al. (2006) produced number-target responses across singular and plural conditions and failed to produce definite responses in the singular definite condition. In contrast, the children in our study committed more number errors but have a preference for answers that are compatible with a definite interpretation in both the singular and the plural condition.

However, one might argue that the reason that the Vietnamese children in our study produced target responses in the singular definite condition is being overinterpreted, since that is their default preference also for the indefinite singular control. Recall that in the singular *indefinite* control conditions of our study, both adults and children showed a distinct preference for the animal closest to the relevant landmark – even though an equally acceptable response would have been to choose any other single animal on that side of the display. Carried over to the definite singular experimental condition, this default preference may have resulted in children choosing the right response for the wrong reasons.

But why should Vietnamese children have a default preference for the animal closest to the landmark, while the English- and Spanish-acquiring children showed a preference for the animal closest to themselves? Perhaps our decision to use four animals per landmark rather than three made a difference. After all, the animal closest to the participant is the animal farthest from the landmark, and if four animals are used instead of three, this may put that animal into a grey area no longer considered close enough to count as “next to” the landmark. To see if this manipulation made a difference, we repeated the study once more, this time with three animals per side.

## 8. Experiment 2

### 8.1 Subjects

Fifty-six children were recruited from kindergartens in Ho Chi Minh City, Vietnam, with two exclusions for refusal to participate and twelve exclusions for failure to provide at least two correct responses for the six control trials. The remaining 42 children (mean: 4;5, range: 2;7–5;6, 22 males) comprised twelve three-year-olds ( $M = 3;3$ , range: 2;7–3;11), fifteen four-year-olds ( $M = 4;5$ , range: 4;0–4;10), and fifteen five-year-olds ( $M = 5;4$ , range: 5;0–5;7). The adults included twenty participants ages 17 to 42 (four males) from Ho Chi Minh City.

### 8.2 Methods

The materials and design were identical to those of Experiment 1, except that three animals instead of four were presented next to each landmark, and the training phase was omitted.

### 8.3 Results

Adults produced 100% target responses in all control conditions. In the singular control condition (ex. “Give me *one CL dog* next to the tree”) where both definite and indefinite singular responses were acceptable, adults once again showed a preference for the closest single dog, which is the answer compatible with the definite singular response, choosing it 87.5% of the time. In the experimental conditions, adults produced slightly fewer target responses as compared to Experiment 1. Nevertheless, accuracy was still very high, with 82.5% correct in the singular definite condition, 92.5% correct in the plural definite condition with pluraliser *các*, and 90.0% correct in the plural definite condition with pluraliser *những*.



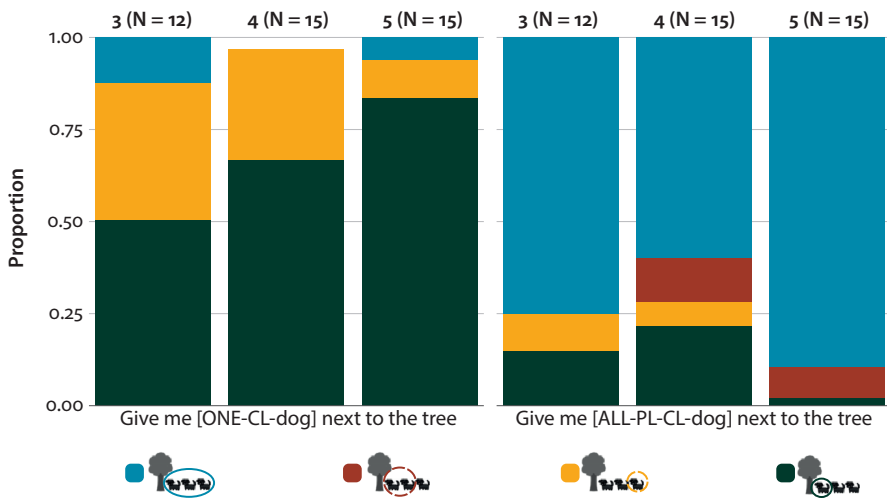
Children's responses in the control conditions are reported in Table 5. Within the singular control conditions, an ANOVA with age group (3, 4, 5) and experiment (Expt.1, Expt.2) as between-subjects factors reveals no significant difference in the rate of target responses. Nevertheless, the reduction of animals in the display does seem to have diminished children's default preference for the closest dog; children chose this response 67.86% of the time, down from 85.53% by 3–5-year olds in Experiment 1. This is confirmed with an ANOVA comparing the rate of definite responses (i.e., single closest dog or maximal set of dogs) in the singular control condition provided by 3-, 4- and 5-year-olds across the two experiments, which revealed a significant difference between the two experiments ( $F = 3.948, p < 0.05$ ) and a main effect of age group ( $F = 5.806, p < 0.01$ ).

Within the plural control conditions, an ANOVA with age group (3, 4, 5) and experiment (Expt.1, Expt.2) as between-subject factors reveals a main effect of age ( $F = 6.677, p < 0.01$ ), but crucially no main effect of experiment on the rate of target responses. There was a significant interaction between age group and experiment ( $F = 7.072, p < 0.001$ ), such that 4-year-olds produced more target responses in Experiment 1 relative to Experiment 2 ( $t(104.98) = -3.10, p < 0.01$ ), but this was the only age group within which there was a significant difference. Figure 5 divides children's responses by age group, collapsing across the two plural control conditions ([all-*các*-CL-N] and [all-*những*-CL-N] sequences).

**Table 5.** Percentage (frequency) of children's response types in control conditions

| Condition:           |             | <i>one</i> -CL-N | all- <i>các</i> -CL-N | all- <i>những</i> -CL-N |
|----------------------|-------------|------------------|-----------------------|-------------------------|
| <b>Response type</b> |             |                  |                       |                         |
| Singular             | Closest     | 67.86% (57)      | 11.91% (10)           | 13.1% (11)              |
| Singular             | Non-closest | 25.00% (21)      | 5.96% (5)             | 4.77% (4)               |
| Plural               | Maximal     | 5.96% (5)        | 76.20% (64)           | 73.81% (62)             |
| Plural               | Non-maximal | 0% (0)           | 5.96% (5)             | 8.34% (7)               |
| Plural               | Other       | 1.20% (1)        | 0% (0)                | 0% (0)                  |

Children's responses in the experimental conditions are shown in Table 6 and the division by age group is reported in Figure 5. In the singular definite condition, children once again produced mostly target responses (70.24% target, compared to 71.05% by 3–5-year olds in Experiment 1). That is, despite the change in children's default preference in the singular *indefinite* condition, their performance in the singular *definite* condition remains unchanged when the number of animals in the display is reduced. A two-way ANOVA with age group (3, 4, 5) and experiment (Expt.1, Expt.2) as between-subjects factors revealed no difference between the two experiments in the rate of closest-to-the-landmark responses provided in the singular definite condition, although there was a main effect of age ( $F = 3.351, p < 0.05$ ).

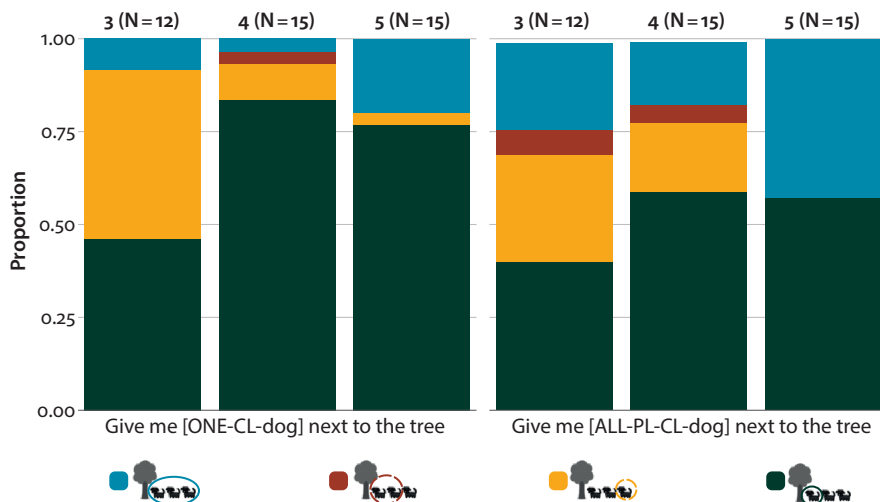


**Figure 5.** Proportion of children's response types, by age group, in singular control condition (left) and plural control conditions (right). See fn. 6 for key.

In the plural definite conditions with pluralisers *các* and *những*, children produced far fewer target responses compared to children from Experiment 1 (23.81–32.15% target responses in the two plural conditions, as compared with 55.26% for the 3–5-year olds in Experiment 1). However, the pattern of their responses was qualitatively the same, in that their most common error was to produce a maximal response of the wrong number, rather than a plural, non-maximal response. The *overall* rate of definite responses (i.e., singular closest and plural maximal responses) remained fairly high, especially considering that children in Experiment 2 were younger (between 79.79–80.95% of children's responses in the plural conditions qualified as either definite singular or definite plural, compared to 90.13% for the 3–5-year olds in Experiment 1).

**Table 6.** Percentage (frequency) of children's response types in experimental trials

| Condition:           |             | sg. def.<br>CL-N | pl. def.<br><i>các</i> -CL-N | pl. def.<br><i>những</i> -CL-N |
|----------------------|-------------|------------------|------------------------------|--------------------------------|
| <b>Response type</b> |             |                  |                              |                                |
| Singular             | Closest     | 70.24% (59)      | 47.62% (40)                  | 57.15% (48)                    |
| Singular             | Non-closest | 17.86% (15)      | 15.48% (13)                  | 14.29% (12)                    |
| Plural               | Maximal     | 10.72% (9)       | 32.15% (27)                  | 23.81% (20)                    |
| Plural               | Non-maximal | 1.20% (1)        | 4.77% (4)                    | 2.39% (2)                      |
| Plural               | Other       | 0% (0)           | 0% (0)                       | 2.39% (2)                      |



**Figure 6.** Proportion of children's response types, by age group, in singular (left) and plural experimental conditions (right). See fn. 6 for key

As with Experiment 1, we used a 2x3 ANOVA with condition (singular, plural) as a within-subjects factor and age group (3, 4, 5) as a between-subjects factor to test for developmental trends in the overall rate of definite responses, regardless of number. Similar to the previous experiment, there was a main effect of age ( $F = 23.092$ ,  $p < 0.001$ ) and no effect of condition ( $F = 0.015$ ,  $p = 0.90$ ), but this time there was no interaction ( $F = 1.509$ ,  $p = 0.223$ ). That is, children produced more definite responses as they grew older, in both conditions, not just the plural condition.

## 8.4 Discussion

In sum, children in Experiment 2 again appear to interpret singular and plural noun phrases as definite – even when the number of animals is reduced and their default preference patterns change. In the singular control condition, which allows multiple responses, children no longer showed as strong a preference for the animal closest to the tree; yet in the singular definite experimental condition, they continued to choose the singular definite response. This indicates that Vietnamese children seem to be able to restrict the reference of the noun phrase in order to satisfy the uniqueness presupposition of the singular definite noun phrase earlier than their Spanish- and English-acquiring counterparts.

For plural noun phrases like *các con chó đứng kể cái cây* and *những con chó đứng kể cái cây* 'the dogs next to the tree,' results are qualitatively similar to the previous

experiment. Vietnamese children are unlike their cross-linguistic peers in that they frequently commit number errors, despite producing an overwhelming proportion of definite responses.

## 9. General discussion

The acquisition of definite noun phrases appears to take a different route in Vietnamese than it does in English and Spanish. With respect to number comprehension, Vietnamese children's ability to associate noun phrases to sets of the correct cardinality lags behind that of English- and Spanish-acquiring children completing the same task. Namely, while they may distinguish between singular and plural noun phrases, their ability to associate plural-marked phrases (*các/những*-CL-N) to plural referents develops more slowly. We suggest this difference originates from the difference in the acquisition order of these morphemes themselves. In particular, Vietnamese-speaking children's difficulty with plurality reflects a delay in mastering these plural morphemes, which is in line with previous findings on the acquisition of pluralisers in other classifier languages like Mandarin, Japanese, or Korean; see Zhang (2006), J. Kim (2008), Li, Ogura, Barner, Yang & Carey (2009), Munn et al. (2009), Nakano et al. (2010), Park (2010). The literature also points out a number of different reasons why plural morphemes in classifier languages are difficult for children to acquire as such, including their portmanteau-morpheme-like nature, their optionality and the variability that this entails; see Li et al. (2009), Munn et al. (2009), Nakano et al. (2010), M. Kim (2011), Kim, O'Grady and Deen (2012). Meanwhile, cross-linguistically animate classifiers are reported to be acquired earliest in terms of both production and comprehension; see Gandour, Petty, Dardarananda et al. (1984), Uchida & Imai (1996); Tse, Li & Leung (2007); Tran (2011), among others.

With respect to definiteness, on the other hand, Vietnamese-acquiring children appear to surpass their American and Mexican peers. All ages tested showed a strong tendency to associate the definite singular noun phrase with the closest animal (unique singleton set) and the plural noun phrases with the maximal set of animals (unique plural set) – even if that set did not always satisfy the number feature of the noun phrase in question.

In sum, Vietnamese children simply did not produce many definiteness errors. This raises the question of what explains the difference in behaviour across languages. That is, why do Vietnamese children succeed with definiteness and commit number errors, while Spanish- and English-acquiring children succeed with number and commit definiteness errors in the singular condition?

One possibility is that the semantics of the noun phrase locative modifier might differ in Vietnamese. Maybe the phrase *đứng kế cái cây*, which we have translated as “next to the tree,” really means something more like “adjacent to the tree.” However, we reject this explanation based on truth value judgments from native speakers, who answer *yes* to sentences like (7), even in the scenario where the dog with the bow is not the one adjacent to the tree.

- (7) *Con chó đeo nơ có đứng kế cái cây không?*  
 CL dog wear bow yes stand next CL tree no  
 ‘Is the dog with the bow next to the tree?’



**Figure 7.** The dog with the bow is qualified as *đứng kế cái cây* ‘next to the tree’ in this scenario

Instead, we would like to suggest that what causes the discrepancy in performance between learners of the different languages is the information that they choose to prioritize. Specifically, we propose that when the task becomes demanding, all groups of children have difficulty simultaneously coordinating information from number and from definiteness, but, while Vietnamese-acquiring children prioritize definiteness, resulting in number errors, Spanish- and English-acquiring children prioritize number, resulting in definiteness errors. And we suggest that this difference in behaviour has to do with the fact that number is obligatorily marked on Spanish and English nouns, while in Vietnamese, number is not grammaticalised: overt number morphemes like *các/những* are not required to convey plurality, nor does their absence obligatorily convey singularity.

If we assume that Spanish- and English-speaking children prioritize number over definiteness it could be that their adult-like behaviour in the plural conditions may simply amount to a default interpretation of plural as maximal, since the maximal set is the easiest plural set to access. More studies will determine whether this reinterpretation of the plural definite results in English and Spanish has some merit. In either case, this study highlights the importance of cross-linguistic research in contributing to our understanding of how children acquire semantic concepts. Specifically, what our results suggest is that when languages encode the same semantic primitives in different ways, this has consequences for how children interpret those semantic primitives.

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# Interpretation of numerals under memory load by Vietnamese speakers

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Numerals show an ambiguity between a weak, ‘at least’ meaning and a strong, ‘exactly’ meaning. The Gricean approach takes the weak meaning to be basic and derives the strong meaning as implicature, thus assimilates numerals to other scalar items. The Fregean approach, in contrast, takes the strong meaning of numerals to be basic and derives the weak meaning via type shifting operations. This paper gives a brief summary of these two approaches, followed by a report on a dual-task experiment which is designed to test how Vietnamese speakers interpret numerals under different memory loads. The goal of this experiment is to replicate the results of Marty et al. (2013) which can be interpreted as supporting the Fregean approach. It turns out that this goal could not be achieved, and we give some speculations as to why it was not.

**Keywords:** numerals, implicatures, scales, memory, Vietnamese

## 1. Theoretical background

Natural language numerals such as *three* are ambiguous between a “weak” meaning (‘at least three’) and a “strong” meaning (‘exactly three’). Example (1) illustrates the weak meaning: replacing *three* with *at least three* has no effect, while replacing *three* with *exactly three* makes the sentence incoherent. Example (2) illustrates the strong meaning: replacing *three* with *exactly three* has no effect, while replacing *three* with *at least three* makes the sentence incoherent.

- (1) a. John has three children, possibly four.
- b. John has at least three children, possibly four.
- c. #John has exactly three children, possibly four.

- (2) a. John has three children, not four.  
 b. #John has at least three children, not four.  
 c. John has exactly three children, not four.

One obvious way to account for this ambiguity is to appeal to homophony. It is a fact about language that different words may have the same pronunciation, and to know which of the same sounding words is being used we have to consider the linguistic context. For example, the fifth syllable in (3a) is most probably the word which means ‘a financial establishment that invests money deposited by customers’ ( $bank_1$ ) while the fifth syllable in (3b) is most probably the word which means ‘the land alongside a river or lake’ ( $bank_2$ ).

