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Non-canonical word order and temporal reference in Vietnamese

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Abstract: The paper revisits Duffield's (2007) (Duffield, Nigel. 2007. Aspects of Vietnamese clausal structure: Separating tense from assertion. *Linguistics* 45(4). 765–814) analysis of the correlation between the position of a 'when'-phrase and the temporal reference of a bare sentence in Vietnamese. Bare sentences in Vietnamese, based on (Smith, Carlota S. & Mary S. Erbaugh. 2005. Temporal interpretation in Mandarin Chinese. *Linguistics* 43(4), 713–756), are argued to obtain their temporal interpretation from their aspectual composition, and the default temporal reference: bounded events are located in the past, unbounded events at present. It is shown that the correlation so observed in when-questions is superficial, and is tied to the syntax and semantics of temporal modification and the requirement that temporal adverbials denoting future time is base generated in sentence-initial position, and past time adverbials in sentence-final position. A 'when'-phrase, being temporally underspecified, obtains its temporal value from its base position. However, the correlation between word order and temporal reference in argument wh-questions and declaratives is factual, depending on whether the predicate-argument configuration allows for a telic interpretation or not. To be specific, it is dependent on whether the application of Generic Modification (Snyder, William. 2012. Parameter theory and motion predicates. In Violeta Demonte & Louise McNally (eds.), Telicity, change, and state. Acrosscategorial view of event structure, 279-299. Oxford: Oxford University Press) or accomplishment composition is realized. Canonical declaratives, and argument wh-questions, with telicity inducing material, license GM or accomplishment composition, yielding bounded events, hence past; by contrast, their noncanonical counterparts block GM or accomplishment composition, giving rise to unbounded event descriptions, hence non-past.

Keywords: Vietnamese, accomplishment composition, temporal reference, generic modification, temporal modification

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1 Introduction

A phenomenon, well known in Vietnamese, which, according to Cao (1998), was first reported in 1651 by the missionary A. de Rhode, is the correlation between the temporal interpretation of when-questions and the location of the 'when'-phrase. This phenomenon is noted in reference and grammar books. The exchanges in (1) are illustrative.

- (1) νê 0: $M\tilde{v}$? a. Bao giờ сô Green time miss what-extent Green return America 'When is Miss Green going back to America?'
 - A: *Tuần sau*. week later 'Next week.'
 - b. Q: *Cô Green về Mỹ* **bao giờ**?
 miss Green return America what-extent time
 'When did Miss Green go back to American?'
 - A: *Tuần trước*. week before 'Last week.' (Nguyen 1997: 213)

The two sentences in (1) are identical with minimal difference: the 'when'-phrase occurs sentence finally in (1a), and sentence initially in (1b). This contrast brings about a variation in temporal reference: future (1a) and past (1b), as indicated by the English equivalents and the felicitous answers. For ease of exposition, call this correlation the temporal effect. The first formal analysis, Duffield (2007), explains that (1b) obtains the past reading because the 'when'-phrase is within the scope of an assertion operator, and that (1a) takes on a future reading by moving 'when'-phrase out of the scope.

It is interesting, however, that the temporal effect does not arise when the sentence describes a repetitive/habitual event as noted by Cao (1998), providing the following question-answer pair for illustration [gloss and translation mine].²

¹ Note that the when-phrase $bao\ gi\ddot{o}$ in (1) is identical in form and meaning to the one in (3) despite differences in glossing by the two authors.

² A reviewer raises an appealing question of whether the possible non-canonical word order as in (i), where $th\acute{a}ng~n\grave{a}o$ 'which month' is between the subject and the verb, instead of occurring non-canonically in sentence initial position, would affect the temporal interpretation.

⁽i) Người Lào tháng nào ăn tết?

people Lao month which eat new-year.fest
'In which month do Lao people enjoy New Year?'

(2)Q: Cửa hàng тở сửа lúc nào? door when shop open 'When does the shop open?'

> buổi tối. A: Cửa hàng тở сửа door evening shop open 'The shop opens in the evening.'

> > (Cao 1998:411)

The 'when'-phrase of the question in (2) appears sentence-finally as in (1b); yet the question is interpreted as enquiring about a non-past event: (2) does not convey that the event already happened, and that the speaker wonders when it occurred. The question is instead concerned with the temporal information about a habitual event or activity event, and remains so even with the 'when'-phrase being in the sentence initial position. The examples in (1) and (2) show that sentences expressing achievements (telic events) display the temporal effect, while activity denoting sentences do not. Data of this type is crucial since it indicates that the temporal effect is linked to the aspectual property of the clause. Still the question remains of what causes the contrast in (1). Further complication emerges when deeper investigation suggests that the temporal effect is operative not only in 'when'-questions, but in argument wh-questions and in non-interrogatives or declaratives as well. This renders unsatisfactory the current analysis that tackles the temporal effect of 'when'-questions only, and calls for an alternative analysis.

The paper is organized as follows. Section 2 is a brief review of the first formal analysis of this peculiar phenomenon, namely Duffield (2007), and the empirical issues it faces. Section 3 provides an account of temporal reference of bare sentences in Vietnamese, based on the work of Verkuyl (1972, 1993) and Krifka (1989, 1992, 1998) on aspectual composition, and Smith and Erbaugh (2005) on the default temporal reference of bare sentences. Section 4 lays out the alternative analysis. Basically, the temporal correlation of when-questions is tied to the syntax and semantics of temporal modification and the requirement that temporal adverbials denoting future time is base generated in sentence-initial position, and past time adverbials in sentence-final position. A 'when'-phrase, being temporally underspecified, obtains its temporal value from its base position. By contrast, the temporal construal of argument wh-questions

As indicated by the translation, there is no temporal variation between (i) and (ii). This evidence indicates that habitual events do not give rise to the temporal effect.

tết (ii) Người Lào ăn tháng nào? NYE people Lao eat month which 'In which month do Lao people enjoy New Year?'

and declaratives is dependent on the application of GM (Generic Modification, Snyder 2012). Canonical sentences with telicity inducing material license GM, and obtain past reading. Non-canonical ones block GM, giving rise to non-bounded events, hence nonpast interpretation. The conclusion and outlook is given in Section 5.

2 Duffield (2007) and remaining issues

The cornerstone of Duffield's (2007) analysis is the hypothesis that Vietnamese makes available an assertion head, a projection head with the vP as its complement, to the effect that the material within its scope is construed as denoting past events. As will be discussed shortly, this hypothesis is not plausible empirically; however, the idea that the vP is linked to temporal interpretation is conceivable and verifiable, at least in Vietnamese.

2.1 Duffield (2007): Wh-dislocating for scope evasion

Duffield (2007) makes many theoretical claims about Vietnamese, one of which is the assumption that Vietnamese separates Tense from Assertion (according to Klein 1998, 2006, finiteness is composed of tense and assertion, and assertion can be realized independently of tense). This claim is the core of his account of the temporal effect. For illustration, consider the examples in (3).³

- (3) a. *Cô ấy đi Mỹ* **bao giở**?

 PRN DEM go America when

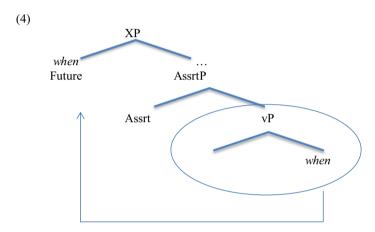
 'When did she leave for America?'
 - b. **Bao giờ** cô ấy đi Mỹ? when PRN DEM go America 'When will she go to America?'