- (3) a. I went to the bank to cash a check.  
 b. I went to the bank to fetch some water.

We could say that there are two lexical items in English,  $three_S$  and  $three_W$ , which mean ‘exactly three’ and ‘at least three,’ respectively. The linguistic context would resolve the ambiguity subject to pragmatic preferences, one of which would be the preference for the strongest non-contradictory meaning. Thus, a plain sentence such as (4) would be parsed with  $three_S$ , but (1a) would be parsed with  $three_W$  and (2a) parsed with  $three_S$ , as only these parses yield a non-contradictory meaning.

- (4) John has three children.

This approach faces several challenges. First, we would have to say that not only there are  $three_S$  and  $three_W$ , but there are also  $four_S$  and  $four_W$ ,  $five_S$  and  $five_W$ , and so on ad infinitum. Second, we would have to say that such pairs happen to be extremely popular across speech communities in the world, as the paradigm in (1) and (2) can be replicated in many, perhaps all, languages. Third, people learn these pairs naturally and without explicit instructions, quite differently from how they learn the various meanings of, say, *bank* in the English. Fourth, the different meanings in the case of numerals are systematically related in a way which is very different from how the meanings of *bank* and other homophonous word pairs are related. These facts should suffice as arguments that homophony is not the right answer. But the observation which decisively puts the homophony approach to rest is perhaps the coherence of the following sequence.

- (5) John has three children. Bill does too. In fact, Bill has four children.

The first sentence clearly implies that John has exactly three children. Thus, it should be parsed with  $three_S$ . The second sentence, however, cannot be parsed with  $three_S$ , since such parse would bring it into contradiction with the third sentence, in the same way that the sequence in (6) is a contradiction.

- (6) #Bill has exactly three children. In fact, Bill has four children.

This means that the first two sentences of (5) would have to have the following logical forms. PF deletion of the VP in the second sentence is represented by strikethrough.

- (7) [<sub>TP</sub> John T<sub>PRES</sub> [<sub>VP</sub> have three<sub>S</sub> children]]. [<sub>TP</sub> Bill T<sub>PRES</sub> [<sub>VP</sub> ~~have three<sub>W</sub> children~~]] too.

But this analysis is incompatible with a condition on VP-ellipsis, Parallelism, which requires that the elided VP be lexically identical with the antecedent VP (Fox 2003). Parallelism explains why the sequence in (8a) cannot mean that John went to the money bank and Bill went to the river bank: it cannot be parsed as in (8b), where the elided VP is not lexically identical to the antecedent VP.

- (8) a. John went to the bank. Bill did too.  
 b. [<sub>TP</sub> John T<sub>PAST</sub> [<sub>VP</sub> go to the bank<sub>1</sub>]]. [<sub>TP</sub> Bill T<sub>PAST</sub> [<sub>VP</sub> ~~go to the bank<sub>2</sub>~~]] too.

Given Parallelism, the analysis in (7) is ruled out, which means the meanings ‘at least three’ and ‘exactly three’ cannot be derived from two different lexical items.

This strong/weak contrast in meaning exhibited by numerals turns out to be much more general. Quantifiers such as *some* and connectives such as *or*, for example, show the same variation.

- (9) a. John did some of the homework but did not do all of them.  
 b. John did some of the homework. In fact, he might have done all of them.  
 (10) a. John talked to Mary or Sue but not both.  
 b. John talked to Mary or Sue. In fact, he might have talked to both.

Example (9) is evidence that *some* has a strong reading where it means ‘some but not all’ and a weak reading where it means ‘some or all.’ Similarly, (10) shows that *or* has an strong, “exclusive,” reading where the disjunction is only true when exactly one disjunct is true, and a weak, “inclusive,” reading where the disjunction is only false when both disjuncts are false. And as we can see from (11), the arguments against an explanation in terms of homophony for numerals can be replicated for these items also.

- (11) a. John did some of the homework. Bill did too. In fact, Bill did all of the homework.  
 b. John talked to Mary or Sue. Bill did too. In fact, Bill talked to both of them.

Paul Grice, in his seminal Harvard lectures, sketched a path to understanding this phenomenon. The idea is to take the weak meaning to be basic and derive the strong meaning as “implicatures,” i.e. inferences drawn on the basis of the literal meaning plus reasoning on the speaker’s belief. The steps in this reasoning, Grice proposed, is justified by universal principles of rational communication, which he called “maxims of conversation.” Together these maxims say that speakers, by default, assert the most informative proposition among those which are relevant and which they believe to be true. In a context where the question under discussion is how many children John has, (12a) and (12b) would both be relevant. Assuming the literal meaning of numerals to be the weak, ‘at least’ meaning, (12b) is more informative than (12a). This means, given the maxims of conversation, that a speaker who asserts (12a) does not believe that (12b) is true and therefore, assuming she knows how many children John has, believes that John does not have four children, i.e. that he has exactly three children.

- (12) a. John has three children.  
b. John has four children.

Similarly, a speaker who asserts (13a), given that both (13a) and (13b) are relevant, will convey the belief that John did not do all of the homework, and a speaker who asserts (14a), in the same way, will convey the belief that John talked to only one of Mary and Sue, under the assumption that both (14a) and (14b) are relevant.

- (13) a. John did some of the homework.  
b. John did all of the homework.  
(14) a. John talked to Mary or Sue.  
b. John talked to Mary and Sue.

The “Gricean account” of this fact takes the weak meaning to be basic and derives the strong meaning by way of scalar implicature, thus assimilating the weak/strong ambiguity of numerals to the well-known weak/strong ambiguity of other items such as quantifiers or connectives. It thus has the virtue of generalization, having subsumed various empirical observations under one phenomenon. However, it should be noted that there are other observations which speak against treating numerals in the same way as quantifiers and connectives. Specifically, numerals seem to retain their strong meaning in downward environments where the weak meaning would actually lead to a stronger interpretation for the sentence as a whole, and where, as expected, quantifiers and connectives show their basic, not derived, meaning (Horn 1972; Breheny 2008). As illustration, consider (15a) and (15b). Most speakers would interpret *pets or children* in (15a) as ‘pets or children or both,’ but would find it quite natural to interpret *three* in (15b) as ‘exactly two’ (Breheny 2008).

- (15) a. Everyone who has pets or children is happy.  
 b. Everyone who has three children is happy.

In other words, we would immediately judge (15a) as false if it turns out that someone who has both children and pets is unhappy, but would not consider a miserable person who has four children to be a counterexample to (15b). In addition, experimental studies have provided evidence for children's differential treatment of numerals vs. quantifiers and connectives (Noveck 2001; Musolino 2004). Specifically, children are less prone than adults to the strong interpretation of quantifiers and connectives, but equally prone as adults to the strong interpretation of numerals. These observations have led some researchers to propose that for numerals, the strong reading is actually basic, with the weak meaning derived by way of type shifting operations. This approach is sometimes called the "Fregean approach," a term used by Kennedy (2015) which takes numerals to be properties of predicates, a view espoused by Frege (1884). Here is a simplified version of Kennedy's analysis.

- (16) Kennedy's semantics for numerals
- a.  $[[\text{three}]] = \{P \mid \max(\{n \mid \exists x: P(x) \ \& \ \#_P(x) = n\}) = 3\}$   
 where  $\max(X)$  is the largest number in  $X$  and  $\#_P(x)$  is the number of  $P$ -atoms in  $x$
- b.  $[[\text{John read three novels}]] = 1$  iff  $\{x \mid x \in [[\text{novels}]] \ \& \ \text{John read } x\} \in [[\text{three}]]$

In plain English, *three* is the property of predicates which are true of three, but no more than three, entities, and *John read three novels* is true iff John read three, but no more than three, individual novels. For the weak meaning of three, Kennedy resorts to the successive application of BE and  $\iota$ , two type shifting operators which are proposed by Partee (1987) to be part of the inventory of semantic interpretation rules on natural language and which, together, have the effect of removing the maximality requirement. We do not have to go into the details of how this machinery works. Suffice it to say that the following holds.

- (17)  $[[\text{John read } \iota(\text{BE}(\text{three})) \text{ novels}]] = 1$  iff  
 $\exists x: x \in [[\text{novels}]] \ \& \ \text{John read } x \ \& \ \#_{\text{novel}}(x) = 3$ , i.e. iff  
 there exists a plurality of three novels that John read

The existential quantification leads to a weak interpretation of the numeral: even if John read four novels, there will be a plurality of three novels that he read, which means the sentence is true when John read more than three novels.

## 2. Experiment

To summarize the last section, numerals are observed to be ambiguous between a weak, ‘at least’ meaning and a strong, ‘exactly’ meaning. The Gricean approach takes the weak meaning as basic and derive the strong meaning as an implicature, assimilating numerals to other logical terms such as quantifiers and sentential connectives. The Fregean approach, in contrast, takes the strong meaning to be basic and derive the weak meaning by way of applying type shifting operations, in effect claiming that numerals are fundamentally different from quantifiers and connectives.

This controversy constitutes the background of Marty *et al.* (2013) (henceforth MSC), which reports the results of an experiment where native speakers of French are asked to perform two tasks simultaneously: (i) memorize a sequence of two letters (low memory load) or four letters (high memory load), and (ii) form a truth-value judgement about (the French counterpart of) sentences such as (18a) or (18b) with respect to various depicted situations.

- (18) a. Some dots are red.  
b. Four dots are red.

It was found out that in the case of the existential quantifier, the strong meaning is assigned less often under high memory load than under low memory load, while in the case of numerals, the strong meaning is assigned more often under high memory load than under low memory load. This finding supports the Fregean account of numerals, at least for French, since it is more compatible with the claim that for the existential quantifier, the weak meaning is basic and the strong meaning is derived, while for the numeral, the strong meaning is basic and the weak meaning is derived.

In the summer of 2016, the three authors of this paper ran an experiment on Vietnamese speakers which aims to replicate Marty *et al.*'s results. Note that Vietnamese is typologically unrelated to French and exhibit several properties in the domain of numeral phrases which distinguish it from French. Two examples are (i) that combination of a numeral and a nominal must be mediated by a ‘classifier,’ as illustrated in (19a), and (ii) that numeral phrases can be interpreted as indefinites only post-verbally, as illustrated in (19b).

- (19) a. *John đã cắn hai \*(con) chó.*  
John PAST bite two \*(CL) dog  
‘John bit (the) two dogs.’  
b. *Hai con chó đã cắn John.*  
two CL dog PAST bite John  
‘The two dogs bit John’ / \*‘two dogs bit John.’

An analysis of these and other facts takes numerals in Vietnamese to have the weak meaning as basic and derives their strong meaning as an implicature. These considerations motivate running MCS's experiment, or variants thereof, on Vietnamese. Replication of the French results would further validate the dual-task paradigm as a way to gain insights into the processing of ambiguous expressions. A failure to replicate the French results would prompt further research into the linguistic differences between French and Vietnamese and possibly research into the cultural differences between the corresponding linguistic communities.

We implemented a software to run a dual task experiment with Vietnamese instructions and materials. We wrote the software in Python 3 (using PyCharm Community Edition) and we made heavy use of the matplotlib plotting library. The software will be published under the MIT open source license.

We ran three variants of MCS's dual-task experiment.<sup>1</sup> Figures 1 and 2 below show two example screens with material of the truth-value judgment task that we used. The caption in Figure 1 reads "in the circle there are less than five red stars." This is a control condition aimed at selecting participants who can count properly and thus do the task competently. The caption in Figure 2 reads "in the circle there are five blue stars." This is the target condition aimed to test which reading the numeral receives: a "true" answer indicates the weak reading, while a "false" answer indicates a strong reading.<sup>2</sup>

In Experiment 1 (a pilot study with 12 participants), we replicated MCS's design and method as closely as possible (i.e., modulo the differences induced by the structural peculiarities of Vietnamese). Specifically, we instructed the participants in the same way as MCS: we emphasized the importance of the memory task and encouraged them to rely on their intuition in the linguistic rating task (using a slider scale between 0 and 100). Notably, like MCS we did not mention that the expressions of interest (numerals and scalar items) are ambiguous between a weak and a strong reading.

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1. We thank the following people, among many others, for their help in running our experiments: Trịnh Minh Giáp, Amber Ha Nguyen, Diep Vo, Thu Hien Pham, Nguyễn Hải Đăng, Sung Nguyen, Ngân Ngọc Tố Ngân, Thai Nguyet, Hieu Nguyen, Quỳnh Trang, Med Zed, and Su Sikei.

2. A reviewer points out that in Figure 2, the blue stars inside the circle are divided into a group of two and a group of five, and expresses concern that this might be a confound. In fact, MCS addresses this issue. The worry is that participants might interpret the sentence with a domain restriction which interpret "there are five stars" as 'there are a subgroup of five stars.' However, MCS has shown that the worry is unwarranted, and that participants do not engage in such domain restriction in any meaningful way. We find MCS's argument to be convincing.



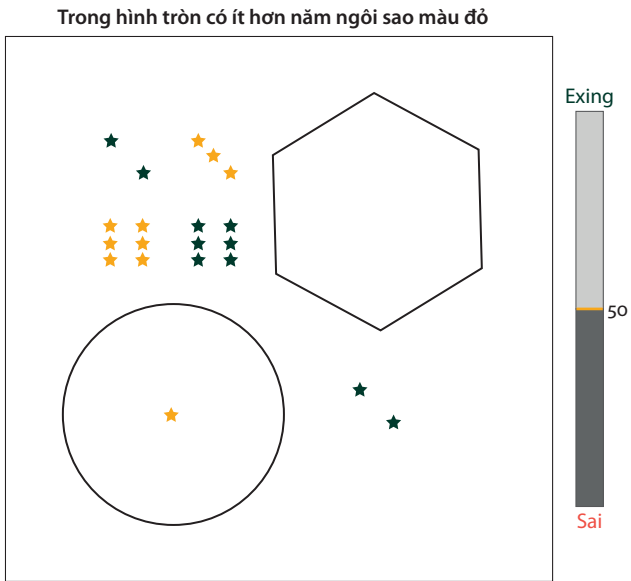


Figure 1. Example (1)

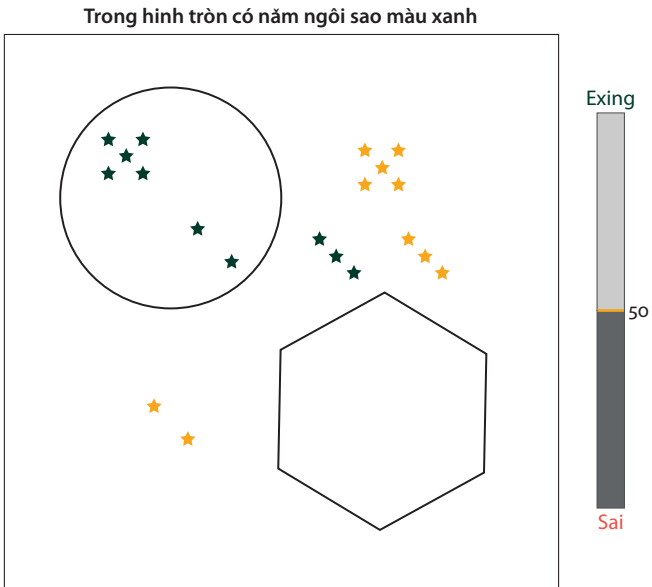


Figure 2. Example (2)

The results of the pilot experiment showed a significant effect of memory load for the numeral condition ( $t = 1.98, p = 0.049$ ), strikingly in the *opposite* direction of MCS (see Figure 3). However, there was no effect for the Vietnamese counterparts of *some* and *or* (both  $ts < 0.8$ , n.s.) because of the ceiling effect (e.g., for *some*: mean = 93.67, SD = 7.65, skew = -1.42). That is, scalar items were overwhelmingly assigned the weak meaning.

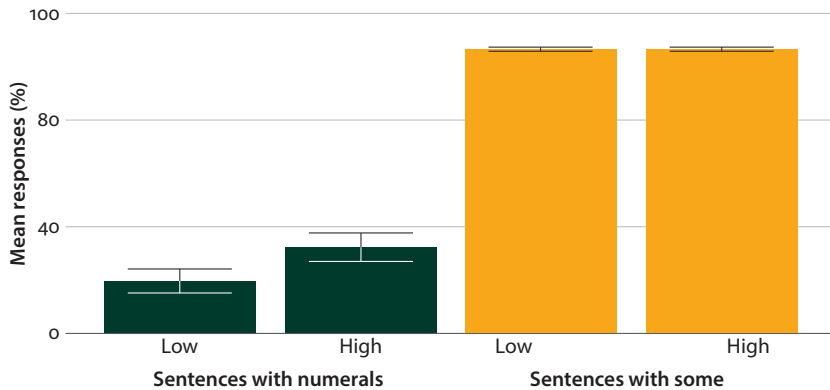


Figure 3. Results of Experiment 1

In Experiment 2 (32 participants), we changed the instructions to make the participants aware of the ambiguity of the expressions of interest with the ultimate goal to raise awareness of the weak reading of scalar items (see the instructions in the Appendix). This modification had an adverse effect on the results: no significant effect in any of the target conditions (all  $ts < 1.2$ , n.s.).

In Experiment 3 (31 participants), we modified the mode of presentation of the linguistic expressions in the rating task (auditory in addition to visual presentation). The rationale for this change was to reduce the processing load in the linguistic task to free up resources for scalar inference computation (again with the goal to make the strong reading of scalar items more readily available). This change led to a significant effect for the scalar item *or* ( $t = 2.2, p = 0.03$ ), as can be seen from Figure 4. However, it had an adverse effect on the result with respect to numerals ( $t = -0.16, p = 0.87$ ).

The results of our experiments differ from the result reported in MCS in various ways. Most significantly, none of our experiments evoked a significant effect in both of the crucial conditions: in experiment 1, the participants' behavior in the low memory condition and high memory condition did not differ significantly for sentences containing scalar items; in experiment 3, we did not find a difference for sentences containing numerals; experiment 2 did not evoke significant effects at

all. This means that our experiments fails to replicate the result of MCS. Thus, our results do not support the Fregean account of the ambiguity of numerals. However, neither do they support the Gricean account since we could not establish that constraining memory resources has an opposite effect on the processing of numerals than on the processing of scalar items. That is, our results are inconclusive.

What could be responsible for the different outcome of our experiment compared to that of MCS? A plausible hypothesis is that it is induced by the change in the experiment material. In our material, the critical phrase occurred in post-verbal position. In the French experiment, it appeared in pre-verbal position. Therefore, in a first step to understand the difference in outcome we plan to perform a dual task experiment on French with French counterparts of our Vietnamese material. The result of this experiment will allow us to see if numerals and/or scalar items are processed differently in post-verbal position than in pre-verbal position.

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## Appendix

The following quote gives the English counterpart of the instructions of experiment 2. The instructions for experiment 3 reflected the changes in the experiment we describe in the last section.

Thank you for your participation in our experiment. Each assignment in this experiment has three steps.

- (1) In the first step, you will see a sequence of letters appearing on the screen one after another. Your task is to remember these letters and their order of appearance.
- (2) In the second step, you will see a picture, containing a square, a circle, ten red stars, and ten blue stars. Above the picture is a sentence describing the picture. Your task is to judge how true or false this sentence is by choosing an appropriate position on the scale next to the picture. Use the up and down keys to make your choice. The top-most position indicates “completely true,” and the bottom-most position indicates “completely false.”

When you are finished, press “enter” to submit your answer and continue to the next step.

- (3) In the third step, your task is to type in the letters in the reverse order of the sequence that you see in step (1). For example, if you see ABCD in step (1), you are to click DCBA now. After you have done this, press “enter.” You will then see how well you did in step (3). When you are ready to go on to the next assignment, press “enter” again.

(Please note that this is not a math test. We are not checking your mathematical knowledge. What we are interested in is your intuition about sentences in natural language. A wide-spread phenomenon in natural language is that sentences can be true or false to certain extent. For example, the sentence “February has 28 days” is true but not totally true, because there are leap years. The sentence “March has 28 days” is false but not totally false, because in a sense, every month has 28 days. Thus, feel free to use your intuition and choose intermediate points on the scale. Especially, do not try to answer based on what you have learned in math or logic classes. You should answer as quickly, and as spontaneously, as possible.)



# Gender in Vietnamese

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This study aims to identify strategies for the representation and encoding of gender in Vietnamese, as well as to show the various manifestations of a mainstream gender bias against women that are observed in this language. We achieve our goal mainly by categorizing the human-denoting lexicon into subgroups of different gender-marking properties, and by making relevant comparisons to look for both qualitative and quantitative contrasts in the ways in which men and women are linguistically represented. While arguing that this imbalance stems from a conventionalized hierarchy that prefers men over women, we also point to a reduction in such bias in the contemporary language, and advance an alternative view of the derogatory drift of neutral words and phrases in collocation with female-marked terms.

**Keywords:** semantic gender, gender-marking, gender bias, social hierarchy, socio-cultural encoding, pejoration, amelioration, semantic shift

## 1. Introduction

This work positions itself within an established view that reality is reflected in language through a social-cultural lens and that socio-cultural factors help to drive language change. As Deumert (2006: 2142) points out, “the idea that cultural values, knowledge and beliefs are encoded in a language’s semantic and grammatical structures goes back to the nineteenth century work of Herder and Humboldt... [it was] reformulated and reassessed in early anthropological linguistics by Boas, Sapir and Whorf.” To quote Sapir himself, “language does not exist apart from culture, that is, from the socially inherited assemblage of practices and beliefs that determines the texture of our lives” (Sapir 1921: 221). Goddard (2015: 380) talks about words as “carriers of cultural meaning”. Cultural aspects of meaning can be found most visibly – though not exclusively – in content words for social forms, which happen

to include those most relevant to the current study such as gender, conventions, beliefs, and hierarchies.

This cultural content, however, does not only manifest itself in lexemes but also in phrasemes, in the conceptual networks to which these parts of the lexicon belong, and even in grammatical structure. As Lyons (1977: 248) suggests: “Every language is integrated with the culture in which it operates and its lexical structure (as well as at least part of its grammatical structure) reflects those distinctions which are (or have been) important in the culture.” The use of the parenthetical phrase “or have been” is noteworthy here because certain “lexical and grammatical distinctions which no longer correlate with cultural distinctions” (Lyons 1977: 248), once synchronically encoded, may still be preserved as society advances: considered overall, these superimposed layers of linguistically encoded cultural distinctions are of great value for an explanatory account of diachronic change if a cultural approach is to be adopted.

This study is not concerned primarily with the effects of gendered language on society, or with differences in male and female vocabularies and patterns of verbal communications (that is, with how gender affects language production, following the variationist sociolinguistic tradition). Rather, our concern here is with the way in which socio-cultural factors help shape a language in terms of gender representation. Focusing on a Vietnamese lexical corpus that includes listed dictionary words and institutionalized idiomatic expressions, this work is the first to set to present relevant classifications and quantitative summaries with respect to: (i) pronominal paradigms, social status terms, and idioms denoting humans in which gender is either superficially marked or traceable to different semantic levels; (ii) words and idioms semantically compatible in terms of gender with the aforementioned items. These categorizations and summaries then shed light on the various ways in which gender is linguistically encoded – either directly, or indirectly by syntactic and collocational means – and reveal the ways in which the observed gender asymmetries in Vietnamese generally favor men. This ‘male-over-female’ macro pattern is further compounded by the tendency of female-denoting forms to come second in mixed-sex binomials, and/or to acquire negative or passive connotations.

We explain these biases in terms of an institutionalized social hierarchy that traditionally places men above women, and the pervasive stereotypical expectations for male and female in terms of virtues and social roles. Taking a diachronic perspective, we also argue for a weakened – and arguably relatively weaker – male dominance psychology, which results in a non-homogeneity of gender bias in Vietnamese. Finally, we advance an analysis which sees the derogatory drift of neutral words and phrases once combined with female-markers as the by-product of an attempt to ameliorate the sexism in language.

The data-set for this study comprises 1750 lexical entries and 77 idioms collected from two dictionaries: Hoàng (2006) and Nguyễn (2002), respectively. The definitions presented in these two sources serve as the general basis for our semantic analyses. Specific definitions, however, are subject to revision if they are deemed deviant from native speakers' judgments.

### 1.1 Clarifying the terminology

Before continuing, we would like to familiarize readers with several key concepts that will be employed in this study.

Linguists are in general agreement in drawing a distinction between *grammatical gender* and *natural* (or *biological*) *gender*. The former term – also known as *noun-class* – refers to a grammatical category which typically uses inflection to indicate one of a set of formal values and which creates an agreement structure with other parts of speech. Examples of grammatical gender include the two or three-way systems found in many contemporary Indo-European languages, including Spanish (two-way) and Russian (three-way), also the more elaborate noun class distinctions observed in Ancient Greek and in Niger-Congo languages: see Corbett (1991). On the other hand, natural gender is a purely semantic phenomenon: Vietnamese – like English – is characterized as having a semantic gender system by which the gender distinction is encoded exclusively into linguistic elements whose referents display biological gender attributes.

Also relevant to the issue of (semantic) gender in this work is the notion of *social gender*, which is used “to refer to the socially imposed dichotomy of masculine and feminine roles and character traits” (Kramaræ & Treichler 1985: 173). Thus, it is straightforward to assume that cultural contexts could implicitly bring about a gender-specific connotation for an originally gender-neutral item. As Hellinger (1997: 290) points out, this social/cultural category of gender is associated with commonly shared assumptions about the proper social roles for males and females, including the idea of the prototypical member of a (socio-occupational) class. For instance, the prototypical sex that holds a particular post is conventionally considered the default and unmarked (or culturally “customary”) sex for the said post. Diversion from these expectations, such as when connotatively [+male] items are forced to denote females (or vice versa), requires the use of an explicit gender-marker. The concepts of *marked* and *unmarked* are understood as follows: “The general meaning of a marked category states the presence of a certain property A, the general meaning of the corresponding unmarked category states nothing about the presence of A and is used chiefly but not exclusively to indicate the absence of A” (Jakobson 1957: 5).



Finally, we adopt the semantic distinction between the *denotation* and *connotation* of a given lexical item, as the two domains in which a gender feature be located to grant the item a gender-definite status. Denotation refers to the neutral ‘dictionary definition’ of a word, whereas connotation is concerned with its socio-cultural implications and overtones. Even though the former is considered more institutionalized, both semantic levels are subject to changes under the influence of socio-cultural factors. Semantic shift occurs when the intention for a word becomes shared among members of a speech community and becomes established, or once a previously established intention is abandoned.

## 1.2 Previous research on gender in Vietnamese

The studies most related to the current work are those contextualizing the gender bias in Vietnamese in relation to language change or in relation to language policy in the pursuit of gender equality. Pham (2002), for instance, focuses on the change of address, self-reference and reference terms as used by men and women in various social contexts to accommodate the change of women’s roles in society in the second half of the 20th century. Using a contrastive method, Trần (2002) offers a broad picture of sexism as a sociolinguistic phenomenon in English and Vietnamese, highlighting the cultural differences exhibited in the two languages. In that work, sexist language usage in English, from the lexeme level to the discourse level, is adopted as a standard of comparison in order to investigate similar lexico-semantic presentations in Vietnamese; subsequently, the focus is shifted to the issue of language reform and planning as a solution to linguistic sexism. Nguyễn (2004), within the framework of sociology of language on gender, points out several basic examples of gender bias in English, Chinese and Vietnamese, before also turning to the importance of language planning in bringing about a more non-discriminatory language. Other approaches address the different politeness strategies employed by men and women (Vũ 2003), as well as the gender asymmetries manifested in Vietnamese proverbs (Đỗ 2008).

## 2. Gender in the human-denoting lexicon

### 2.1 A taxonomy of gender features

We propose a binary two-level taxonomy for pronouns and human-denoting nominal phrases. The first level distinction refers to the presence or absence of a gender semantic feature in the original denotational meaning of a lexical item. The second level contrasts the possibility of an original gender feature being neutralized in

contemporary usage with the possibility of a gender feature being found instead in the connotation. This yields the four-way taxonomy illustrated in Table 1:

**Table 1.** A taxonomy of gender features

| Group | I. gender feature in denotation? | II. gender expressed in connotation? | Examples                                  |
|-------|----------------------------------|--------------------------------------|-------------------------------------------|
| A     | +                                | +                                    | bố 'father',<br>thầy kí 'clerk'           |
| B     | +                                | -                                    | môn đệ 'disciple',<br>ông cha 'ancestors' |
| C     | -                                | +                                    | chiến sĩ 'soldier',<br>chủ nhân 'master'  |
| D     | -                                | -                                    | nhà giáo 'teacher'<br>tay trong 'spy'     |

### 2.1.1 Group A: Gender-definite items

Group A consists of 712 items which are gender-definite, i.e. inherently containing in their denotation a gender feature that reflects the natural sex of their referents. Examination of this group reveals a patriarchal bias, as evidenced by the predominance of male-denoting terms, the tendency of these items towards gender-unmarkedness, finer-grained distinctions among paternal kinship terms, as well as the favoring of the male term in partner address situations. Let us examine these factors in turn.

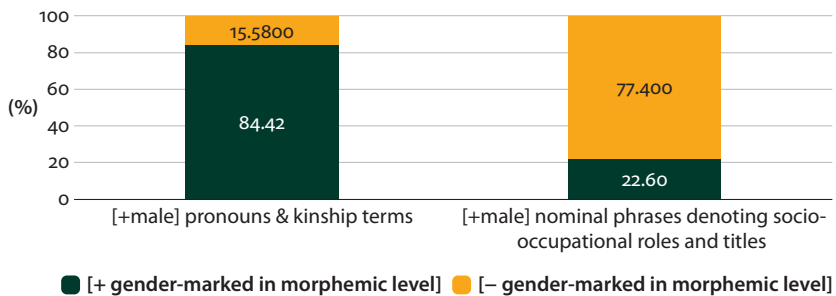
First, consider the more detailed classification for Group A schematized in Table 2:

**Table 2.** Group A subcategories

| Group | I. inherent gender feature | II. level of expression? | Examples                                                                                       |
|-------|----------------------------|--------------------------|------------------------------------------------------------------------------------------------|
| 1.1   | [+male]                    | [+morphemic]             | tiểu phu 'lumberjack'<br>hoàng tử 'prince'                                                     |
| 1.2   | [+male]                    | [-morphemic]             | quà nhân<br>'majestic 1st-sg.<br>pronoun'<br>tiên sinh<br>'courtesy title for respected males' |
| 2.1   | [+female]                  | [+morphemic]             | mẹ 'mother'<br>tín nữ 'female believer'<br>nhạc mẫu 'mother-in-law'                            |
| 2.2   | [+female]                  | [-morphemic]             | lẽ 'concubine'<br>giai nhân 'beautiful woman'                                                  |

Of the 520 items within A.1, 26% fall into subgroup A.1.1 in which the gender feature is directly encoded in at least one morpheme. The other 74% belong to subgroup A.1.2, where gender features only emerge once the constituent morphemes are combined. Around 84% of the 77 [+male] pronouns and kinship terms belong to A.1.1 – these include *cậu* ‘mother’s brother’, *ông nhac* ‘father-in-law’, *phu quân* ‘husband’, *chàng* ‘literary 1st or 2nd-person singular pronoun for young males’ – while only 15.58% belong to A.1.2, consisting of archaic terms used between (or to address) predominantly males of specific social roles and statuses in earlier social contexts. It is notable that only 23% of the 146 [+male] nominal compounds denoting socio-occupational roles and titles belong to A.1.1 (e.g., those containing *ông-* ‘old man’, *thầy-* ‘master’, *-công* ‘title for a man of status’, *-tử* ‘son, male’, *-phu-* ‘male’, etc.). See Figure 1 below.

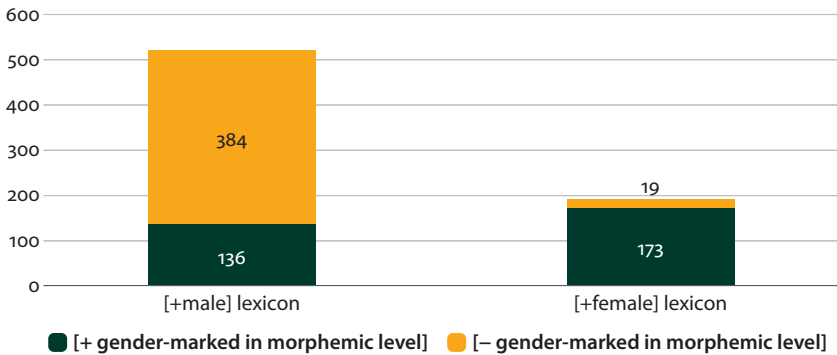
We suggest these percentage differences are to be attributed to the need for gender-marking in practical social communications: whereas family communication generally involves participants of both genders, males in Vietnamese society have long assumed the majority of social functions (especially in previous centuries). As a direct consequence, there is little need for the gender labeling of these functions at the morphemic level, according to the principle of linguistic parsimony.



**Figure 1.** Tendencies of gender-marking in morphemic level between [+male] pronouns and kinship terms and [+male] nominal phrases denoting socio-occupational roles and titles

Group A.2 consists of 192 [+female] items in terms of denotation. In stark contrast to A.1, items having at least one gender-marked morpheme are overwhelmingly predominant: examples such as those containing *bà-* ‘old woman’, *gái-* ‘girl’, *cô-* ‘lady’, *-nữ* ‘female’, *-phi* ‘imperial concubine’, *-phụ* ‘female’, *-mẫu* ‘mother’) constitute a striking 90% of the total. Direct comparison of these two subgroups thus offers a clear indication of disproportion in the Vietnamese representation of gender: as schematized in Figure 2 below, while A.2 constitutes a mere 27% of the total set of items, the number of items in A.2 containing at least one [+female]

morpheme is nearly 30% greater than that of [+male] equivalents. This clearly reveals a greater tendency for female-denoting elements to be morphologically gender-marked in Vietnamese.