(Duffield 2007: 768)

Similar to (1), the questions in (3) are composed of identical material, with minimal contrast: the 'when'-phrase occurs sentence finally in (3a), and sentence initially in (3b). These questions display distinct temporal locations: the former is temporally located in the past, while the latter is in the future. What brings about this contrast on Duffield's analysis? In short, Vietnamese projects tense and assertion separately, having the Assertion Phrase take the vP as its complement, the effect of which is that the material within the scope of the Assertion head, namely the vP,

³ Gloss by Duffield (2007): PRN= pronoun, DEM= demonstrative, CLS= classifier

is construed as denoting past events. It is important to note that according to Duffield a 'when'-phrase, being temporally underspecified, obtains its temporal specification from its syntactic position. As a consequence, if it stays inside the scope the assertion, it is specified with the positive past [+PAST]; if it moves out of the Assertion Phrase (to evade the assertion scope in Duffield's terms), it is marked with the negative past [-PAST]. It serves in the former as an enquiry about a past event, and in the latter as an enquiry about a non-past or future event. Temporal expressions, being inherently temporally specified, may appear freely either inside or outside the scope of the assertion operator. Diagram (4) represents Duffield's scope evasion analysis.



2.2 Empirical issue

Duffield (2007) accounts nicely for the correlation between temporal reference and location of the 'when'-phrase as displayed by examples such as (3), and (5) given below, but it fails to explain the lack of this correlation in a wide array of cases that involve atelic (unbounded) events.

- (5) a. **Lúc nào** anh xem cuốn phim đó? when PRN watch CLS film DEM 'When will you watch that film?'
 - b. *Anh xem cuốn phim đó lúc nào*?

 PRN Watch CLS film DEM when 'When did you watch that film?'

(Duffield 2007:768)

It is known in the literature that argument and complement expressions contribute to the aspectual composition of the clause (Dowty 1979; Jackendoff 1991, 1996; Krifka 1989, 1992, 1998; Verkuyl 1972, 1993; among others). In Duffield's example, the verb phrase involving the consumption verb 'watch' and the definite NP 'that film' conveys a telic reading. If we replace the full-fledged NP object 'that film' with a bare NP 'film' as in (6), an atelic reading obtains, and precisely due to this change the temporal effect disappears.

- (6) a. *Lúc nào* anh xem phim? when PRN watch film 'When will/do you watch (the) films?'
 - b. Anh xem phim **lúc nào**? PRN watch film when
 - i. 'When will/do you watch films?'
 - ii. 'When did you watch the films?'

Before discussing further a few words are in order about the interpretative variation of bare NPs in Vietnamese. A bare NP like $ch\acute{o}$ 'dog' can be interepreted either as a definite singular/plural or as an indefinite singular/plural NP. For instance, it can be used by an owner to refer to the one dog or the dogs he/she has, or by an observer informing other observers that he/she spots a dog or many dogs in the forest. For simplicity, just keep in mind that the bare NP in (6) can be interpreted either as a plural indefinite 'films' or as a plural definite NP 'the films'. It is on the indefinite reading of the bare NP that the events denoted in (6) are atelic. Consequently, the temporal effect disappears, as indicated by the translations where the first reading of (6b) means the same as (6a). The questions are then about the hearer's habit, meaning more or less like 'when do you go to the movies/watch movies?' The absence of the temporal effect is attested by the fact that it is natural to use an unspecified temporal expression like 'Whenever I am free' or 'In my free time' to answer the questions in (6).

By the same token, replace the subject pronoun 'you' in Duffield's examples with a bare NP *sinh viên* 'student', and the temporal effect fails to emerge.

(7) a. **Lúc nào** sinh viên xem cuốn phim đó? when student watch CLS film DEM 'When will/do (the) students watch that film?'

⁴ The use of the modal verb *will* in the English equivalents is intended to convey present habits or present patterns of behavior, not pure future, as illustrated by the Oxford dictionary example in (i)

⁽i) Americans will do anything to avoid a drawn match and in baseball they do anything.

- b. Sinh viên xem cuốn phim đó lúc nào?
 student watch CLS film DEM when
 i. 'When will/do students watch that film?'
 - ii. 'When did the students watch that film?'

Analogous to the examples in (6), (7a) obtains a non-past temporal reference regardless of the (in-) definiteness reading of the bare NP subject, but (7b) is ambiguous, depending on the (in-) definiteness of the bare NP. The temporal effect arises if the bare NP subject is construed as definite, as indicated by the contrast between the second reading of (7b) and (7a). In the former the 'when'-phrase occurs in final position giving rise to a past tense construal, in the latter it is in the initial position, hence non-past. Nevertheless, the temporal effect is absent if the bare NP is taken as being indefinite, as shown by the parallel between the first reading of (7b) and (7a): The 'when'-phrase in final position does not bring about the past tense interpretation. This reading is salient in a context where the film under discussion is so highly restricted that students are recommended to watch it at some time after they finish their study. If the speaker wants to know when they will watch the film, he/she can use either (7a) or (7b).

The data above shows that it is not the location of the 'when'-phrase, but the NP arguments, that play a critical role in bringing about the temporal effect. To be more precise, the temporal effect is sensitive to the telicity of the clause.

For instance, a question about a generic event, formed by an atelic clause, as shown in the exchange in (8), taken from Cao (1998) [gloss and translation mine], does not exhibit any temporal effect: The question in (8) obtains same temporal reference with the 'when'-phrase in the initial position. Recall the absence of the temporal effect in questions with atelic clauses given in Section 1. Note that the example in (8), a clause with the change of state verb 'bloom', and the whenphrase 'which season', does not express a telic event, but if we replace the bare NP hoa cúc 'chrysanthemum' with a full-fledged NP cây hoa cúc đó 'that chrysanthemum plant', and another when-phrase like lúc nào 'which time', the clause obtains a telic reading, thus confirming that telicity is a clausal property, not a verbal property.

- (8) Q: Hoa cúc nở mùa nào? chrysanthemum bloom season which 'In which season do chrysanthemums bloom?'
 - A: Hoa cúc nổ mùa thu. Chrysanthemum bloom season autumn 'Chrysanthemums bloom in autumn.'

(Cao 1998:411)

Next, Duffield's assumption that 'when'-phrases, being underspecified with respect to temporal values, hinge on their syntactic position for temporal specification, while temporal adverbials, being temporally specified, can occur freely is not attested. First, if this temporal effect was due to the temporal under-specification of the 'when'-phrase, then what brings about the same temporal effect of argument wh-questions? But before we proceed, a few words on word order in Vietnamese are necessary. Vietnamese is a wh-in-situ, SVO language. Durative and referential or clock-calendar adverbials, and locational adverbials occur in final position. However, as discussed later on, deictic adverbials are syntactically constrained depending on their temporal value. It follows naturally that canonical argument wh-questions, 'where'-questions, and 'when'-questions with 'when' ranging over referential time, and 'how long'-questions require wh-phrases to stay in the base position of their counterparts in declaratives. However, other adjunct wh-questions behave differently. For instance, a 'why'-phrase is base generated initially, but a 'how'-phrase finally (Bruening and Tran 2006). Now consider the examples in (9), where (9a) is a canonical question (a wh-in-situ question), and (9b) is a non-canonical question (a wh-ex-situ question). To see the contrast, imagine a context where a person is informed that Nam just put something into the cupboard, but is not certain what it is. If that person wants to know what Nam put into the cupboard, he/she will utter (9a), not (9b). By contrast, in a context where someone, upon being informed that Nam does/ will not put certain things in the cupboard, wonders what Nam will put/puts in the cupboard, then the question he/she will ask is (9b), not (9a).⁶

(9) a. Nam cất cái gì vào tů? Nam what in cupboard put i. 'What did Nam put into the cupboard?' 'What does/will Nam put into the cupboard?' (less likely) ii. b. Cái gì_i (thì) Nam cất t_i vào tů? what PRT Nam put in cupboard 'What does/will Nam put into the cupboard?' i. ii. *'What did Nam put into the cupboard?'