**Figure 2.** Tendencies of gender-marking in morphemic level between [+male] and [+female] lexicons

Another indication of this asymmetry is to be found in the use of address terms. Kinship address terms of group A include *ông* ‘grandfather’, *bà* ‘grandmother’, *chú* ‘father’s younger brother’, *cô* ‘father’s sister’, *cậu* ‘mother’s brother’, *đì* ‘mother’s sister’, *thím* ‘wife of father’s younger brother’, *mợ* ‘wife of mother’s brother’, *duyệt* ‘husband of mother’s sister’, *cha* ‘father’, *mẹ* ‘mother’, *anh* ‘older brother’, and *chị* ‘older sister’. Even within the familial context (where there is a relative balance between males and females), there is an obvious unevenness in how gender is realized in terms of address in Vietnamese: the male correspondents of [+female] *cô* are split into *chú* and *bác* ‘father’s older brother’; the spouses of *bác*, *chú* and *cậu* (all three being [+male]) are differentiated in name (*bác*, *thím*, and *mợ*, respectively), while the spouses of *cô* and *đì* – both [+female] – must share the only label *duyệt*.

Terms of address used between those involved in romantic or marital relationships also reflect this asymmetry. In such relationships, *anh* is consistently used to refer to the male, and *em* to the female, partner. Even though *anh* and *em* denote persons of the same generation, in the hierarchy of Vietnamese kinship terms those addressed as *anh* are always of higher rank (owing to their having been born either earlier than those addressed as *em* or to a person of higher rank compared to the parents of *em*). The <age> and <relation> parameters, despite being generally the dominant factors in address term calculation in both family and social contexts, are overridden by the <gender> parameter in this instance. (The southern dialect presents another interesting case. Here the relevant pair of pronouns involves *qua* and *bậu*: *bậu* is used by males to address their lover or wife, and *qua*, when used

in conjunction with *bậu*, is understood as a self-address term for males. Thus, this pair only allows males to use these terms of address; there exists no correspondent pair for female addressers.)

## 2.2 Group B: (Currently) gender-neutral terms

Group B comprises 24 words and phrases that were once denotatively gender-marked yet appear to be gender-neutral in contemporary usage. They are *generic* linguistic items used to denote both sexes in instances when the sex of the referent is not specified. Of this group of items, 92% of the terms collected from *Vietnamese Dictionary* source contain a [+male] feature, while only 8% contain the [+female] feature – specifically, *bà con* ‘relatives’ (lit. ‘grandmother and grandchild’) and *vú bô* ‘old domestic helper’ (lit. ‘nanny and old servant’); the corresponding set from the *Vietnamese Idioms* source has percentages of 62% and 38%, respectively.

Although they may be used in a generic sense, these items may at times create a gender vagueness due to the impression triggered by their original gender feature. Items containing originally [+male] feature could be placed in a scale of ambiguity (in the sense that certain items also trigger a [+male] reading besides a generic reading), with *anh* (as a 3rd-person singular indefinite pronoun), *đàn anh* ‘seniors’ (lit. ‘male senior’), *bằng anh bằng em* ‘to be equal to others, especially siblings or relatives (in terms of wealth, achievement, etc.)’ (lit. ‘to be equal to elder brother and younger siblings’), *cha già nhà dột* ‘challenging family circumstances’ (lit. ‘old father and leaky house’), etc. on the [+gender ambiguous] end and *cậu* (as an address term used between young peers), *đệ tử* ‘follower’ (lit. ‘younger brother and son’), *phụ huynh* ‘someone responsible for the education of a student in their household’ (lit. ‘father and elder brother’) on the [–gender ambiguous] end.<sup>1</sup> Note that while not one [+female] equivalent exists on the [–gender ambiguous] end, items on the other end may have corresponding [+female] forms (e.g., *đàn chị* ‘female seniors’, *bằng chị bằng em* ‘to be equal to other females’). These forms, however, cannot normally be used gender-neutrally and are reserved for female referents, as reflected by the translation.

It is also worth noting that although [+female] items in group B do exist (albeit in low numbers), they are qualitatively different from the [+male] items of the same group. Among idiomatic phrases, 83% of the 23 [+female] expressions present derogatory female images, for example, as prostitutes or as images of females in

1. This use of *anh* is similar to that of English *one* and French *on* which both roughly mean “a person”. The pronoun is commonly seen in general statements and does not refer to any specified person.

family confinement, especially associated with their offspring. Examples of the first kind include *dạy đĩ vén xống* ‘to teach fish how to swim’ (lit. ‘to teach a prostitute how to lift up her skirt’), *gái đĩ già mồm* ‘verbosely argumentative (person)’ (lit. ‘verbosely argumentative prostitute’), *làm đĩ đòi có văn tế Nôm* ‘to rise above one’s station’ (lit. ‘a prostitute demanding a Nom funeral oration’); those of the second kind include *con có khóc mẹ mới cho bú* ‘if you don’t ask, you don’t get’ (lit. ‘a mother only breastfeeds her crying baby’), *làm dâu trăm họ* ‘to be all things to all men’ (lit. ‘to be the daughter-in-law of a hundred families’), *con hát mẹ khen hay* ‘each bird loves to hear himself sing’ (lit. ‘a mother praises her kid’s singing’)).<sup>2</sup> Conversely, 51% of the 37 [+male] idioms depict male images associated with high social positions (e.g., *quan huyện phải gai* ‘to make a mountain out of a molehill’ (lit. ‘district chief is pricked by a thorn’), *quan phủ đi quan tri nhậm* ‘out of the frying pan and into the fire’ (lit. ‘one provincial chief departs, another arrives’), *khen phò mã tốt áo* ‘to state the obvious’ (lit. ‘to compliment the prince consort on his garment’)) or with social respect (e.g., *nhờ ông vãi húp nước suýt* ‘to be a hanger-on’ (lit. ‘to get to drink broth thanks to one’s male ancestor’), *thay thầy đổi chủ* ‘to be disloyal to one’s superior’ (lit. ‘to change one’s male master and owner’), *ngỗng ông lễ ông* ‘nothing comes for free’ (lit. ‘to offer a man his own goose’)).

Linguistic metaphors, which essentially carry cultural values of a discourse community, can also incorporate negative or sex-related connotations when denoting females. Among Vietnamese slang expressions, *le le* ‘lesser whistling duck’ and *vịt trời* ‘mallard’ are understood as female children and *gà* ‘chick(en)’ as young attractive women. In addition, a number of words (chiefly denoting animals) combine with [+female] markers for animals *cái/nái* to yield nominal phrases (e.g., *chó cái* ‘bitch’, *cọp cái* ‘tigress’, *sư tử cái* ‘lioness’, *quỷ cái* ‘demoness’, *heo/lợn nái* ‘sow’) that denote females with a derogatory implication, while their [+male] equivalents are either absent or connotatively neutral.

The aforementioned points continue to highlight the gender disproportion in Vietnamese. On the one hand, there exists a preference for choosing originally [+male] words and phrases to denote either sex, while reserving [+female] terms for describing or referring exclusively to females. On the other hand, where originally [+female] items are employed to express gender-neutral concepts, these generally portray negative or at least socially undervalued images of the female. (See Pham 2002: 289–290, for a similar analysis based on the data of Vietnamese proverbs.)

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2. Related to the depiction of women in family confinement is the conceptual grouping of women and their children as seen in *thê trúc tử phọc* ‘to be restricted by one’s wife and children’, *con thơ vợ dại* ‘innocent children, unworlthy wife’, and so forth.

### 2.3 Groups C and D: Terms unspecified for gender

The 534 items of group C and 181 items of group D are similar in not containing any of the gender-marked morphemes that characterize subgroups A.1.2 and A.2.2. However, they differ from each other in that group C involves items associated with prototypical gender roles, group D does not require any gender specification, but allow referents of only one sex per item.

As with all of the other groups, with regard to items denoting socio-occupational positions and titles, group C contains a large number of archaic terms. With respect to subgroups A.1.2 and A.2.2 such terms have been replaced by newer forms in the contemporary usage, as society has grown to be more tolerant of gender diversity in social roles (e.g., the replacement of *thông ngôn* ‘interpreter’ by *phiên dịch viên*, or *trưởng tràng* ‘class monitor’ by *lớp trưởng*), or when these social positions have ceased to exist due to historical changes (e.g., the loss of *bách đình* ‘village commoner’, *cống sĩ* ‘candidate for the Imperial Examination’, *đốc phủ* ‘provincial chief (in South Vietnam during French colonization)’). In contrast, terms belonging to group C are still currently in use but their gender feature can only be traced in the connotation due to the weakening of original social role differentiation based on gender: such terms include *chưởng lý* ‘attorney general’, *đại sứ* ‘ambassador’, *học giả* ‘scholar’, and *sát thủ* ‘assassin’. Group D comprises both obsolete words (e.g., *cổ nhân* ‘old flame’, *đồng đạo* ‘fellow believer’, *gia nô* ‘house servant’) as well as more recent ones (*giáo viên* ‘teacher’, *thực tập sinh* ‘intern’, *tuyên truyền viên* ‘propagator’), and those whose gender specification is either insignificant or impossible due to a generic sense granted (e.g., *cử tọa* ‘attendance’, *nhà chức trách* ‘authority’, *tôi tớ* ‘subject’).

Consistent with Jakobson’s definition of marked/unmarked, items typically used for males (e.g., *thẩm phán* ‘judge’, *phi hành gia* ‘astronaut’, *phi công* ‘pilot’) are ambiguous between a generic category that disregards the sex of their referents, and the specific marker of [+ male] in opposition to the marked female term. Inspired by Greenberg’s (2005: 25) words, it can be stated that even though the [+male] feature here is not located in the denotation as in the case of group A, or specified on the morphemic level, these items are used chiefly but not exclusively to indicate the absence of a [+female] feature. Thus, these items are prototypically male. Similarly, denotatively gender-neutral items indicating occupations or positions traditionally taken by females (e.g., *thư ký* ‘(personal) secretary’, *y tá* ‘nurse’, *tiếp viên* ‘steward’) are chiefly used for females, even though male referents are not absolutely excluded.

The notion of social gender helps to explain the existence of a gender-marked connotative meaning in group C items, which are mainly phrases denoting occupations or social positions. In line with groups A and B, a gender asymmetry is also observed with respect to this group, as many items are commonly tagged by the discourse community with a connotative gender feature in spite of being

gender-neutral in denotational terms. 98% of all items in group C are connotatively [+male], compared to a mere 2% of connotatively [+female] terms.

The percentage calculations presented above clearly demonstrate that explicit gender-marking within group C is overwhelmingly related to females, meaning that gender-marking is chiefly employed for feminization. To denote the [+male] feature, the default, genderless, form is sufficient – unless social gender roles favor the opposite sex, so as to cause a semantic conflict. In principle, the gender distinction of the signified into [+male] and [+female] is relatively balanced with [human] as their superordinate. However, the mapping of this distinction onto the lexicon is highly skewed, since [+male] is generally unmarked, and since the majority of [+male] linguistic items in group (C) in fact function as super-ordinates; see Doleschal (2015), Waugh (1982).

Independently of this, it is interesting to note that the linguistic bias in favor of men has in fact weakened over the generations. This can be attributed to the fact that a great number of archaic words which were once denotatively [+male] have either dropped out of contemporary usage, with or without replacement by newer terms, or have been forced to ‘relocate’ their [+male] feature from denotation to connotation. Thus, despite an overall remaining patriarchal bias, there is an observable increase in the proportion of semantically – or at least connotatively – gender-neutral terms, reflecting a progressive change in social attitudes about appropriate gender roles. See Pham (2002) for a discussion of developments in terms of address and self-reference since the 1950s.

## 2.4 Attributive modification

Since a generic reading is restricted to unmarked items, only marked items indicate exceptional and unrepresentative instances, and need to be explicitly marked by a gender-definite morpheme. So, while *thẩm phán* can in principle refer either to male or female officials – although the male reading is still prominent – *nữ thẩm phán* ‘female judge’ is only compatible with female referents. Similarly, *y tá nam* ‘male nurse’ only allows male referents, in contrast to (simple) *y tá*, which may be used for both sexes, although the contemporary cultural context is tilted toward a female reading. Explicit gender-marking also creates gender-definite phrases denoting humans (or other animals in general) when the sex of the referent requires mentioning, or when the contrast in gender needs to be highlighted. With regard to the (denotatively gender-neutral) items in groups C and D, gender-marking is typically realized through attributive adjectives and nouns.

In the case of gender-marked adjectives, *nam/nữ* and *trai/gái* are attached to human-denoting nouns, while *đực/cái* and *trống/mái* are paired with non-human nouns. Etymology determines the split between *trai/gái* and *nam/nữ*, the latter pair



of attributive terms being associated with Sino-Vietnamese items.<sup>3</sup> The head-final nature of Chinese means that the modifiers *nam/nữ* typically precede the head noun in compounds, as can be seen in *nữ phi công* ‘female pilot’, *nữ lực sĩ* ‘strongwoman’, *nam hộ lý* ‘male nurse aide’, for example. However, since compounding functions within a Vietnamese lexicon, the process is affected by the general head-initiality of native compounds such that *nam/nữ* may also follow the noun head (e.g., *phi công nữ, hộ lý nam*).

In the case of the non-human denoting referents, the modifiers *đực/cái* and *trống/mái* behave like *trai/gái* in consistently following native-derived head nouns.

A second means of gender marking involves the use of denotatively gender-definite address terms (e.g. *ngài/bà, ông/bà, anh/chị, thằng/con, ả, mu, gã*); these are mainly – though not exclusively – adopted from the kinship term system. These morphemes typically precede the noun, in apposition to the base constituent, as in *ngài đại sứ/ bà đại sứ* ‘Mr. ambassador/ Madam ambassador’, *ông giáo sư/ bà giáo sư* ‘male professor/ female professor’, *anh công nhân/ chị công nhân* ‘male worker/ female worker’, etc. However, there are instances when the opposite ordering is also acceptable, although with alterations in their meaning: these include *sư ông/ sư bà* ‘senior Buddhist monk/senior Buddhist nun (in terms of monastic age)’, *quan ông/ quan bà* ‘mandarin/ wife of mandarin’ – the opposite ordering is ruled out in the case of *sư thầy/ sư cô* ‘Buddhist monk/ Buddhist nun’. These address terms may also be combined with verbs denoting typical occupational activities to form gender-marked phrases describing occupations, such as *ông mai* ‘male matchmaker’, *bà giáo* ‘female teacher’, *anh sửa xe* ‘male bike mechanic’, *cô bán quần áo* ‘female clothes seller’.

Thus, there exist two types of gender-marking devices in Vietnamese, one consists of four word pairs of attributive adjectives, and the other of all gender-definite address terms. Even here, as Pham (2002: 288) points out, the gender-marker *ngài* also displays a gender asymmetry: *ngài* as “a word used to respectfully address men of high social statuses in past societies” (Hoàng 2006: 667) lacks a proper [+female] equivalent, which results in the borrowing of the kinship term *bà*.

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3. Sino-Vietnamese items as understood here are linguistic elements that can be traced back to “Chinese items that entered the Vietnamese language along a “scholastic” way, chiefly through administrative texts which were written in Classical Chinese even in those dynasties whose independence was won.” (Cao 2003: 80). These contrast with native Vietnamese words, which are understood here both as “Vietnamese words whose root could be found in a “parental” language (...) of its own” and as loan words ““of everyday nature” which were gradually assimilated by the native speakers (...), were used in the same way as the native lexicon, and could no longer be perceived as foreign words by the native speakers of the next several generations” (Cao 2003: 79–80).

## 2.5 Ordering in coordinated N-N pairs

The unmarked ordering of mixed-sex morphemes in coordinated compounds or idioms is typically male-before-female in Vietnamese (e.g., *trai gái* ‘boy (and) girl’, *ông bà* ‘grandfather (and) grandmother’, *cha mẹ* ‘father (and) mother’, *thầy cô* ‘male teacher (and) female teacher’).<sup>4</sup> This syntactic phenomenon could once again be viewed as reflecting the conventional social hierarchy grounded on the preference for males over females.

The picture is actually more complicated, since in many instances only the reverse order is accepted (e.g., *cô chú* ‘father’s sister (and) father’s younger brother’, *đì dưỡng* ‘mother’s sister (and) her husband’, *dâu rể* ‘daughter-in-law (and) son-in-law’, *đào kép* ‘female vocalist (and) male lute player’). That being said, these conjuncts do not only differ in terms of their semantic specification as male or female. From a purely semantic viewpoint, we suggest that in the case of *cô dưỡng* and *đì dưỡng*, the <consanguinity> parameter overrides the <gender> parameter. As for *dâu rể*, one’s daughter-in-law is generally more favored for being the spouse of one son; in contrast, one’s son-in-law is the spouse of a daughter, who are traditionally viewed as no longer a members of the family once married off (compare. *nữ sinh ngoại tộc* ‘daughters are outsiders’).<sup>5</sup> In the case of *đào kép*, it may be assumed that since *the* vocalist is the central part of *ca trù* – a Northern Vietnamese ancient genre of musical performance, *đào* must go before *kép* (referring to a male lutist who plays a support role). Other names in *ca trù* such as *hát cô đầu* and *hát ả đào* are also consistent with this explanation in which the terms for the female vocalist (i.e. *cô đầu* and *ả đào*) are used to indicate the entire genre.<sup>6</sup>

Whereas *chồng vợ* ‘husband and wife’ and several idioms of the same ordering are all acceptable (cf. *chồng chung vợ chạ* ‘couple engaging in adultery’, *chồng loan vợ phượng* ‘happily married couple’, *chồng chúa vợ tôi* ‘husband is the head of his wife’), the reverse (female-before-male) ordering is also found (as in *vợ chồng* ‘wife and husband’, *dựng vợ gả chồng* ‘to marry off’, *thuận vợ thuận chồng* ‘harmonious married couple’). The specific case of *cô chú* is complicated in having two competing readings for *cô*: if *cô* is [+older than father] then the aforementioned ordering is controlled by the <age> parameter, if *cô* is [–older than father] then we have one more construction with the [+female] component up front.

4. Note that none of the combinations whose meaning is deducible from those of the individual words are to be found in Hoàng (2006).

5. This attitude is also reflected in the proverb *Dâu con, rể khách* ‘daughters-in-law are family, sons-in-law are visitors’.

6. *Cô bác* shares the same superficial structure with *cô chú*, yet unlike the latter expression, it is not used to denote one’s relatives, but to persons in the same generation with one’s parents collectively.

### 2.5.1 *Alternative explanations*

Phonetic and prosodic factors may also play a role. One consideration is that shorter or lighter elements are generally observed to precede longer/heavier elements; see Arnold, Lesongco, Wasow & Ginstrom (2000). Since all the pairs in question are monosyllabic, we consider the number of phonemes here in lieu of the number of syllables. In their examination of English conjunct ordering, Cooper and Ross (1975) also suggest that relative vowel length to be a factor determining the order in N-N pairs: the second constituent tends to have “longer resonant nuclei” (Cooper & Ross 1975: 71). While this might also explain the order of *cô dương*, *dì dương*, *vợ chồng*, and other conjuncts of the same length asymmetry, it fails to account for *dâu rẻ*, which exhibits the reverse asymmetry. It is also unclear how *cô chú* and *đào kép* could be accounted for purely in terms of phonological constraints. Fenk-Oczlon (1989) claims that the conjunct frequency can also be a good indicator, with the less frequent constituent following the more frequent one. However, an in-depth corpus study to determine the token frequency of each member of N-N pairs is beyond the scope of this paper.

Concerning the rigid ordering of gender-marked morphemes in Chinese, Ettner (2002) offers the following remark:

This phenomenon exists as a grammatical rule which, in essence, requires that gender-specific words be ordered within noun phrases (NP) so that the male-gendered constituent precedes the female gendered constituent. To reverse the prescribed order and place female ahead of male renders the sentence ungrammatical. (Ettner 2002: 38)

Many of these coordinated compounds were borrowed into Vietnamese (e.g., *phu thê* ‘husband (and) wife’, *phụ mẫu* ‘father (and) mother’, *loan phụng* ‘male (and) female phoenixes’, *uyên ương* ‘male (and) female Mandarin ducks’): none of them allows the two gender-opposite morphemes to switch around to form an opposite order. Conversely, many gender-opposed native morphemes are able to swap places to form parallel orders (e.g., *trai gái* – *gái trai*, *cha mẹ* – *mẹ cha*, *thầy cô* – *cô thầy*).<sup>7</sup> These and the aforementioned cases of *cô chú*, *dì dương*, *dâu rẻ*, *đào kép*, etc. reveal that the gender distinction is not the most fundamental distinction in native Vietnamese words, since in many instances it can be overridden by other semantic parameters (such as <consanguinity>, <degree of (social) importance>), by certain phonological constraints, or by other constraints that are yet to be determined.

7. If, as has been argued, the preference of males over females in Vietnamese mixed-sex conjuncts reflects the patriarchal mentality of past societies (which were heavily influenced by Confucianism during the Chinese domination of Vietnam), then a purely semantic analysis might attribute the opposite ordering to matriarchal traditions of more ancient Vietnamese society.

In short, there exists a clear tendency in Vietnamese gendered compounds for the [+female] constituent to appear second. This comes in spite of the obvious presence of the reverse ordering in many non-Sino-Vietnamese dyads – either as an alternative, or as the only acceptable coordination order. Regardless of what combination of factors yields this preference, we suggest that the male-over-female hierarchy does not play an absolutely determining role in fixing the internal structure of Vietnamese gendered conjuncts (in contrast to what is found in their Chinese counterparts). In this particular respect, therefore, it may be concluded that Vietnamese exhibits a weaker sexist bias against women, at least when compared to Chinese. Needless to say, more thorough and comprehensive comparative works need to be conducted before one could reasonably place Vietnamese on the sexist scale of linguistic representation.

### 3. Asymmetries in gender-neutral lexical items

Our investigation of the 376 items whose denotation contains no mention of gender yet which are compatible exclusively with one specific sex – henceforth referred to as group E – shows that 68% of these are used exclusively for female referents. This disparity is even clearer for the 77 idioms of this group; here, 77% expressions are exclusively compatible with females. This is the first instance in our study where [+female] feature-related items comprise the majority.

Twenty-one out of these 77 idioms are based on plant metaphors. The set includes: *mây liễu mắt hoa* (lit. ‘willow leaf-like eyebrow, blossom-like face’), *sen nõng đào tơ* (lit. ‘lotus bud, young peach’), *má đào* (lit. ‘peach-like cheek’), *gót sen* (lit. ‘lotus heel’), all of which denote the physical beauty of young females; *ủ liễu phai đào* (lit. ‘gloomy willow, withered peach’), which denotes the sorrow of young females; *mãn nguyệt khai hoa* (lit. ‘(the time of) full moon and blossoming’) or *khai hoa nở nhụy* (lit. ‘petals and pistil blooming’), which denote females in labor; *hoa thải hương thừa* (lit. ‘discarded flower, unwanted scent’) or *hoa tàn nhị rữa* (lit. ‘decayed petals, rotten pistil’), which denote withered beauty, or lost virginity; finally, *buôn hương bán phấn* (lit. ‘to sell scent and pollen’) denotes female prostitution. Once flower-related terms are conceptually understood as women, men engaging in romantic relationships with them are conceptualized as *ong* ‘bee’, *bướm* ‘butterfly’ (e.g., *bướm lả ong lơ* (‘to flirt’, lit. ‘butterflies and bees fooling around’), *bướm chán ong chường* (‘to lose romantic interest’, lit. ‘surfeited butterflies and bees’) or are seen as the Agent or the Experiencer of states of affairs in which women are construed as the Patient or the Stimulus (*hoa thơm đánh cả cụm* (‘to engage in romantic relationship with women who are siblings to each other’, lit. ‘to pick the entire cluster of sweet-smelling flowers’), *vùi hoa đập liễu* (‘to mistreat women’, lit.

‘to abuse flowers and willows’), *say hoa đằm nguyệt* (‘to dote on women’, lit. ‘to dote on flowers and the moon’), etc. Of 91 terms describing physical appearance, 24% are used exclusively for males, compared to 76% for females. Of 27 items describing positive character attributes, only 30% are used exclusively for males.

The exclusively male terms typically denote ideal and noble virtues for males in earlier stages of Vietnamese society: *hào hiệp* ‘galant’, *lịch lãm* ‘cultured’, *mã thượng* ‘chivalrous’, *nho nhã* ‘refined’, *hiển minh thánh trí* ‘sagacious’, for example. Closely associated with these terms are those referring to achievements and duties expected of males in these social contexts: e.g., *kinh bang tế thế* ‘to govern the state and to save the world’, *phi chí tang bồng* ‘to satisfy extraordinary ambitions’, etc. By contrast, the 70% of terms used exclusively for females tend to be concerned with Confucian interpretations of women’s virtues of work and duties: *đảm đang* ‘effective (in household affairs)’, *tân tảo* ‘with a parsimonious care in difficult situations’; *đoan chính* ‘upright’, *hiền thực* ‘tenderhearted’, *kiên trinh* ‘faithful’, etc. Closely associated with these virtues are the following deeds: *nâng khăn sửa túi* ‘to care for one’s husband’, *tế gia nội trợ* ‘to attend to household affairs’, *buôn tào bán tảo* ‘to be a laborious trader’; *cười duyên* ‘to smile with grace’, *làm duyên* ‘to charm’, *thủ tiết* ‘to be constant (of widow who remains unmarried)’, *tòng phu* ‘to obey one’s husband’. In addition to these female virtues, the list also includes words referring to character flaws and vices, such as *chanh chua* ‘sharp-tongued’, *cong cốn* ‘shrewish’ and *nặc nô* ‘vulgar-mannered termagant’.

Closely related to uxorial virtue are terms relating to virginity and chastity, which account for 53% of all character-denoting items: such terms include *đoan trinh* ‘chaste and decent’, *đồng trinh tiết liệt* ‘virgin and faithful’, *trắng trong* ‘innocent’, *trinh bạch* ‘virginal’, and *trinh nguyên* ‘pure’.

(On a related note, Nguyễn (2004: 30) draws attention to the absence of [+male] equivalents of *tiết phụ* ‘widow who remains unmarried’, *quả phụ* ‘widow’, and *trinh nữ* ‘virgin’. Moreover, there exists (*trốn chúa*) *lộn chồng* ‘to be unfaithful to one’s husband’ as an insult specifically referring to females; there is no male counterpart (*lộn vợ* ‘to be unfaithful to one’s wife’).

In addition to emphasizing of the idea of virginal purity, there exist a relatively sizeable number of items – 16, to be precise – perceived as antonyms of chastity: *đĩ thõa* ‘whorish’, *lãng loạn* ‘licentious’, *lãng lơ* ‘immoral’, *thất tiết* ‘unfaithful’, etc.; *mãi dâm*, *buôn hương bán phấn* ‘to prostitute’, etc.

In terms of noun phrases, only 30% of items are exclusively compatible to males, and 70% of 14 items only compatible to females denote feminine beauty and virtues.<sup>8</sup> We suggest that these figures and several aforementioned summarizations

8. The communication of gender in lexical items of group A is also realized by metonymy through referring to stereotypical physical attributes, appearances, outfits, etc. of each gender. Most of these

highlight the interest taken by past societies had in female characteristics. Moreover, the expectation imposed upon the two sexes in the past were noticeably disparate: while a man was expected to be the master of his fate and to provide support for others, terms such as *phận* ‘fate’, *kiếp* ‘pre-destined life’, *duyên* ‘pre-destined affinity’ were chiefly applied to females. And whereas the ideal model for males was one of great inherent talent, the ideal model for females primarily stressed physical attractiveness (rather than virtue), as evidenced by the idiomatic phrases *trai tài gái sắc* and *tài tử giai nhân* ‘talented man (and) beautiful woman’.

It should also be noted that a large number of items in this group – as well as many gender-definite Sino-Vietnamese bound morphemes – have long been used to form proper nouns. These carry their original semantic features and are normally understood as reflecting the gender-determined aspirations parents have upon their offspring. The perception of proper nouns by native speakers triggers not only denotative meanings but also certain gender-restricted connotations through the essential reference to the Vietnamese socio-cultural context. This explains why a given proper noun could be perceived as generally or necessarily masculine (or feminine), although unisex names are not very uncommon. Accordingly, a name such as *Mạnh* (lit. ‘physically strong’) is perceived as more “appropriate” for males as the feature of physical strength is more closely associated with males, even though that feature could reflect a parental aspiration for both sexes.

The analysis presented above shows that Vietnamese expressions which collocate with gender-denoting forms or denote a specific gender generally preserve the stereotypical images of men and women. While the female-compatible words and idioms are disproportionately associated with physical attractiveness and virtues of wifely work and morality (or the lack thereof), the male-compatible ones are dominantly concerned with what society deems manly virtues. The language also reflects the traditional assignment of women to a passive social role which is subject to control by an active social male role. The percentage distributions in group E, especially among idioms – which are widely considered a reliable source of cultural beliefs and social norms – further demonstrates the more intense expectations the society has of women in terms of the aforementioned characteristics.

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lexical entries denote females: *hồng nhan* (lit. ‘rosy(-cheeked) face’), *hồng quần* (lit. ‘red skirt’), *quần thoa* (lit. ‘skirt (and) hairpin’), *giai nhân* (lit. ‘fair person’), *phái yếu* (lit. ‘weaker sex’), etc.

#### 4. Gender and semantic shift

Gender-related semantic shift is normally associated with pejoration in [+female] items, that is, the development of negative and (typically) sexual connotations in items that were once connotatively gender-neutral. In Vietnamese, there exist [+female] phrases with at least two meanings where the derived – and generally negative – meaning has no [+male] equivalent. For example, in its neutral sense *bà cô* is the [+female] counterpart of *ông chú/ ông bác* ‘father’s younger brother/ father’s older brother’: it has the meaning “father’s younger or elder sister” (Hoàng 2006: 202). Also, as the counterpart of *ông mãnh* ‘an old man who died unmarried’ the expression means “a spinster, or a girl of marriageable age who died a virgin or without being married” (Hoàng 2006: 22). However, there is no [+male] counterpart for the meaning of *bà cô* as “a cranky and acrimonious woman (chiefly used as an offensive word) (Hoàng 2006: 22).”

Analogously, there exist the derived meanings of *bà trẻ* as a grandfather’s concubine (Hoàng 2006: 23) and of *đào* as synonymous with *gái điếm* ‘prostitute’, but their [+male] counterparts, i.e. *ông trẻ* ‘younger brother or brother-in-law of grandparents’ and *kép* ‘male artist in traditional Vietnamese music’, do not give rise to these extended meanings. While forming a gender opposition pair with *kép*, only *đào* implies derogation. On the same note, where *em út* may refer to both sexes where it simply denotes denotes ‘youngest sibling’ it only refers to females in the context of a romantic relationship (Hoàng 2006: 362).

Certain adjectival phrases exhibit special meanings depending on whether they combine with a [+male] or a [+female] marker. For instance, the expression *giang hồ* ‘belonging to the underworld’ when combined *gái* ([+female]) to form the noun phrase *gái giang hồ* is synonymous with *gái điếm* ‘prostitute’; by contrast, a male described as *thạo đời* or *trải đời* is understood as ‘being worldly-wise’, whereas if assigned to a female the expression would imply sexual promiscuity. A woman *đẽ dãi* is usually understood as ‘not being virtuous’, a woman *lâm lỡ* as ‘having lost the virginal status (especially where it resulted in a child born out of wedlock)’. Sex-related implications in a large number of female-denoting items are all rooted from one typical aspect of the traditional view on women: physical attractiveness. This abnormal emphasis renders females subjected to sexual objectification and gradually fosters the growing of sexual connotations or undertones.

The pejorative development of the aforementioned female-denoting words and phrases could be attributed to the traditional social hierarchy which imposes a sexist attitude against women. However, we suggest that this should be viewed instead as an indirect cause, and propose that the employment of terms that were once connotatively neutral in fact originated from an attempt to avoid using derogatory terms to refer to or describe women. This analysis is in line with Kim’s (2008: 171)

discussion of the terms *akassi* and *enni* in Korean, in respect of which semantic pejoration is argued to be rooted in “the social conditions of women’s inferior occupational standing”, as well as in “an effort to be polite that led speakers to adopt positive female terms to address and refer to women who have a lower occupational status.” Indeed, it is observable that the tendency to employ connotatively positive or neutral terms to denote or describe persons of low socio-occupational status has gradually created a ‘semantic taint’ side effect which subsequently pushed these terms farther down the pejoration path.

## 5. Conclusion

The aim of this study has been twofold: to investigate the expression of gender in the Vietnamese lexicon and the means for gender-marking, especially in relation to lexico-semantic structures and selectional restrictions, and to shed light on the gender asymmetries reflected in the language.

Our study confirms the gender bias in Vietnamese, in terms of the following measures: (i) the larger proportion of [+male] items denoting higher social roles and the much finer-grained distinctions among paternal kinship terms; (ii) the established tendency to treat the male as the unmarked, default gender, i.e. to encode the female as part of the male in [+male] items contemporaneously used with a generic sense; (iii) the widely attested precedence of the [+male] morpheme in mixed-sex conjunct coordination; (iv), the disproportionate ratio of negative, socially undervalued, or passive images in a set of female-denoting terms, and the pejorative development of items combined or collocated with female-denoting lexicon; (v) the absence of [+male] equivalents for [+female] negative terms and expressions.

We have argued that this gender discrepancy is ultimately rooted in a traditional social hierarchy which accentuates the importance and superiority of the male, as well as from the stereotypical expectations about exclusive social functions and values in Vietnamese society. However, these gender biases appear to have been weakened by socially progressive changes, which has resulted in a reduction of gender-marked words and phrases in the contemporary usage. In terms of mixed-sex conjuncts, we consider contemporary counter-examples to the male-before-female macro pattern as evidence of a weakening in the male dominance mindset in Vietnamese.