⁵ Smith (1997) distinguishes three types of temporal adverbials indicating a point of time: (i) dectic, anaphoric, and referential or clock-calendar adverbials. Deictic adverbials are oriented to the moment of speech (e.g. *today*, *last Thursday*, *tomorrow*...); anaphoric adverbials are oriented to previously established time (e.g. *then*, *at that time*...); and referential adverbials refer to a time established by clock or calendar (e.g. *April*, *3 o'clock* ...).

⁶ The optional particle $th\hat{i}$, glossed as PRT in the text, is analyzed as a discourse marker in Tran (2016) in the spirit of Neeleman and van de Koot (2008), and as a contrast marker in Tran (2019). It is beyond the scope of the paper to discuss the issue of whether the particle plays any role in temporal reference considering that it is optional and can be used in both past and non-past sentences.

The first reading of (9a) and the licensed reading of (9b) indicate that the temporal effect is operative. Interestingly, the possibility of the second reading of (9a) suggests that the temporal effect can be neutralized or absent, a pattern displayed by when-questions with atelic predicates as in (8).

The argument wh-questions in (10) with cái gì 'what' pose a comparable pattern: While the wh-in-situ question is ambiguous, the wh-ex-situ question is not. It is less likely, but possible for (10a) to obtain a non-past reading, in addition to the salient past reading; yet, (10b) does not allow past reading. We witness again the absence of the temporal effect: the second reading of the wh-in-situ (10a), and the legitimate reading of the wh-ex-situ (10b) are equivalent.

- (10)cái gì? a. Nam ăn Nam what eat
 - 'What did Nam eat?' i.
 - ii. 'What will/does Nam eat?' (less likely)
 - Cái gì (thì) Nam ăn? b. what PRT Nam eat
 - 'What will/does Nam eat?' i.
 - *'What did Nam eat?' ii.

We can explain the absence of the temporal effect of argument wh-questions by assuming that just like a bare NP, a wh-phrase like 'what' or 'who' is ambiguous between indefinite and definite reading. That is why it is natural to answer (10a) either with a specified expression like 'The apple you bought' or with an unspecified expression like 'Apples': the former giving rise to a telic reading, the former an atelic reading. On the atelic reading, the temporal reference remains the same, no matter whether the wh-phrase is in situ or ex situ. It is therefore plausible to hold that the temporal effect of argument wh-questions is sensitive to telicity.

Finally, contrary to Duffield's prediction that temporal adverbials, being temporally specified, can occur either sentential finally or sentential initially, it is known in the literature (see Cao 1991; Tran et al. 1940; Truong and Nguyen 1963; among others) that temporal adverbials in Vietnamese surface in different locations, depending on whether they denote past or future times: While past time adverbials can appear sentence initially or sentence finally, future time adverbials must occur sentence initially. Examples (11), taken from Cao (1991) [gloss and translation mine], are illustrative.

- (11) a. (**Ngày) mai** tôi đi. tomorrow I go 'I leave tomorrow.'
 - b. **Tôi đi* (ngày) mai.

 I go tomorrow
 'I leave tomorrow.'
 - c. **Hôm qua** tôi về nhà. yesterday I come home 'I came home yesterday.'
 - d. Tôi về nhà hôm qua.
 I come home yesterday
 'I came home yesterday.'

The ill-formedness of (11b) due to the occurence of the future time adverbial 'tomorrow' in the final position is a mystery on Duffield's analysis, so is the ungrammaticality of (12c) with the future time adverbial 'next year'. Note, however, not all temporal adverbials obey this constraint. Referential adverbials like *lúc ba giờ* 'at 3 o'clock' can occur either initially or finally. We come back to this issue in Section 4.2.

- (12) a. *Nam cưới vợ năm ngoái.*Nam marry wife year last
 'Nam got married last year.'
 - b. **Năm ngoái** Nam cưới vợ. year last Nam marry wife 'Nam got married last year.'
 - c. *Nam cưới vợ sang năm. Nam marry wife next year 'Nam will get married next year.'
 - d. **Sang năm** Nam cưới vợ. next year Nam marry wife 'Nam will get married next year.'

In summary, Duffield's scope evasion analysis is empirically unattested and inadequate, but its bright side lies in the idea of associating temporal interpretation with the vP. Since the temporal effect is also found in non-interrogatives, as demonstrated the next section, it is appealing to have a unified analysis for interrogatives and non-interrogatives, yet the phenomenon turns out to be less straightforward than it seems. However, what is consistent is the fact that the temporal effect is sensitive to telicity, which in turn suggests that an aspect-based investigation into Vietnamese temporal reference appears to be a step in the right direction.

3 A lexical aspect-based analysis of temporal construal

3.1 Temporal reference of bare sentences

Vietnamese employs a few aspect/tense particles, but in natural discourse their occurrence is quite low in frequency. It is far more frequent to come across texts consisting mainly of bare sentences, sentences with lexical material only. The question is how do bare sentences obtain their temporal interpretation? Chinese, an isolating language, gives rise to the same question. Consider the data below taken from Lin (2003:262-263), where CL stands for classifier.

- (13)Ta dapuo yi-ge hua a. ping he break one-CL flower vase 'Nam broke a flower vase.'
 - b. Wo xiangxin ni Ι believe you 'I believe you.'

Lin (2003) argues that bare sentences as in (13) provide no evidence for the projection of TP because their temporal locations can be accounted for with or without covert tenses. On the covert tense analysis, a head tense is covertly realized, and so is the viewpoint aspect. Following Bohnemeyer and Swift (2001), Lin proposes that the default viewpoint aspect of a telic description is perfective, while that of an atelic description is imperfective. The value of the covert tense is determined by a selectional restriction, according to which the covert present tense selects the imperfective AspP, and the covert past tense selects the perfective AspP. Consequently, the telic sentence in (13a) is construed as denoting past tense because it involves a covert past tense that selects a covert perfective aspect, whereas the atelic (13b) is interpreted as present tense since it includes a covert present tense that selects a covert imperfective aspect. The alternative analysis without covert tenses can account for these facts by assuming that the topic time of bare sentences is the speech time. By pragmatic reasoning, the topic time of a non-future perfective durative sentence must be a past interval because a durative event cannot be included in the speech time. Comparatively, the topic time of a nonfuture perfective achievement event must be in the past because such an event must be completed before one can talk about it. The present tense construal of an imperfective sentence is obvious since the topic time/the speech time is included in the event time.

Lin's non-covert tense analysis is in line with Smith and Erbaugh (2005) pragmatic analysis, according to which Chinese follows a default pattern of temporal form and interpretation, characterized in (14).