Finally, we suggested that semantic pejoration in gender-neutral terms that combine with female-markers is the – rather undesired – side effect of an effort to avoid evoking the derogation in female-denoting slurs.

The question of how sexist Vietnamese actually is compared with other languages goes beyond the scope of this work, and must remain a topic for further research.



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# Effects of grammatical roles and parallelism on referential form production in Vietnamese spoken and written narratives

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This study investigates the use of null and overt pronouns and noun phrases in Vietnamese spoken and written narratives, with a focus on referents' grammatical roles and grammatical parallelism. Looking at Vietnamese allows us to address questions left open in prior work regarding the effects of pronominal form (null, overt) on reference resolution in different grammatical positions. Furthermore, looking at the use of Vietnamese pronouns adds typological breadth to the literature on reference resolution: Vietnamese overt pronouns differ typologically from pronouns in English-type languages as they also function as kin terms. Results from data we collected involving spoken and written narratives show that referential form choice is influenced not only by the grammatical role of the antecedent but also the grammatical role of the pronominal element. When the subject of the current clause refers to the subject of the preceding clause (subject parallelism), we find a high rate of (null and overt) pronouns. Lack of parallelism triggers mostly NPs. When the object of the current clause refers to the object of the preceding clause (object parallelism), more pronouns were produced than in non-parallel cases. Crucially, we find no clear differences in the distribution of null vs. overt pronouns, suggesting that grammatical roles and parallelism have the same effects on both pronoun types. Our results also show no effects of written vs. spoken modality, which indicates that modality does not play a role in the interaction between grammatical factors and referential form choice.

**Keywords:** reference resolution, pronouns, Vietnamese, subjecthood, parallelism, narrative

## 1. Introduction

It is widely agreed that entities in a discourse vary in their salience/prominence: At a particular point in time, some entities are more salient or prominent in the discourse participants' mental models than other entities. Prior work suggests that the salience level of entities influences speakers' referential form choice as well as comprehenders' interpretation of referential forms (Ariel 1990; Givón 1983; Gundel et al. 1993). It is frequently suggested that more reduced referential forms tend to be used for highly salient referents while fuller referential forms tend to be used for less salient referents. Thus, if a language has both null and overt pronominal forms, null pronouns are often used to refer to highly salient referents while overt pronouns are used to refer to less salient referents, as shown in (1).

- (1) *Most salient referents* ----- *Less salient referents*  
 Null pronouns            Overt pronouns            NPs

The claim that there exists a relationship between the salience of the referent and the type of referring expressions leads to the question of what influences how salient referents are. Prior work indicates that referents' salience<sup>1</sup> can be influenced by a number of factors, including the grammatical role of the antecedent (for example, subject *vs.* object) (Chafe 1976; Crawley & Stevenson 1990) and whether the pronoun and its antecedent occupy parallel grammatical roles (i.e. both elements are in subject position or in object position) (Smyth 1994; Chambers & Smyth 1998). The work we report in this paper builds on this insight that referential form use depends not only on the grammatical role of the antecedent but also on the grammatical role of the anaphoric form. As we discuss below, theories of referential form cannot focus solely on a notion of salience derived on the prior realisation of the antecedent but also have to take into account the argument structure of the anaphor-containing sentence.

Many of the fundamental studies on grammatical parallelism effect have largely focused on English and English overt pronouns (e.g., Smyth 1994; Stevenson et al. 1995; Chambers & Smyth 1998). Consequently, even though it is widely known that

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1. Terms such as 'referent' and 'referring expression' are standardly used in psycholinguistic work on pronoun interpretation and production. In this paper, we use the term 'referent' to mean not only the entity in the world that a certain linguistic element picks out, but – more relevantly for our present purposes – the linguistic realisation of that entity. Thus, we will often say, for the sake of brevity, that a particular referring expression refers to a preceding subject or object – even though this is not strictly speaking correct, since the referring expression refers not to the grammatical role of subject or object but to the entity which occurs/is linguistically realised in subject/object position.

null and overt pronouns across languages have different properties (e.g., Spanish: Alonso-Ovalle et al. 2002; Italian: Carminati 2002; Japanese: Clancy 1980; Chinese: Li & Thompson 1979), to the best of our knowledge, little is known about the extent to which grammatical parallelism can affect the comprehension and production of null and overt pronouns.

In this paper, we report a narrative study on Vietnamese, a language that allows null and overt pronouns in both subject and object position. We examine how and whether Vietnamese speakers' choice of referential forms, particularly null and overt pronouns, is influenced by (i) *the grammatical role of the antecedent* and (ii) *the grammatical role of the referring expression* – in particular, whether they have the same grammatical role (grammatical parallelism) or not. Thus, the first aim of our work is to shed light on referential form choice in a context where the alternation between null and overt pronominal forms has not previously been systematically considered. Our second aim is to investigate potential differences between spoken and written language in the use of referential forms, i.e. possible effects of language 'modality' – the physical means used to express language, with speech, writing or gestural communication. Prior work suggests that spoken and written language differ with regards to kinds of referential forms that are regularly produced in these different modalities (see Chafe & Tannen 1987 for an overview). Generally speaking, it has been suggested that pronouns are more common in spoken than in written language, and that full NPs are used more frequently in written language (e.g., Biber et al. 1999; Christensen 2000). However, these studies mostly discuss overall counts and many of them contain data from different genres with various levels of formality. Thus, it is difficult to know whether the differences are due to modality *per se* or to other properties that have been correlated with modality in these prior studies.

Thus, in the current study, we carefully consider the effect of modality (written vs. spoken) on the choice of referential form, while keeping the genre and level of formality constant by using explicit instructions. This allows us to test for potential differences between written and spoken language more directly.

The structure of this paper is as follows: In the remainder of Section 1, we discuss previous findings on the effects of grammatical role, grammatical parallelism and modality on referential form interpretation and production. We also discuss the nature of the Vietnamese pronominal system and compare it to other *pro-drop* languages and other pronominal systems. In Section 2, we describe the spoken and written narratives tasks that we used to elicit data as well as how the data was analyzed. Section 3 presents the results from the written and spoken tasks and provides a comparison between the two types of data. Section 4 discusses the implications of our findings, compares them to findings from other languages, and outlines directions for future work.

## 1.1 Grammatical roles and grammatical parallelism

One well-known factor that influences referents' salience is grammatical role (i.e. being realised in subject or object position) (Chafe 1976; Brennan, Friedman & Pollard 1987; Crawley & Stevenson 1990; see also Gordon, Grosz, & Gilliom 1993; Gordon & Chan 1995; Perfetti & Goldman 1974). To identify salient referents, prior work has often used pronoun interpretation or subsequent mention likelihood as a diagnostic. In one of the earliest works on this topic, Chafe (1976) presented a number of observations and argued that subjects indeed have a special prominent cognitive status – for example, that knowledge about subjects is more readily accessible than knowledge about other parts of sentences. The special status of subjects has been confirmed in many subsequent studies.

Recent work by Fukumura & van Gompel (2010) used sentence-continuation tasks to investigate whether and to what extent the production of pronouns in English is influenced by semantic biases (induced by verbs and connectives such as 'because') and the grammatical roles of potential antecedents (subject *vs.* object). Fukumura and van Gompel found that participants produced more pronouns (relative to names) when referring to the preceding subject than to the preceding object, regardless of the semantic biases of verbs and connectives. These results add to the body of literature showing that grammatical subjects are privileged as antecedents of subsequent pronouns.

The effect of grammatical roles is also reflected in parallelism effects (Smyth 1994; Stevenson et al. 1995; Chambers & Smyth 1998). Chambers & Smyth (1998) found that pronouns, at least in English, tend to prefer antecedents in matching grammatical positions: Pronouns in subject position tend to be interpreted as referring back to preceding subjects, and pronouns in object position tend to be interpreted as referring back to preceding objects. However, to the best of our knowledge, work on grammatical parallelism effects has focused on English (overt) pronouns and has not systematically looked at the null *vs.* overt pronoun distinction.

Although the null *vs.* overt distinction has not been investigated systematically in parallelism configurations, a large body of prior work has investigated the referential properties of null and overt pronouns in subject position. Before continuing on to review this prior work, it is important to note that broadly speaking, languages with both null and overt pronouns come in two types: *pro*-drop languages which have rich subject-verb agreement (i.e. 'agreement *pro*-drop languages'), and 'discourse *pro*-drop' languages (Barbosa 2011; Neeleman & Szendrői 2007), which typically lack verb agreement and permit *pro* in subject and object positions subject to discourse recoverability. Prior work on pronoun interpretation in agreement *pro*-drop languages such as Italian and Spanish has led researchers to conclude that the antecedent's grammatical role is crucial for the use and interpretation

of null and overt pronouns in subject position: while null pronouns tend to refer back to preceding subjects, overt pronouns tend to refer to preceding objects (e.g., Alonso-Ovalle et al. 2002; Carminati 2002, but see Fedele 2016 for some Italian data that points to a more nuanced picture).

## 1.2 Discourse *pro*-drop languages

In this paper, we focus on referential forms in a discourse *pro*-drop language – Vietnamese – for several reasons.<sup>2</sup> First, discourse *pro*-drop languages typically have null and overt pronouns occurring in both subject and object position. This distributional property allows us to expand the investigation beyond overt pronouns and subject pronouns. In addition, the availability of null and overt pronouns in both subject and object position means that we can investigate the full range of parallel and non-parallel configurations (as explained below in Section 1.1) with both null and overt pronouns. This would not be possible if we were to investigate *pro*-drop languages which have strict/heavy constraints on the use of null pronouns in object position. Thus, discourse *pro*-drop languages are an ideal tool to explore the interaction between pronominal form, the grammatical role of the antecedent (subject or object), and crucially, also the grammatical role of the referring expression (subject or object).

Previous work suggests that the null vs. overt pronoun distinction in discourse *pro*-drop languages appears to be less clear than in *pro*-drop languages. Several studies looking at Chinese pronouns in narratives suggest that the choice between null and overt pronouns appears to be in free variation and reflects speakers' personal interpretations of the discourse context (Li & Thompson 1979) as well as speakers' personal preferences (Christensen 2000). However, while the results in Li & Thompson (1979) suggest that null pronouns seem to be the common, default form, other work (Chen 1986; Christensen 2000) found that both null and overt pronouns are used frequently in narratives. These studies indicate that speakers' choice and discourse structure have the main influence on the use of null and overt pronouns in Chinese.

In contrast, other work shows that null and overt pronouns in Chinese are strongly influenced by syntactic structure. In terms of comprehension, Yang et al. (1999, 2003) conducted a number of self-paced reading studies and found that

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2. Vietnamese is naturally classified as a discourse *pro*-drop language as it is not a language in which verbal agreement licenses the occurrence of *pro*, unlike Spanish and Italian. Vietnamese patterns like other discourse *pro*-drop languages such as Chinese and Japanese, where *pro* is essentially available whenever its content can be recovered from the ongoing discourse context (Barbosa 2011).



grammatical role (subject vs. object) has a strong effect on how rapidly pronouns are read in Chinese. For example, in a reading-time study reported in Yang et al. (1999), participants slowed down when repeated names rather than null or overt pronouns were used to refer to prior-mentioned referents – but only when the repeated names occurred in subject position (see also Gordon et al. (1993) on the repeated name penalty in English). In fact, Yang et al.'s (1999) follow-up study found that slow-downs only occurred when a repeated name in subject position was used to refer back to a preceding subject (subject parallelism). In addition, Yang (2003) found that participants read subject pronouns faster when they referred back to the preceding subject than to the preceding object, even in contexts that favored object interpretations. As a whole, these findings show that Chinese null and overt pronouns in subject position have an interpretation preference toward antecedents in subject position.

In related work, Simpson et al. (2016) examine the comprehension of Chinese overt pronouns in subject position through a series of sentence completion experiments. These studies mostly focus on transfer-of-possession verbs (e.g., *send*, *give*, *kick*). Simpson et al. (2016) found that participants tend to interpret overt subject pronouns in the continuations as referring back to the preceding subject. Although this tendency can be modulated by other discourse factors such as the nature of the event (e.g., perfective vs. imperfective) and the type of coherence relation (e.g., Explanation vs. Occasion), evidence for a subject preference remains strong. Put together, the results in Yang (1999, 2003) and Simpson et al. (2016) emphasise the importance of the antecedent's grammatical role. However, these studies did not explore the production aspect of null and overt pronouns. Furthermore, they have only focused on subject pronouns and have not yet examined object pronouns. Thus, further work is needed to obtain a more complete picture.

Related work has been conducted in Japanese, another discourse *pro-drop* language. Hinds (1975, 1983) and Clancy (1980, 1982) investigated Japanese null and overt subject pronouns by means of questionnaires, conversations and narratives and found that the use of overt pronouns in Japanese is very restricted, compared to null pronouns. One potential explanation for this restriction lies in the fact that Japanese overt pronouns are historically derived from nouns and exhibit semantic and syntactic behaviors similar to nouns (Kuroda 1965), which is different from pronouns in other languages such as Chinese. For example, *kare* in Japanese can function as a pronoun meaning 'he' and a noun meaning 'boyfriend'. *Kare* can also take modifiers and determiners similar to nouns do (e.g., *ureshii kare* 'happy guy') (Hinds 1975). It is important to note that although null pronouns are not found in traditional-styled narratives in Japanese – according to Clancy (1980) – they can occur in daily conversations; see Hinds (1975, 1983); Amano & Kondo (2000).

Null and overt pronouns in subject position in Japanese have also been examined by means of experimental work. Ueno and Kehler (2016) conducted a series of sentence completion studies on the interpretation of Japanese null and overt pronouns. Their experiments employed transfer-of-possession verbs as well as implicit causality verbs (e.g., *surprise*, *praise*). Similar to Kehler & Rohde's (2013) work in English, they had both pronoun-prompt (comprehension) and no-prompt conditions (production): Participants either had to interpret an overt subject pronoun before providing their continuations or they could freely use whatever referential form they preferred. Similar to Simpson et al.'s (2016) study on Chinese, perfective and imperfective aspect were also manipulated. Furthermore, since Japanese has topic marking, Ueno and Kehler also manipulated topichood using topic *vs.* nominative marking on the preceding subject. The results of Ueno and Kehler (2016) show that Japanese overt pronouns in subject position, similar to English overt pronouns, are sensitive to a number of pragmatic factors (e.g., (im)perfective marking, implicit causality bias). In contrast, null subject pronouns have much less sensitivity to pragmatic manipulations, none for the (im)perfective manipulation and only limited sensitivity to the implicit causality manipulation. Nevertheless, both Japanese null and overt pronouns in subject position exhibit a subject bias similar to what has been found for Chinese subject pronouns.

In sum, cross-linguistically, it is unclear whether null and overt pronouns in subject position behave differently and how the grammatical role of the antecedent can affect the use of null and overt pronouns in discourse *pro*-drop languages. Furthermore, null and overt pronouns in object position have not been systematically investigated in prior work.

### 1.3 Vietnamese

We choose Vietnamese – a discourse *pro*-drop language – as the language of investigation for two reasons. First, Vietnamese allows both null and overt pronouns in both subject and object positions as shown in Example (2). In (2b), null pronouns are used to refer back to both the preceding subject and object while in (2b'), an equivalent of (2b), overt pronouns are used. (Null pronouns are denoted with parentheses in the translation.)

- (2) a. *Vân nhìn thấy Nam trên đường về nhà.*  
 Vân saw Nam on way back home  
 'Vân saw Nam on her way home.'
- b. *Gọi mấy lần nhưng anh không nghe.*  
 call several time but he not hear  
 '(She) called (him) several times but he didn't hear (her).'

- b'. *Cô gọi anh mấy lần nhưng anh không nghe cô.*  
 she call he several time but he not hear she  
 'She called him several times but he didn't hear her.'

Second, unlike many other languages discussed in the pronoun resolution literature, Vietnamese overt pronouns are most commonly derived from kinship terms.<sup>3</sup> In Example (3a), the element *ông* is used as a kinship term and is interpreted with its literal meaning 'grandfather.' In (3b), *ông* is used as part of a compound noun and no longer has the literal kin term interpretation 'grandfather' but contributes the meaning of 'old male' to the compound. In (3c), *ông* is used as an overt pronoun, where it again does not mean 'grandfather', but is used in a pronominal way for anaphoric reference to some antecedent in the discourse which has the properties of being male and old.

- (3) a. *Ông của Lan vừa đến.*  
 grandfather of Lan just arrive  
 'Lan's grandfather just arrived.'
- b. *Ông nông dân đang hái trái cây.*  
 old.male.farmer PROG pick fruit  
 'The farmer is/was picking fruit.'
- c. *Ông hái từng trái một.*  
 old.male.he pick each fruit at once  
 'He picked the fruit one by one.'