- (14) Default deictic pattern of temporal form and interpretation
 - a. Ongoing events are in the present: located at speech time
 - b. States (unbounded) are in the present: located at speech time
 - c. Bounded events are in the past: located before speech time
 - d. Explicit temporal information may override (a)–(c)

(Smith and Erbaugh 2005:715)

In terms of Vendler's (1957) verb classification, (14a) and (14b) amount to saying that sentences denoting states and processes/activities are by default construed as present tense, while (c) indicates that achievements and accomplishments denote past events.

It is obvious that either the default temporal interpretation by Smith and Erbaugh (2005) or the covert tense analysis as in Lin (2003) can account for the data in (13), and it is equally plausible to use either of them to account for the Vietnamese data in this paper. However, given the limited scope of the paper we opt for an extension of Smith and Erbaugh's (2005) temporal reference pattern to Vietnamese and leave it open the issues raised by a commitment to the existence of covert tense. First, a covert tense analysis will need to account for the absence of a phenomenon referred to as the *lifetime effects* (Arche 2006; Mittwoch 2008; among others): the correlation between the temporal interpretation and individual-level predicates. An individual-level predicate in the present or past tense triggers an inference (defensible) about the life or death of an individual. This is illustrated by the examples below, where (15a) licenses the inference that John is alive, while (15b), in out-of-the-blue contexts, licenses the inference that John is dead. Consequently, contradictory inferences arise when the subject of an individual predicate denotes an existing entity and a dead one, as in (16).

- (15) a. John is an American musician.
 - b. John was an American musician.
- (16) Michael Jackson and Bob Dylan ??were/#are two American musicians.

If a covert tense existed in Vietnamese, either present or past tense, the Vietnamese equivalent of (16) '*Michael Jackson và Bob Dylan là hai nhạc sĩ người Mỹ*' should be problematic, contrary to fact. Second, a covert tense with a non-future value in the spirit of Mathewson (2006) would also find it difficult to explain the well-known fact reported in reference books, and formal study: bare sentences obtain future reading when modified by future-time temporal adverbials as illustrated in the

preceding data and in (17). If a non-future covert tense was available in Vietnamese as it is in St'at'imcets, then on Mathewson (2006: 677) these sentences would be illformed.

(17)Tháng Linh đi sau Pháp. month after Linh go France 'Next month, Linh will go to France.'

(Phan 2013:67)

Now consider how bare sentences in Vietnamese obtain temporal interpretations. Uttered out of the blue, it is impossible to interpret (18a) as expressing that the state of Nam liking Nga no longer holds at the speech time. Also impossible is the use of (18b), with the non-bare object NP quả táo 'CL apple', to express Nam's habit of eating apples after school. To convey this habit, (18c) must be uttered, where the bare NP táo 'apple' is used. So, it is (18c), not (18b), that can be used as a continuation of 'It is usual that after coming home from school...'

- (18)Nam thích a. Nga. Nam like Nga 'Nam likes Nga.'
 - b. Nam ăn quả táo. Nam buy CLapple 'Nam ate the apple.'
 - Nam ăn táo. c. Nam buv apple 'Nam eats apples.'

While (18a) confirms that state denoting sentences are temporally located at speech time, the contrast between (18b) and (18c), points to a critical issue, mentioned in Section 2, that is, that the structure of the argument NPs can affect the predicate telicity, and that event type is a clausal property, not a verbal property. This is well known in the literature. Krifka (1992) proposes that telicity is composed of the verb and its arguments. For instance, 'run' is an activity denoting verb, without a set terminal point (STP), and is an atelic predicate: $run \subseteq \varepsilon \land \neg STP$ (run). But when it is modified by a measure phrase 'a mile' it has a set terminal point, and is telic: $run.a.mile \subseteq \varepsilon \land STP$ (run.a.mile). Briefly, creation/consumption verbs give rise to telic reading (19b) with quantized reference arguments, and yield atelic reading with cumulative reference arguments (19a).

- (19)a. *John drank wine (for an hour)/(*in an hour).*
 - *John drank a glass of wine (*for an hour)/ (in an hour).* b.

(Krifka 1992:30-3)

Along the same line, Verkyul (1972, 1993) provides a theory of aspectual composition to compute the telicity of the predicate and its arguments. In principle, aspectual composition, according to Verkyul, processes bottom-up, based on the value of the feature [ADD TO] of the verb, and of the feature [SQA] of the argument. Verbs that express dynamic, progress, change, non-stativity are assigned with the positive value of feature [ADD TO], hence [+ADD TO]; stative verbs are assigned with the negative value, namely [-ADD TO]. The feature [SQA] of the argument expresses whether the NP conveys a specified quantity of things or mass denoted by the head noun. If affirmative, it is assigned with the positive value [+SQA], otherwise it is [-SQA]. Formal definitions of how the values of [SQA] are determined are given in (20).

(20) Definition1: An NP of the form Det N denotes a *Specified Quantity* of A in (a domain) E relative to B iff $A \cap B$ is bounded.

Definition 2: An NP of the form Det N denotes an *Unspecified Quantity* of A in (a domain) E relative to B if: (a) $A \cap B = \emptyset$; or $|A \cap B|$ cannot be determined.

Definition 3: A set S is *bounded* if there is an $m \in Z^+$ (=N\ {0}), such that for all $x_i \in S$, i≤ m (i a number assigned to members of S).

(Verkuyl 1993:92)

Finally, for the machinery to work, Verkuyl advances the Plus-Principle, which says that one minus-value below is sufficient to yield a [-T] at the top (T=Telicity). The Plus-Principle is thus to guarantee that a clause with a [+ADD TO] verb is specified with [+T], or telic, only if all of its arguments are specified with [+SQA]. Illustrative examples are given in (21).

- (21)Mary walk three miles]] a. [s [VP [+ADDTO] [+SQA]]] => bounded/telic $I + T_S$ [+SQA] $[+T_{VP}]$ $[v_P]$ walk miles]] b. Mary ls
 - $[-T_S \text{ [+SQA] } [-T_{VP} \text{ [+ADDTO] } [-SQA]]] => unbounded/atelic}$
 - c. $[_S$ Children $[_{VP}$ walk three miles]] $[-T_S$ [-SQA] $[-T_{VP}$ [+ADDTO] [+SQA]]] => unbounded /atelic
 - d. $[_S$ Mary $[_{VP}$ save three miles]] $[-T_S$ [+SQA] $[-T_{VP}$ [-ADDTO] [+SQA]]] => unbounded /atelic

An example of how telicity is composed in Vietnamese on Verkuyl's theory is given in (22).

- (22) Tàu đến lúc 12 giờ. train arrive at 12 o'clock
 - (i) 'The train arrived at 12 o'clock.'
 - (ii) 'Trains arrive at 12 o'clock.'

Given the [+ADD TO] achievement verb 'arrive', the telicity of (22) is dependent on the value of the bare NP. If it is taken as a definite NP, hence [+SQA], the sentence will be marked [+T], or telic, and is interpreted as past tense (22i). The sentence is felicitous as an answer to a question about the arrival time of a train known by both speaker and hearer. If it is construed as an indefinite NP, hence [-SQA], referring to an unknown number of trains, then sentence (22) is marked [-T], or atelic, and is non-past in temporal reference (22ii). The sentence is appropriate as a general statement about the arrival time of trains at a station.