Thus, many elements which are used in a typically pronominal way in Vietnamese also appear in other linguistic contexts, incorporated into larger compound words frequently depicting professions and as pure kinship terms with relational meanings. The use of such elements as pronouns is established by means of two criteria. First, as pronouns, such elements do not project their literal kin term meaning ('grandfather', 'uncle', 'aunt' etc.), but communicate more general information about gender and age. Second, in their pronominal use, elements such as *ông*, *cô*, *anh* and *bà* occur either bare (i.e. not part of a larger compound word) or with a demonstrative modifier, e.g., *ông ấy* (lit. 'that old male person'). In the pear story narratives investigated in the current study, elements such as *ông*, *cô*, *anh* and *bà* were never

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3. In addition to the extensive list of kinship pronouns, Vietnamese also has a small set of pronouns which do not come from kinship terms (e.g., *nó* 'he/she/it', *họ* 'they'). The pronoun *nó* occurred very infrequently (only one participant used *nó*) in the narratives: participants had a strong preference for using kinship pronouns. However, occurrences of *nó* were nevertheless counted as an overt pronoun whenever this element did occur. The pronoun *họ* 'they' was also very infrequent. We did not include the few occurrences of *họ* in our analyses, because this pronoun is often ambiguous in terms of which group it refers to and therefore difficult to code.

used as kin terms encoding a relational meaning to others in the storyline, but occurred either as parts of larger compounds, when a discourse participant was introduced (and sometimes referred back to at a much later point), or as pronouns, when reference was made to some other NP in the discourse.

This kin term pronoun system distinguishes Vietnamese from other discourse *pro*-drop languages such as Chinese and Japanese which have previously been studied. Chinese overt pronouns are similar to English-type pronouns in that they only denote number (also gender in third person pronouns in written Chinese) (Li & Thompson 1981). Meanwhile, as shown in Section 1.2, Japanese overt pronouns have noun-like behaviors (Kuroda 1965; Hinds 1975, 1983). More importantly, the difference in Chinese vs. Japanese overt pronoun systems is also correlated with different patterns of use: Previous work on Chinese narratives shows that both null and overt pronouns are frequently used (Christensen 2000). However, in Japanese narratives, null pronouns are the most frequent form while overt pronouns occur only rarely (Clancy 1980, 1982). Null pronouns in Japanese are considered as the equivalent of English pronouns. In contrast, Japanese overt pronouns have very restrictive use with specific connotations (see Hinds 1975 for a full discussion) and their occurrences are often considered to be due to influence of Western languages such as English. Thus, among discourse *pro*-drop languages, null and overt pronouns vary greatly in their properties and usage. A closer look at the typologically different kinship pronoun system in Vietnamese can contribute valuable information regarding pronoun behavior cross-linguistically.

In this paper, we present our work on narratives as an initial investigation of null and overt pronouns in Vietnamese. We also aim to draw a direct comparison between pronouns in Vietnamese and in other discourse *pro*-drop languages. Since previous studies on pronouns in Chinese and Japanese which also discuss spoken and written modality have used narratives (Christensen 2000; Clancy 1982), we also use a narrative task to keep our study maximally parallel to prior work.

Most importantly, we are interested in the effects that grammatical roles of the antecedent and of the referring expression itself have on referential form choice in *both subject and object positions*. A sentence completion task is typically used to investigate referents' subsequent mentions in subject position but not in object position. Therefore, a narrative task which allows us to examine referents' occurrences in both subject and object positions is better suited for our purposes.

Furthermore, in order to test for potential effects of spoken vs. written modality, we keep the number of referents and the genre constant in both written and spoken modalities. Prior work on narratives and modality only reports overall counts of referential forms without details about the grammatical positions of their occurrences (Clancy 1980; Christensen 2000). Additionally, many of these studies also look at written and spoken data in different genres (news vs. conversational) (Biber

et al. 1999). Thus, the differences found may be due to the discourse type and not modality. Taking these factors into consideration, our study maintains maximal parallelism between our spoken and written narratives in genre and formality. We also include grammatical roles and grammatical parallelism in our analysis. Our goal is to shed light on the mechanisms licensing referential forms and to examine whether modality (i.e. the use of spoken vs. written language) indeed has a direct influence on these mechanisms.

## 2. Data collection

We used a narrative task based on the Pear film, similar to the narratives used in work on Chinese (Christensen 2000) and Japanese (Clancy 1980). The experiment consisted of two parts, spoken and written. Prior work on Chinese and Japanese either only discussed the overall counts of referential forms (Christensen 2000) or how referential forms are used with regards to discourse structure; e.g., the number of intervening clauses, number of intervening referents (Clancy 1980). In contrast, our study focuses on the mechanisms licensing referential form choice (null vs. overt). Thus, we incorporate factors such as (i) *grammatical roles of the antecedent and of the pronominal element* and (ii) *grammatical parallelism* into our analysis and examine their influence on referential form use in both spoken and written modalities.

### 2.1 Method

Twenty native speakers of Vietnamese (living in Vietnam) participated in the experiment. First, each participant was shown the Pear film (Chafe 1980) about a boy stealing pears. There are sound effects in the film but no spoken words. After watching this film, participants were first instructed to recount the story as if they were speaking to a friend who had not seen it. The narratives were recorded. This made up the spoken task of the experiment. After verbally narrating the story, participants were instructed to recount the story as if they were writing to a friend who had not seen the film. This made up the written task of the experiment.

### 2.2 Data analysis

To prepare the data for further analysis, we transcribed the spoken narratives orthographically. We also included features of spoken language such as hesitations, pauses, false starts, repetitions and self-corrections in the transcription. When repetitions and self-corrections occurred, we only considered the final occurrence in the

analysis, under the assumption that this is the version with which participants were most satisfied. In the next step, we divided the spoken narratives into utterances. Following Hurewitz (1998), Passonneau (1998) and others, we define an utterance as a finite clause (that is, containing a finite verb) but do not consider relative clauses as separate utterances for purposes of discourse segmentation. Relative clauses are grouped with the main clause whose components they modify, following Hurewitz (1998) and others. As a consequence, given that our analysis focuses on subjects and objects of the main clause, referents that are only mentioned inside relative clauses are not included in the analysis (see also Bel et al. 2010, Walker et al. 1998).<sup>4</sup> We adopted these same criteria to divide the written narratives into utterances. Thus, similar to an utterance in the spoken narratives, each utterance in the written narratives consists of a finite verb and may include a relative clause. It is important to note that in this analysis, we only report cases in which referents occur in *adjacent utterances*. We did not encounter ambiguous pronouns in this dataset (with the exception of *họ* ‘they’, which was not counted due to its ambiguity, see footnote 3).

We coded all mentions of *singular third-person human referents in adjacent utterances* for (i) *grammatical role* and (ii) *referential form*. Regarding (i) *grammatical role*, we coded referents’ *grammatical roles in both the preceding and the current utterances* (e.g., subject, object, possessive, etc.). In other words, we coded the grammatical roles of the antecedent and of the anaphoric element. For the purposes of the current work, we only discuss Subject and Object roles in our analysis. Four grammatical configurations were established based on referents’ preceding and current grammatical roles as shown in Table 1. (See footnote 1 regarding our use of the term ‘referent’ in this paper.)

**Table 1.** Four configurations based on grammatical roles in preceding and current clause

| Preceding clause (antecedent) | Current clause (anaphoric element) | Grammatical configuration             |
|-------------------------------|------------------------------------|---------------------------------------|
| Subject                       | Subject                            | Subject-Subject (Subject parallelism) |
| Subject                       | Object                             | Subject-Object                        |
| Object                        | Subject                            | Object-Subject                        |
| Object                        | Object                             | Object-Object (Object parallelism)    |

4. Although arguments might be made that referents that are only mentioned inside relative clauses should be included in studies of anaphor-antecedent relations, following the norms adopted by previous investigations allows us to create a profile of Vietnamese which can be compared directly with studies of other languages. As for complement clauses, these were included in the current study of Vietnamese (though they were very rare – only one relevant token in each of the spoken and written narratives).

Regarding (ii) *referential form*, since our goal was to observe how grammatical roles can influence the current choice of referential form (*i.e.* null pronoun, overt pronoun, and NP), we only coded referents' *referential form in the current clause*. Examples (4)–(7) illustrate how data is coded with regards to the four grammatical configurations. The referents of interest are marked in **bold**. Null pronouns are indicated in the English translations by pronouns in parentheses.<sup>5</sup>

- (4) a. *khi **cậu bé** này đi ngang qua một con đường*  
 when CL boy this go past a CL road  
 'when this boy went past a road,'  
 b. *thì (Ø) gặp một cô bé cũng đi một chiếc xe đạp.*  
 then (Ø) see a CL girl also ride a CL bike  
 'then (he) saw a girl who also rode a bike.'  
 → Configuration: *Subject-Subject*  
 Referential form: *null pronoun*<sup>5</sup>
- (5) a. ***cậu** thấy ba **cậu bé** đang đứng trước mặt mình*  
 he see three CL boy PROG stand front face self  
 'he saw three boys standing in front of him.'  
 b. *một **cậu bé** đỡ **cậu** dậy.*  
 a CL boy pull he up  
 'a boy pulled him up.'  
 → Configuration: *Subject-Object*  
 Referential form: *overt pronoun*
- (6) a. *thì (Ø) đã đỡ **cái cậu bé** này dậy*  
 then (Ø) PAST pull CL CL boy this up  
 'then (they) pulled this boy up.'  
 b. ***cậu bé** này lúc này đau chân*  
 CL boy this time this hurt leg  
 'at this time, this boy hurt his leg.'  
 → Configuration: *Object-Subject*  
 Referential form: *NP*
- (7) a. *thì nó gặp một **bé gái** đi ngược chiều*  
 then he see a CL girl go opposite direction  
 'then he saw a girl going on the opposite direction'

5. Note that the element *cậu* which appears in Examples (4)–(7) occurs either as part of a larger compound *cậu bé* meaning 'boy', or as a pronoun meaning 'he' (young male). Its original lexical meaning is the kin term relation 'uncle' (mother's brother). Other speakers used the pairs *chú bé* 'boy' and *chú* 'he' (young male) for the same discourse referent. The original lexical meaning of *chú* is also 'uncle' (father's younger brother).

- b. *và do (Ø) mãi nhìn bé gái*  
 and because (Ø) busy look CL girl  
 ‘and because (he) was busy looking at the girl’  
 → Configuration: *Object-Object*  
 Referential form: *NP*

When counting null pronouns, we excluded those that occur in coordinate constructions with “and”, “but” and so on. We did this to avoid inadvertently inflating the number of null pronouns. Even in languages like English, standardly analyzed as not allowing *pro*-drop, coordination structures like “Lisa went home and made a sandwich” and “Lisa went to the library but could not find her friend” allow what superficially looks like a missing pronoun/*pro*. As a result, excluding these types of structures in our analyses ensures that all null pronouns reported in our results are ‘proper’ null pronouns and not analyzable in terms of coordination.

### 3. Results

In this section, we first present some general information about the narratives. We then discuss how referential forms are used with regards to the four grammatical configurations in Table 1. In the present paper, we focus on the details of the written task. We also provide a summary of the spoken task which is presented in more detail in Ngo & Kaiser (2018). Finally, we will draw a comparison between written and spoken results.

Let us first look at the length of the narratives. We removed hesitations, pauses, repetitions and self-corrections from the spoken narratives prior to performing the word count to keep them parallel with the written narratives. Table 2 shows that on average, the spoken narratives are longer than the written narratives considering both the average number of words and the average number of utterances. We also calculated the average number of words per utterance for each participant and averaged them across all participants. The result shows that spoken utterances are longer than written ones. This is in line with prior work on written vs. spoken differences, specifically that spoken language tends to be more elaborate while written language is more concise (e.g., Drieman 1962; Horowitz & Newman 1964; Tannen 1980).

**Table 2.** Average length of the narratives by word count, utterance count, and average number of words per utterance among participants

|         | Avg. word | Avg. utterance | Avg. words per utterance |
|---------|-----------|----------------|--------------------------|
| Written | 317.2     | 35.45          | 9.15                     |
| Spoken  | 381.45    | 39.85          | 9.91                     |



Table 3 shows the overall use of null pronouns, overt pronouns and NPs in the narratives based on the four configurations discussed in Table 1 above. As seen in Table 3, among the three types of referential forms, null pronouns and NPs occur slightly more frequently than overt pronouns. Additionally, we found no difference between written and spoken narratives with regards to referential form use. These patterns might seem to suggest that, at least on this broad level, referential form choice occurs randomly/at chance since there is no clear preference for any of the forms. However, as we show later in this paper, this is not the case. When grammatical roles and grammatical parallelism are taken into account, clear patterns of preference start to emerge. Thus, it is importance to not only look at the overall frequency of referential form use but also to consider the environment in which the forms occur.

**Table 3.** Overall percentages of null pronouns, overt pronouns and NPs used in written and spoken narratives

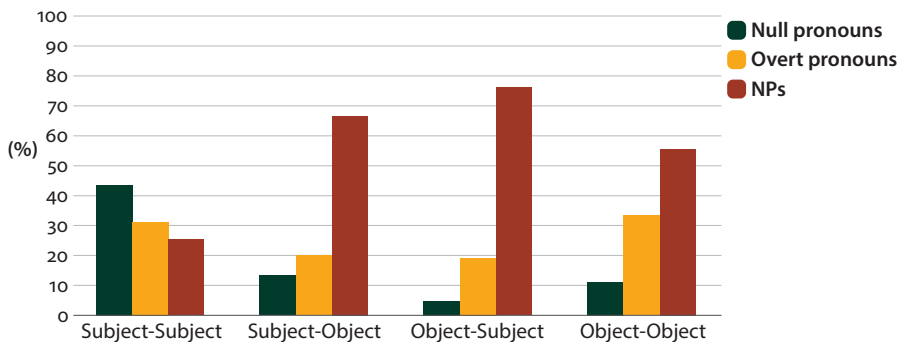
|         | Null pronouns | Overt pronouns | NPs | Total |
|---------|---------------|----------------|-----|-------|
| Written | 35%           | 30%            | 35% | 100%  |
| Spoken  | 34%           | 30%            | 36% | 100%  |

### 3.1 Referential forms in written and spoken narratives

Let us first look at the *written* results. We first examined how frequently participants used each type of grammatical configuration in Table 1 in their narratives. When participants produced an NP or a (null or overt) pronoun in subject position or object position, we noted what position the antecedent was in. In Table 4 and Figure 1, as in Table 1, the first part of each label refers to the grammatical role of the antecedent and the second part refers to the grammatical role of the pronoun or NP (e.g., Subject<sub>antecedent</sub>-Subject<sub>anaphoric\_element</sub>). We found that re-mentioning of the same referent is mostly likely to occur in the Subject-Subject configuration (Subject parallelism). As seen in Table 4, the Subject-Subject configuration occurs at a rate of 76%, far more frequently than any of the other three configurations.

**Table 4.** Percentage of each configuration

|   | Subject-Subject | Subject-Object | Object-Subject | Object-Object | Total |
|---|-----------------|----------------|----------------|---------------|-------|
| % | 76              | 7              | 9              | 8             | 100   |



**Figure 1.** Percentages of referential forms in four grammatical configurations in written task. (The first part of each label refers to the grammatical role of the antecedent and the second part refers to the grammatical role of the pronoun or NP (e.g., Subject<sub>antecedent</sub>-Subject<sub>anaphoric\_element</sub>)

We also investigated referential form choice (*i.e.* null pronouns, overt pronouns, and NPs) in the current clause in each grammatical configuration. Figure 1 shows the percentages of each referential form in the four configurations.

As shown in Figure 1, the Subject-Subject configuration (Subject parallelism) mostly occurs with pronouns (null pronouns + overt pronouns = 74.71%), whereas the other three configurations consist of mostly NPs (> 55% NPs in each configuration). To examine the pattern of pronoun vs. NP across the four configurations, we conducted a series of chi-square tests.<sup>6</sup> The results suggest that the distribution of pronouns vs. NPs in the Subject-Subject configuration differs significantly from the other three – as expected from the patterns in Figure 1. Specifically, participants produced significantly more pronouns (null + overt pronouns) relative to NPs in the Subject-Subject configuration than in the Subject-Object configuration ( $p < .001$ ), the Object-Subject configuration ( $p < .001$ ), and the Object-Object configuration ( $p < .01$ ). We also compared the use of null vs. overt pronouns in the

6. We used *chi*-squared test for the statistical analyses, although we realise that aspects of our data are not ideal for this statistical test. Our elicited-narration technique yielded a corpus of multiple narratives and thus involves multiple observations from each participant. However, our open-ended task differs from the standard, more narrowly-controlled within-subjects design often used in psycholinguistics, and although we have multiple observations from each person, the nature of these observations is highly variable across participants. This, as well as the fact that our analysis of pronominal forms involves analyzing responses dependent on the syntactic configuration that a participant chose to produce, lead us to opt for the *chi*-squared analysis over other options, although *chi*-square assumes independence.

Subject-Subject configuration and found no significant difference between the two forms ( $p = .06$ ) – as the patterns visible in Figure 1 lead us to expect.

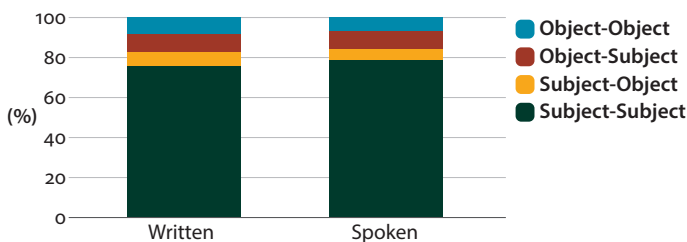
A closer look at the other three configurations, Subject-Object, Object-Subject and Object-Object (Object parallelism) shows that the proportion of pronouns vs. NPs used in these configurations are not significantly different from each other ( $p = .39$ ). However, the proportion of pronouns in the parallel Object-Object configuration is numerically slightly higher than those in the non-parallel Subject-Object and Object-Subject configurations, 44% compared to 33% and 24% respectively.

Let now turn to the *spoken* results. A detailed discussion of the spoken data can be found in Ngo & Kaiser (2018). Overall, patterns of the spoken narratives resemble those of the written narratives as seen in Figures 2 and 3. Participants mostly use the Subject-Subject configuration to refer to referents in adjacent utterances (78.85%). With regards to referential form choice in the current utterance, results of a series of *chi*-square tests confirm that the distribution of pronouns vs. NP use in the Subject-Subject configuration (Subject parallelism) differs significantly from the other three configurations. Specifically, pronouns (null pronouns + overt pronouns = 73.18%) are the dominant choices in the Subject-Subject configuration. In contrast, the other three configurations Subject-Object, Object-Subject and Object-Object consist of mostly NPs (> 60% NPs in each configuration). With regards to the null vs. overt pronoun choice in the Subject-Subject configuration, participants show no preference for either null or overt pronouns ( $p = .13$ ).

We also examined the pronoun vs. NP choice in the other three configurations, Subject-Object, Object-Subject and Object-Object (Object parallelism). No significant difference was found in the distribution of pronouns and NPs ( $p = .08$ ) among these configurations. Nevertheless, the parallel Object-Object configuration has slightly more pronouns (39.13%) than the other non-parallel Subject-Object and Object-Subject configurations (35.29% and 13.33%, respectively). More interestingly, while the non-parallel Subject-Object and Object-Subject configurations have *no* null pronouns at all, the parallel Object-Object configuration elicits 26.1% null pronouns.

### 3.2 Comparing written and spoken results

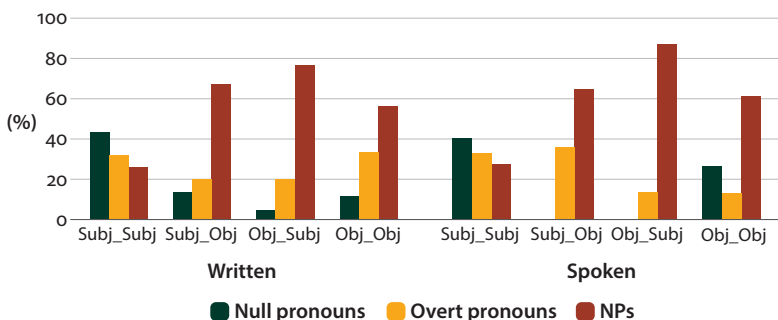
In this section, we examine the effects of modality (*i.e.* written, spoken) on (i) *the use of grammatical configurations* as well as (ii) *the choice of referential forms in each configuration*. For this purpose, we provide a side-by-side comparison of the written and spoken results in Figures 2 and 3.



**Figure 2.** Proportions of the four grammatical configurations in written and spoken narratives

Figure 2 shows the proportions of four types of grammatical role configurations in the written and spoken narratives. We observe the same patterns in both types of narratives. In particular, the Subject-Subject (Subject parallelism) configuration is the most frequent (more than 75% of all occurrences). The other three configurations occur at a similar rate as seen in Figure 2. In short, there is no effect of modality on the occurrence of the four different types of configurations.

In terms of referential form use, we conducted a series of chi-square tests to compare the numbers of null pronouns, overt pronouns and NPs in each grammatical configuration between written and spoken narratives. The results show that Vietnamese participants do not differ in their referential form use in writing and in speaking ( $p$ 's = n.s.). In both types of narratives, the Subject-Subject configuration differs significantly from the other three configurations. Figure 3 shows that in the Subject-Subject configuration, pronouns (null + overt pronouns) are the preferred forms. However, in the other three configurations, participants exhibit a preference for NPs over pronouns. This preference for NP use is very clear in the non-parallel Subject-Object and Object-Subject configurations. Interestingly, the parallel Object-Object configuration, although still yielding a high number of NPs, has slightly more pronouns than the non-parallel configurations. Most prominently, in the spoken narratives, null pronouns are found in the parallel Object-Object configuration, but they did *not* occur at all in the non-parallel configurations. In sum, modality does not affect Vietnamese participants' choice of referential form across all four grammatical configurations. Nevertheless, in both modalities, we find that the four configurations elicit different kinds of referential forms (as can be seen in Figure 3, and as we previously discussed in Section 3.1).



**Figure 3.** Percentages of referential forms in the four grammatical configurations in both written and spoken narratives <sup>7</sup>

Taken together, our results show no effects of written vs. spoken modality on how Vietnamese participants use either grammatical configurations or referential forms with respect to these configurations. The lack of modality effect on referential form choice in the current study contrasts with previous claims that pronouns and NPs occur at different rates in written and in spoken language (Biber et al. 1999; Christensen 2000).

#### 4. General discussion

In this paper, we have reported a narrative experiment investigating the effects of (i) *grammatical roles*, (ii) *grammatical parallelism* and (iii) *modality* on speakers' referential form choices in Vietnamese. We are particularly interested in how Vietnamese null and overt pronouns are used. This interest stems from the fact that Vietnamese not only allows null and overt pronouns in both subject and object positions but also has a complex kinship pronoun system that differs from other discourse *pro*-drop languages such as Chinese and Japanese. Thus, this paper aims to add to our understanding of pronoun behaviour in typologically different languages.

The narrative experiment has two parts, spoken and written. We instructed participants to recount the Pear film first by speaking, and then by writing. We analyzed the narratives taking into account (i) *referents' grammatical roles in the preceding and current utterances* and (ii) *their referential forms in the current utterance*. This method

7. The absence of columns for null pronouns in the Subj-Obj and Obj-Subj configurations in the spoken narratives is due to the fact, noted at the end of Section 3.1, that speakers did not produce such elements in these two configurations in the spoken narratives.

allowed us to investigate the extent to which grammatical roles and grammatical parallelism affect referential form choice. The results of both spoken and written narratives show that grammatical role and grammatical parallelism play a key role in Vietnamese speakers' choice of referential form. Specifically, Vietnamese speakers use significantly more pronouns (null and over pronouns combined) when the grammatical subject role is maintained across utterances (i.e. Subject parallelism). In contrast, the non-parallel configurations (i.e. Subject-Object, Object-Subject) result in mostly NPs. Interestingly, we also detect hints of a parallelism effect in the Object-Object configuration (i.e. Object parallelism). Although NPs are the most frequent choice, Vietnamese speakers produced more pronouns (null and overt pronouns) in the Object parallelism configuration than in the non-parallel ones. We also observed parallelism effects in the patterning of null pronouns in the spoken narratives: null pronouns only occurred in Subject and Object parallelism configurations. Nevertheless, the Subject and Object parallelism configurations differed in their overall patterns with Subject parallelism favoring pronouns and Object parallelism favoring NPs. These patterns indicate that grammatical role still has a strong impact on referential form choice.

We are also interested in the potential role of modality (i.e. spoken vs. written) on the production of Vietnamese referential forms. Our results show that modality has no significant effect on Vietnamese speakers' referential form choice when the level of formality and subject matter being described are kept parallel in spoken and written descriptions. The patterns of pronoun and NP use are similar in spoken and written narratives. Moreover, Vietnamese speakers also use null and overt pronouns similarly in both modalities. At first glance, this finding seems to contradict prior claims that written language utilises more NPs than spoken language (Biber et al. 1999) and that null pronouns are used increasingly more in written than in spoken narratives (Li & Thompson 1979; Christensen 2000). However, there is a major difference between these studies and our work. Whereas previous studies report the number of tokens without specifying the environment of occurrence (Christensen 2000; Clancy 1982), our study report these numbers with respect to grammatical roles and grammatical parallelism. Crucially, including grammatical factors in the analyses allows us to obtain a clearer view of the underlying mechanism licensing use of different referential forms, particularly null and overt pronouns. Thus, the lack of modality effects in our results suggests that the same underlying mechanism guides production of referential forms in both spoken and written Vietnamese, which we regard as a desirable conclusion.

Another focus of attention in the current study is the choice of null vs. overt pronouns in Vietnamese. In previous, highly influential work on the discourse *pro*-drop language Chinese, Givón (1983) has proposed that there is a strong preference for the use of null pronouns ('zero anaphora') rather than overt pronouns

when the antecedent for such elements is highly salient/prominent in a discourse. Givón (1983) and a broad range of functional studies adopting Givón's approach suggest that 'the more accessible a referent is within a discourse, the less overt coding it will be given, hence that highly accessible antecedents will be referenced with zero anaphora, less accessible antecedents with (overt) pronouns, and very weakly accessible referents with the use of a full NP' (Simpson et al. 2016: 2). Similar observations about the relationship between the form of referring expressions and the salience/prominence of the antecedent are made by Ariel (1990) and Gundel et al. (1993).

A large number of studies have shown that grammatical role has a significant influence on referents' salience and thus, the choice of referring expression (Chafe 1976; Brennan, Friedman & Pollard 1987; Crawley & Stevenson 1990; see also Gordon, Grosz & Gilliom 1993; Gordon & Chan 1995; Perfetti & Goldman 1974). In particular, referents in subject position are more salient than those in object position. These studies along with the salience hierarchy – Givón (1983), Ariel (1990), Gundel et al. (1993) – predict that more reduced referential forms are preferred for highly salient subject antecedents while fuller forms are frequently used for less salient object antecedents. These predictions have been supported in English (e.g., Fukumura & van Gompel 2010) as well as in agreement *pro*-drop languages such as Italian and Spanish (Carminati 2002; Alonso-Ovalle et al. 2002).

The finding of the current study on Vietnamese that speakers employ broadly equal amounts of null and overt pronouns in situations where the grammatical roles of the antecedent and anaphoric element are the same – poses a clear challenge to the salience/accessibility hierarchy. Null pronouns in Vietnamese – being the more reduced referential form – are expected to be chosen much more frequently than overt pronouns to refer to highly salient subject referents, but this was not observed in either the spoken or written narratives. As a clear preference for null pronouns was not found in Subject-Subject coreference relations, the conclusion can be drawn that there is no necessary cross-linguistic application of the salience hierarchy in the choice of referential forms, automatically favoring more reduced forms in instances of reference to recent, highly salient elements within a discourse.

The absence of a straightforward mapping between more reduced forms and more salient elements is in line with Kaiser & Trueswell's (2008) form-specific multiple-constraints approach. Based on data from Finnish overt pronouns and anaphoric demonstratives, Kaiser and Trueswell argue against the assumption that different kinds of referring expressions can be straightforwardly mapped onto a unified salience hierarchy.

The discovery of broadly equal use of null and overt pronouns in the current study of Vietnamese interestingly converges with the results of a recent investigation of Chinese, described in Christensen (2000), which also found that speakers

tend to use null and overt pronouns equally in similar conditions, at least in spoken Chinese.<sup>8</sup> This suggests that the connections posited between salience and representational form in instances of anaphoric reference should carefully be reexamined in other *pro*-drop languages, to establish which of these follow the Vietnamese/Chinese patterning, and which may perhaps show stronger preferences for null pronouns when these are licensed by the context.

Our results also distinguish pronouns in Vietnamese from those which occur in Japanese in a potentially informative way (Clancy 1980, 1982). It has previously been claimed that the observed, highly restricted use of Japanese overt pronouns may be due to the fact that they are historically derived from nouns and are rich in semantics. The latter property is suggested to constrain their use, resulting in a significantly lower frequency of occurrence than that of null pronouns in the language (Hinds 1975, 1983). Comparing Vietnamese and Japanese, it can be noted that Vietnamese kinship overt pronouns in Vietnamese are also semantically rich, but this does not seem to restrict their use in the same ways as in Japanese.

There are two factors that may influence pronoun use in Vietnamese and null/overt pronoun alternations which have *not* been explored in the current study, warranting further investigation. First, although the grammatical subject of a sentence is also often the topic of a particular stretch of discourse and is highly salient (Givón 1983), being a grammatical subject does not always entail being a topic (Lambrecht 1994). As a result, the second subject in our Subject parallelism configuration is likely to be a topic but does not have to be one. If speakers favour the use of null subjects for reference to the discourse topics and were to use overt pronouns for other instances of anaphoric reference, this might account for some of the variation between null and overt pronouns attested in the study. Indeed, another experiment reported by Ngo and Kaiser (2018) shows that when the topicality of an element in subject position is deliberately increased by means of passivisation, Vietnamese speakers seem to strongly prefer null pronouns to overt pronouns. Consequently, one may question the degree to which grammatical subjects regularly function as topics in Vietnamese. If such a relation does not exist strongly in Vietnamese, this might allow for a more nuanced account of the distribution of null and overt pronouns in patterns of Subject-Subject co-reference.

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8. Christensen's investigation of oral and written narratives recounting the pear story in Chinese showed that null and overt pronouns were used at nearly the same rate in the oral narratives. However, unlike Vietnamese, this patterning was not maintained in the written narratives, where null pronouns occurred 55% of the time, while overt pronouns were used at a rate of less than 20%. There is thus a clear effect of modality at play in Chinese, which does not seem to occur in Vietnamese.



Second, another factor which our analysis has not accounted for is the role that coherence relations potentially may play in anaphoric reference. Previous work shows that the production and comprehension of pronouns can be influenced by the type of coherence relation which exists between two clauses (Kehler 2002; Kehler & Rohde 2013). With regards to discourse *pro*-drop languages, Simpson et al. (2016) confirm the effects of coherence relations on the likelihood of mention and referential form use in Chinese. They found that the Explanation<sup>9</sup> relation results in more continuations referring back to the preceding subjects than the Occasion<sup>10</sup> relation does. This indicates that the subjects in Explanation relations are more likely to be continuing discourse topics. Although we have not computed the details regarding coherence relations in our data, an initial preliminary examination suggests that there was a high amount of Occasion relations in our narrative data. According to Kehler (2008), Occasion is the typical relation used in narratives. In this light, the subjects in our narratives might not be “strong topics”, which could be a reason why null pronouns were not the dominant referential form choice – perhaps null pronouns are only used to refer to very strong discourse topics, and are less commonly used in subject chains which do not involve topics of such strength. We aim to disentangle these factors in future work.

In sum, our results have indicated that grammatical role and grammatical parallelism play an important role in how Vietnamese speakers choose referential forms. We found that not only subjecthood but also grammatical role parallelism increase pronoun use. In contrast, if the referring expressions and its antecedent are not in parallel grammatical roles, and in particular if they are not both subjects – we observe a significant increase in the production of NPs. Unlike prior work, our study found no effects of written vs. spoken modality, indicating that the effects of grammatical roles and parallelism on referential form use are not affected by modality. These results highlight the importance of considering referents’ grammatical roles in adjacent utterances when investigating speakers’ choice of referential form. Regarding the distinction between Vietnamese null and overt pronouns, no differences were found in the current study (but see Ngo & Kaiser 2018 regarding topicality).

We conclude that in Vietnamese, grammatical roles and parallelism have similar effects on both null and overt pronouns. Interestingly, despite the fact that Chinese, Japanese and Vietnamese are all discourse *pro*-drop languages, overt pronoun use varies cross-linguistically. Although Vietnamese overt pronouns are

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9. An Explanation relation occurs when a follow-on sentence is used to provide an explanation of the content of a preceding sentence.

10. An Occasion relation occurs with a temporal sequencing of events, the content of one sentence preceding that of a second sentence in time.

semantically rich kinship terms, they are very frequently used similar to Chinese overt pronouns (Christensen 2000). This contrasts with Japanese overt pronouns which are historically derived from nouns, and as claimed in Hinds (1975, 1983), are used restrictively due to their semantics. Finally, to our knowledge, this is the first experimental investigation of a kin-term-based pronoun system.

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This volume was originally inspired by a 2017 conference to honour the scholar and linguist Cao Xuân Hạo, whose landmark work – in many diverse areas of language study – established a bridge between traditional Vietnamese scholarship and contemporary theories of grammatical organisation. The book offers the reader a closely edited collection of papers, representing a wide spectrum of frameworks, approaches and methods, from traditional fieldwork studies of non-standard dialects, to corpus-based discussions of language and gender, to formal syntactic and semantic analyses of key functional morphemes, to laboratory experiments, and work in first language acquisition. Many of the papers present detailed analyses of original data, as well as novel treatments of established facts; considered together – as well as in contrast to one another – they make a significant empirical contribution to our understanding of how Vietnamese is structured, acquired and put to use. The papers should be of value to anyone interested in contemporary approaches to Vietnamese linguistics, and Southeast Asian languages more generally.



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