In brief, Vietnamese demonstrates that telicity is a clausal, not verbal, property in that it is composed of the verb and its arguments/complements. It is plausible to extend either Krifka's or Verkuyl's to Vietnamese. For instance, a clause involving a dynamic verb and cumulative/unspecified arguments gives rise to an atelic event, while a clause involving a dynamic verb with quantized/specified arguments yields a telic event. Temporal reference of bare sentences is derived from Smith and Erbaugh's (2005) default deictic pattern of temporal form and interpretation: achievement and accomplishment (telic) events are construed as past events; by contrast, states and activities (atelic) are non-past.

3.2 Temporal reference in non-canonical sentences

We observed in Section 2 that the temporal effect of 'when'-questions and argument wh-questions is sensitive to telicity. Interestingly, non-interrogatives display similar behavior as illustrated by the examples below. The past interpretation of the first reading of the canonical (23a) and the non-past reading, the legitimate reading of the non-canonical (23b) strongly suggests that the temporal effect is at work. However, the fact that it is possible, though less likely, to grant the canonical sentence (23a) a non-past reading indicates that the temporal effect is absent when the predicate is atelic. This fact is parallel to what we observed in the argument wh-questions in (9), Section 2. In natural discourse, it is more appropriate to take (23b) as expressing a generic event, or a habit, but is less likely to do so with (23a). (23a) is instead prominently construed as denoting an episodic event in the past. Note again that the availability of these readings is dependent on the (in-) definiteness of the bare NP 'money' as rendered by the translation. Obviously, (23b), not (23a), is a felicitous continuation of a preceding sentence like 'It is not Nam's habit to put jewelry or gold into the cupboard, but...' Meanwhile, a sentence like 'Nam received the money, and then...' should be followed by (23a), not (23b).⁷

cất (23)a. Nam vào tů. put enter cupboard Nam money i. 'Nam put the money into the cupboard.' ii. 'Nam will put/puts money into the cupboard.' (less likely) Tiền b. (thì) Nam cất vào tů. cupboard PRT enter money Nam put

i. 'Nam will put/puts money into the cupboard.'ii. *'Nam put the money into the cupboard.'

Comparable to (23), the examples in (24) indicate further that the temporal effect is conditional on the telicity of the clause. When the canonical sentence denotes an atelic event, there is no temporal effect, as illustrated by the second reading of (24a) and the legitimate reading of (24b), where the bare NP is construed as indefinite, giving rise to an atelic reading. By contrast, the first reading of (24a) and the legitimate reading of (24b) suggest that the temporal effect is operative. On this reading, the bare NP in (24a) is construed as definite, hence a telic reading obtains.

(24) a. Nam ăn táo. Nam eat apple i. 'Nam ate the apples.' ii. 'Nam will eat/eats apples.' (less likely) b. Táo (thì) Nam ăn. PRT Nam apple eat 'Nam will eat/eats apples.' i. *'Nam ate the apples.' ii.

In summary, interrogatives and non-interrogatives display a common pattern regarding the temporal effect in that they are sensitive to telicity. The temporal effect is not operative in a declarative or a wh-question with atelic description: A change in word order (NP dislocation or wh-ex-situ) does not lead to a change in their temporal reference.⁸

⁷ Regarding the possibility of construing the displaced bare NP *tiền* 'money' in (23b) as a topic, hence definite, as suggested by a reviewer, the answer is negative as far as my judgment and thoses of other Vietnamese speakers I consulted with are concerned. Crucially, (23b) is felicitous as a continuation of a topic inducing discourse beginning with *Nói cho tôi biết về tiền*. 'Tell me about money', and the displaced bare NP 'money' must be construed as indefinite.

⁸ Note in passing that replacing the phrase *vào tử* 'enter cupboard' in (23a) with the phrase *trong tử* 'in cupboard' does not change the meaning. However, displacing *trong tử* as in *Trong tử* (*thì*) *Nam cất tiền* 'In the cupboard Nam will/puts money' is grammatical and the temporal effect remains

4 Word order and temporal interpretation: A nonuniform analysis

Considering the robust evidence of a correlation between word order and temporal reference in the data, it is appealing to come up with a unified analysis. However, further scrutiny suggests that it is more plausible to take into consideration a nonuniform analysis of the phenomenon in question. I argue that the temporal effect as analyzed in Duffield (2007) is just superficial: 'when'-phrases turn out to obey whatever constraint that temporal adverbials obey, and are base generated in their surface position. There is no correlation between the position of the when-phrase and temporal reference. By contrast, the temporal effect of argument wh-questions and declaratives, so long as they are composed of telic predicates, is real; a change in their word order leads to a change in their temporal reference.

4.1 Accomplishment realization and telicity

We have witnessed the neutralization (or the absence) of the temporal effect in a sentence with an atelic/unbounded event description: a non-past interpretation obtains regardless of whether the wh-phrase, be it an argument or an adjunct when-phrase, or the argument NP stays in situ or is dislocated. Observe again the sentences in (23), disregarding the case where the bare NP in (23a) is construed as indefinite, neutralizing the temporal effect. The legitimate reading of (23b) expresses an activity of an unspecified length: Nam puts money in the cupboard in the past, and continues doing so at present and in the future, with the amount of money being unspecified. Consequently, (23b) does not state the temporal extent of the activity. By contrast, the first reading of (23a) conveys an activity of Nam putting the money into the cupboard, with the amount of money being identified due to the definite reading of the bare NP tien 'money', plus a logical culmination such that the specified money ends up being in the cupboard. This reading expresses an accomplishment event, a complex event the structure of which is formalized as below by Rothstein (numbered 38 in Rothstein 2004), where x and y stand for the content of the activity and BECOME event.

intact, but displacing vào tủ 'enter cupboard' as in Vào tủ (thì) Nam cất tiền, intended 'In the cupboard Nam will/puts money', is ungrammatical. A possible explanation is because trong 'in' is a preposition, whereas vào is a coverb. The configuration where vào tủ 'enter cupboard' occurs sentence initially does not license the use of the coverb vào as a preposition; hence ungrammaticality.

(38) Accomplishment template
$$\lambda y \lambda e. \exists e_1, \ e_2 \ [e=^s (e_1 \cup e_2) \land ACTIVITY_{\langle x \rangle} (e_1) \land Ag(e_1) = x \land Th (e_1) = y$$
$$\land BECOME_{\langle y \rangle} (e_2) \land Arg(e_2) = Th (e_1) \land INCR (e_1, e_2), C (e_2))]$$

An accomplishment event involves a sum of two small eventualities, e_1 and e_2 , with e_1 being an activity, and e_2 a 'becoming' event, an incremental event that accompanies the activity. The theme of the activity e_1 is the incremental argument of the BECOME event e_2 , and e_1 is incrementally linked to e_2 , with C (e_2) indicating the culmination of e_2 , the set of upper bounds of e_2 .

In brief, the activity event denoted by (23b) differs from the accomplishment (23a) in that the latter denotes a complex dynamic event with a culmination point or set terminal point: the event comes to an end with all the amount of money being in the cupoard, whereas the former denotes a dynamic event without a culmination point: we do not know when the event is completed. Thus (23b) expresses a single event consisting of a series of Nam's putting money into the cupboard. It is assumed that the lack of the culmination point of (23b) results from the blocking of the construction of the complex event of accomplishment.

To see how the blocking occurs, consider more examples that involve activity denoting sentences 'John pushed the ball', 'Mary wiped the table', and accomplishment denoting sentences that comprise verb-particle constructions and adjectival resultative constructions like 'John pushed the ball out', 'Mary wiped the table clean', respectively. Snyder (2012) analyzes these English verb-particle constructions and adjectival resultatives as involving a specific rule of semantic composition, and proposes a parameter, the Compounding Parameter. Languages differ as to whether the Compounding Parameter setting is positive or not. The positive setting of this parameter is responsible for endocentric compounding as a creative process through an operation called Generalized Modification (GM). For instance, speakers of English can easily grasp the meaning of a newly created word like 'frog chair', $[_N$ frog $[_N$ N chair]], as a kind of chair that stands in some contextually relevant relation to the denotation of the word 'frog'. Simply put, [+TCP] languages make available endocentric compounding and constructions that give rise to accomplishments, similar to English verb-particle constructions and adjectival constructions.

- (25) a. The Compounding Parameter (TCP)
 The language (does/does not) permit Generalized Modification
 - b. Generalized Modification (GM)

If α and β are syntactic sisters under the node γ , where α is the *head* of γ , and α denotes a *kind*, then interpret γ semantically as a *subtype* of α 's kind that stands in a pragmatically suitable relation to the denotation of β (Snyder 2012:285).

For instance, the GM configuration that results in an adjectival resultative construction (26a) is given in (26b), where the head α is the verb 'wipe' and β is the resultative adjective 'clean'. The meaning y of the construction is given in (27).

- (26)*John wiped the table clean.*
 - [wipe [AP clean]] b.
- a subtype of the 'wiping' kind of event, that stands in a pragmatically (27)a. suitable relation to the 'clean' kind of state.
 - a kind of accomplishment event, with 'wiping' as its development b. and 'clean' as its culmination.

(Snyder 2012:293)

It is highly plausible to extend this analysis to cases that involve verbs of path--ofmotion (28) and path expressions.

- (28)*Mary pushed the cart* (*in an hour). a.
 - Mary pushed the cart out of the yard (in an hour).

The activity event of (28a) is a simplex event of cart pushing; the accomplishment event of (28b) involves two eventualities, the cart pushing activity and the state of the cart being out of the yard. The GM configuration of (28b) is given in (29a), with α being the head 'push', β the small clause, the meaning y resulted from GM is given in (29b). The accomplishment event is described as in (29c).

- $[_{VP} < push > [_{SC} < the cart > _{PP} [out of the yard]]]$ (29)a.
 - b. a subtype of the 'pushing' event-kind that stands in a pragmatically suitable relation to the state named by the cart out of the vard
 - an accomplishment event-kind comprising two subparts, e₁ and e₂, where e_1 is an activity of (Mary) pushing the cart, and e_2 is a 'becoming' event involving the cart, and at the upper bound of e₂, the cart is out of the yard.

Back to Vietnamese, the data in (30a) and (30b) indicates that Vietnamese makes use of compounding as a productive means of word formation, and makes available adjective resultative constructions. Note that the connection between compounding and resultatives in Vietnamese is morphological: the availability of the compound verb in (30c) indicates that the verb and the adjective form a complex word. This connection in English, according to Snyder (2012:289) is semantic. Therefore, it is conclusive that Vietnamese is a [+TCP] language.

- (30)a. thuốc lá 'tobacco' (drug+leaf) thuốc bổ 'tonic' (drug+nutrition) làm giàu 'to get rich' (to make+rich) làm tiền 'to make money (bad connotation)' (to make+money)
 - b. Nam làm Mai khố. Nam make Mai sad 'Nam made Mai sad.'

c. *Nam làm khổ Mai*.

Nam make sad Mai
'Nam made Mai sad.'

Accordingly, I propose that Vietnamese employs Generalized Modification (GM) to drive accomplishment predicates from activity verbs and predicates of location or path, or resultative adjectives. Differing from English, Vietnamese requires the compounding constituents, namely the head α and its sister β , to be fully realized and in sisterhood for GM application. Otherwise, GM does not apply and the accomplishment predicate does not obtain. With this constraint in place, the contrast in telicity between (23a) and (23b) can be explained as follows. The application of GM that results in the construal of the node γ as an achievement predicate is operative in (23a), as represented in (23'a), where the head verb 'put' and its sister, the small clause, are fully realized. By contrast, GM does not apply in (23b), as represented in (23b'), where the small clause is not fully realized given the NP 'money' being dislocated. Hence, the failure of accomplishment realization follows. ⁹

(23') a.
$$[_{VP} < put > [_{SC} < money > _{PP} [in cupboard]]]$$

b. $[_{VP} < put > [_{SC} < > _{PP} [in cupboard]]]$

This assumption finds its indirect support from Zubizarreta and Oh (2007). The authors present and discuss the following example (numbered 440 in their work).

(440) *John squeezed the clothes in the bag.*

The sentence in (440) allows two possible readings due to the ambiguity of the PP 'in the bag'. On the locative reading of the PP, it conveys an activity event interpretation, according to which John is inside the bag and is squeezing the clothes. On the directional meaning of the PP, it expresses an accomplishment event, meaning 'John made the clothes go into the bag by squeezing them.' What is relevant to our discussion is that when the PP is topicalized as in (441a), the sentence is disambiguated and allows only the activity reading. The unavailability of the accomplishment can be accounted for by the assumption that the dislocation the PP 'in the bag' blocks GM.

(441) a. *In the bag, John squeezed the clothes.* (Locative) Zubizarreta and Oh (2007:147)

⁹ I assume the dislocation leaves neither trace nor copy, following Epstein and Seely (2002). I thank Doreen Geogi for making me aware of their work.

Parallel examples in Vietnamese are given in (31).

- (31)tranh tường. a. Nam treo trên Nam hang painting on wall 'Nam hung the painting(s) on the wall.'
 - b. Trên tường (thì) Nam treo tranh. on wall PRT Nam hang painting 'On the walls, Nam hung/hangs (the) painting(s).'

It is obvious that (31a) expresses a complex dynamic action, whereas (31b) is preferably taken as describing an activity. This is due to their difference in telicity. (31a) licenses a directional meaning, and as such it gives rise to an accomplishment reading that includes the activity event of Nam hanging the painting(s), and the becoming event of the painting(s) being on the wall. By contrast, (31b) allows for the locational reading only, hence the atelic. This contrast is borne out by the fact that (31a), not (31b), can be used as a continuation of a sentence describing a dynamic event as in (31c).

(31)c. Lan bước nhanh vào phòng. Ngay lập tức,... Lan step swift enter room. Immediately,... 'Lan stepped swiftly into the room. Immediately...'

The infelicity of (31b) in forming a mini-discourse with (31c) is explained away, based on discourse research on aspect and narrative time. Dry (1981), and Smith (2003) point out that sentences that express bounded events, or achievement/ accomplishment events, propel the narrative time, whereas stative and activity or unbounded sentences do not, in general. It is obvious that the dynamicity of the first sentence in (31c), plus the requirement of the adverb 'immediately' that the sentence it modifies must denote a dynamic event that instantly follows the first event, triggers the expectation that the following sentence must advance the narrative time. A sentence conveying an unbounded event as in (31b) does not propel narrative times. Hence, it is odd to continue (31c) with (31b).

The same explanation applies for the temporal effect of the dislocation of the argument NP as in (31d): like (31b), (31d) cannot be used as a continuation of (31c). 10

¹⁰ The past tense translation of (31b) and (31d) is not locally ideal, but is intended to allow them to form a minimal pair with (31a) when it comes to which can continue (31c). However, it is globally fine given that the past tense information provided by the preceding sentence (31c) leads to the non-default interpretation of the following sentence. In other words, the sentences in (31b) and (31d) represent cases where the relation to speech time is conveyed by context (Smith and Erbaugh 2005).

(31) d. *Tranh* (thì) Nam treo trên tường.
painting PRT Nam hang on wall
'Painting(s), Nam hung/hangs on the wall.'

Back to example (24), it is helpful to look at the analogous examples, given in (32), that involve a telic particle, $h\acute{e}t$, glossed as T-PART in Fukuda (2007), and a non-bare NP. The contrast in the event structure of these sentences is interesting: (32a) conveys an accomplishment event, while (32b) expresses what seems like an activity event. The fact that the verb 'eat' even with the support of the telic particle in (32b) does not express a telic (accomplishment-like) event suggests that the predicate 'eat' in (24) is basically an activity denoting verb. On Krifka (1992), the telicity of (24a) is dependent on the direct object argument: if the bare NP is construed as a quantized argument, it is telic; if it is construed as a cummulative, it is atelic. The telic reading of (32a) is obviously derived from the quantized arguments 'the three apples'. The atelic reading of (32b) can be explained if we assume that aspectual composition is a operational in surface syntax: Fronting the object NP blocks aspectual composition, as a result of which the activity reading remains unchanged.

- (32) a. *Nam ăn hết ba quả táo*. Nam eat T-PART three CL apple 'Nam ate all the three apples.'
 - hết. táo b. Ва quả (thì) Nam ăn three CL apple PRT Nam eat T-PART 'Nam eats three apples.' (He has the ability to eat up to three apples, not more)

Note that replacing the non-bare NP in (32) with the bare NP 'apple' does not change the telic-atetic flip-flop, but adds extra meaning to (32b'), as shown by the translation. Crucially, (32'a) states that Nam ate all the apples, whereas (32b') expresses that whenever Nam eats apples, not other fruits, he eats them all.

- (32') a. *Nam ăn hết táo.*Nam eat T-PART apple
 'Nam ate all the apples.'
 - b. *Táo* (thì) Nam ăn hết.

 apple PRT Nam eat T-PART

 'Nam eats all apples.'

 (He has the ability to eat all apples, but not other fruits)

In brief, canonical declaratives and wh-argument question can be aspectually telic or atelic because wh-phrases are analogous to bare NPs in that they are ambiguous with respect to definiteness or [SQA], (in Krifka's terms, it can be either referentially

quantized or cumulative). The telicity of a canonical argument wh-question or a declarative obtains with the wh-phrase or the bare NP being construed as definite or positively valued [+SQA] (quantized). By contrast, dislocating NPs and whphrases blocks GM (Generic Modification) or aspectual composition, as a result of which the remnant material is construed as denoting activity, or atelic/unbounded event. The dislocated wh-phrases and NPs are construed as indefinite or negatively valued [-SQA]. Table (33) summarizes what we have discussed.

(33)Word order, Generic Modification/Aspectual Composition, and Telicity

	Argument	Declaratives
	wh-questions	
Canonical WO => GM/AC	Telic	Telic
Non-canonical WO =>*GM/*AC	Atelic	Atelic

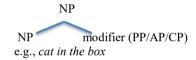
The following subsection shows that the temporal effect of 'when'-questions is just superficial, but tied to the constraints on temporal adverbials, and that the location of the 'when'-phrase does not contribute to the event structure or telicity. The temporal specification of a 'when'-phrase is determined by its role in the temporal modification configuration.

4.2 The syntax of temporal adverbials

Temporal adverbials, in general, are known to be sensitive to the lexical aspect of the sentence they combine with (Dowty 1979; Kamp and Reyle 1993). For instance, an atelic predicate sentence must be modified by a temporal adverbial of the form 'for temporal NP', not 'in temporal NP': 'He walked for two hours/*in two hours', whereas a telic predicate sentence must be modified by an 'in temporal NP', not 'for temporal NP': 'He walked to the store in two hours/*for two hours'. Given the telicity sensitivity of the temporal effect, it is expected that answers to the 'when'-questions under investigation involve only deictic adverbials. Therefore, it is worth considering again the restrictive distribution of deictic adverbials in Vietnamese: future time adverbials must occur sentence initially, whereas past time adverbials are not subject to this restriction (see Cao 1991, 1998; Tran et al. 1940; Truong and Nguyen 1963). It is highly likely that an account for this constraint can be extended to the temporal effect of 'when'-questions. But first let us investigate the syntax of deictic adverbials in Vietnamese.

Demirdache and Uribe-Extebarria (2004) analyze the semantics and syntax of temporal adverbials as being parallel to that of nominal modification; hence the term temporal modification. In nominal modification the modifier is basegenerated as an adjunct to the NP it modifies, and thus restricts the reference of the NP, as illustrated in (34a). Modification is established via predication: the modifier is predicated of its sister NP. Analogously, in temporal modification, the temporal adverbial is base-generated as an adjunct to the sentence, and restricts its temporal reference. But how is the temporal modification realized? Basically, according to Demirdache and Uribe-Extebarria, a sentence containing a temporal adverbial as in (35) involves a dyadic predicate, represented by the preposition 'in/after/before' or a null 'in'. The predicate establishes a topological relation (inclusion, subsequence, or precedence) between the two time denoting arguments, two Zeit Phrases. The external argument is the AST-T (assertion time) or EV-T (event time) of the sentence, and the internal argument is the temporal adverbial. Demirdache and Uribe-Extebarria assume that when either the head T or head Asp is without morphological content, its external temporal argument binds its internal temporal argument. Hence, in the example (35), where the head Asp is null, the assertion time is co-temporal with the event time. ¹¹

(34) a. The syntax of nominal modification



b. The syntax of temporal modification



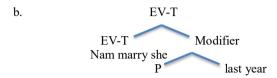
(35) *John was born in/after/before 1995/last year.*

I propose, following Demirdache and Uribe-Extebarria (2004)'s temporal modification, that a sentence like (36a) involves a null predicate 'in', establishing an inclusion relation between two time denoting arguments such that external argument is included in the internal argument, where the former is the bare

¹¹ Assertion time is defined à la Klein (1994) as the time for which an assertion is made or to which the assertion is confined; for which the speaker makes a statement, and event time is the time at which the event or state denoted by the VP holds or occurs.

sentence *Nam cưới cô ấy* 'Nam marry she' and the latter is the temporal adverbial *năm ngoái* 'last year'. The diagram in (36b) is illustrative. 12

a. Nam cưới cô ấv năm ngoái (36)Nam marry she year last 'Nam married her last year.'



The next question is how does the temporal reference in (36) obtain? Before we try to answer this question, let us first look at the syntax and semantics of nominal modification in Vietnamese. Vietnamese allows a [NP NP] nominal modification configuration, in which the meaning of the compound is dependent on that of the initial head (37a). Switching their order alters the meaning of the compound, as illustrated in (37b).

(37) a.
$$NP_{\alpha}$$

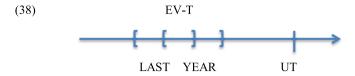
$$NP_{\alpha}$$

$$NP_{\beta}$$

$$gi \dot{a} \dot{y} \text{ 'shoe'} da \text{ 'leather'} da \text{ 'leather'$$

Extending this analysis to the interpretation of the temporal modification, the temporal interpretation of (36) is derived from the temporal interpretation of the bare sentence 'Nam marry she', the head, and the deictic adverbial 'last year', the modifier. Since the bare sentence conveys a bounded event, it is by default located in the past. The temporal modification, as illustrated in the diagram in (38), restricts the event time by establishing that it is included in the time denoted by the deictic adverbial.

¹² A theory that takes bare sentences like (36a) as involving a null head T and a null head Asp in the spirit of Demirdache and Uribe-Extebarria (2004) will state that in (36a) the external argument of the null T binds the internal argument, which is the assertion time; the external argument of the null head Asp binds the internal argument, the event time. In the end, the temporal modification is between the event time and the temporal adverbial. In this direction, Vietnamese makes available a null T. I leave open this possibility.



The distributive constraint on future denoting adverbials, as shown in (39a), can be explained, based on the analysis above, as follows.

(39) a. * Nam cưới cô ấy sang năm.
Nam marry she next year.
'Nam will marry her next year.'
b. [Nam marry she [+P]] [NEXT YEAR [-P]]
c. EV-T UT NEXT YEAR

As shown in (39b) and (39c), the time denoting argument, the head, represented by the bare sentence 'Nam marry she', is construed by default as being located in the past on the temporal axis, marked as [+P], while the deictic adverbial is located in the future [-P]. The temporal modification fails because they are not in the same side on the axis, resulting in ungrammaticality. This explanation leads to the question of why (40a) is grammatical given that it lacks the compatibility between the temporal adverbial and the default temporal interpretation, supposedly giving rise to the same conflict observed in (39a)? In other words, the question is why does the temporal information given by the deictic adverbial 'next year' override the default temporal reference in (40a), not in (39a)?

This question implicates that the pragmatic rule must be revised. For the pragmatic rule (14d), that is, that explicit temporal information may override default temporal reference, to be operative, the deictic adverbial must be in a syntactic configuration that projects its temporal value. In the case of Vietnamese, it must be the head of the temporal modification. As illustrated in (40c), the head [–P] 'next year' projects its value [–P], and hence overriding the default past interpretation denoted by the bare sentence.

(40) a. Sang năm Nam cưới cô ấy.
next year Nam marry she
'Nam will marry her next year.'
b. [NEXT YEAR[-P]] [Nam marry she [+P]]



Unlike future denoting adverbials, past denoting adverbials are not subject to the sentence initial constraint as illustrated in (41a, b). This is because the past denoting adverbials and the bare sentence bear the same temporal value [+P]. The surface difference between (41a) and (41b) is presumably triggered by information structural consideration. That is why, (41b), not (41a), is felicitous as a continuation in a contrastive topic discourse: A asks B: 'Tell me what Nam did recently.' B replies: Tôi không biết Nam làm gì trong thời gian gần đây, nhưng ... 'I don't know what Nam did recently, but....'. Also different is their temporal modification configuration: in (41b) as shown in (41b'), 'last year' is the head, and the bare sentence is the modifier; by contrast, in (41a) as displayed in (41a'), 'last year' is a modifier, and the bare sentence is the head.¹³

a. Nam cưới cô ấy năm ngoái. (41) Nam marry she vear last 'Nam married her last year.'



b. Năm ngoái Nam cưới cô ấy. year last Nam marry she 'Nam married her last year.'



Further evidence in support of this analysis is provided in what follows. It is known that since individual-level predicates express stable properties, they are incompatible with temporal modifiers. Thus, it is odd to utter 'Mary knew German last night', but is perfectly fine to say 'Mary spoke German last night' because 'know' is an individual predicate, expressing a stative eventuality. However, the verb 'know'

¹³ I am grateful to Paul Law (p.c.) and an anonymous reviewer for pointing out the parallel modification configuration of future adverbials and sentence initial past adverbials as illustrated in (40) and (41).

can be coerced into expressing an achievement event.¹⁴ The examples below are illustrative, taken from Smith (1997: 18).

- (42) a. *Bill knew the truth*. (Stative)
 - b. Suddenly Bill knew the truth. (Achievement)

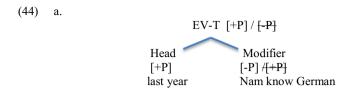
The coercion of the stative predicate 'know the truth' in (42a) into an achievement predicate in (42b) is thanks to the occurrence of the event modifying adverb 'suddenly'. It is argued that Vietnamese coerces of a stative predicate into an achievement through temporal modification. However, the grammaticality and acceptability of the coerced sentences varies, depending on the temporal modification configuration they are in. Consider the achievement-stative flip-flop in the following.¹⁵

- - i. ?? 'Nam began to know German last year.'
 - ii. !'The state of Nam knowing German held last year.'
 - b. Sang năm Nam biết tiếng Đức. next year Nam know German
 - i. 'Nam will begin to know German next year.'
 - ii. *'The state of Nam knowing German will hold next year.'

Both (43a) and (43b) are grammatical, yet their acceptability is different. This is because the former retains the stative reading, whereas the latter does not. In other words, while (43a) allows for some degree of ambiguity in event type, (43b) completes the coercion, as indicated by the absence of the stative reading of (43b), and its availability in (43a). Structurally, these sentences are in the same configuration, with the temporal adverbial as the head and the bare clause as the modifier. The configuration of (43a) is (44a), and (43b) is (44b).

¹⁴ Coercion is defined by Zucchi (1998) as follows: 'A different type of analysis of aspect shift appeals to the notion of *coercion*. This notion may be illustrated as follows. Let δ be a syntactic constituent of form $[\alpha \beta \gamma]$ and R the semantic rule which forms the meanings of constituents of type α . If combining the meanings of β and γ via R leads to trouble (for example, leads to inconsistency or prevents from assigning an interpretation to δ) the speaker has the option of reanalyzing the meaning of β or γ (coercing the meaning of β or γ into a different meaning) in order to apply R to form the meaning of δ ' (Zucchi 1998:350).

¹⁵ For the achievement-state flip-flop of the verb of cognition 'know' in other languages, see Lee (1999) on the achievement reading of the verb 'know' in Korean.



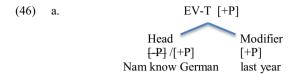
Recall that the head overrides the temporal value of the modifier. In this case, the modifier, the bare clause, is ambiguous between the achievement and stative reading, hence its temporal value is either [-P] or [+P]. The overriding mechanism requires the modifier to have a temporal value opposite of that of the head. Consequently, the modifier must take the [-P] value, the default temporal value of a stative sentence. That is why it is not quite acceptable: An individual-level predicate modified by a temporal adverbial.

By contrast, configuration (44b) of (43b) allows only the [+P] value of the modifier (so that it can be overridden by the [-P] head). This leads to the perfect coercion, as indicated by the absence of the stative reading.

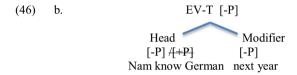


The sentences in (45) are in a different configuration, giving a different pattern of acceptability and grammaticality. First, the cancellation of the default temporal reference does not happen because the head is not the temporal adverbial, but the bare sentence. It is arguable that this change leads to an adjustment of the null predicate: in a configuration as in (44a) and (44b) the predicate establishes a relation in which the modifier is included in the head, but in a configuration as in (46a) and (46b), the head is included in the modifier. Therefore, in order to execute the temporal modification, the bare clause in (45a) must take the [+P] value. This is the reason why (45a) is grammatical and obtains an achievement reading only. The configuration of (45a) is (46a).

- biết tiếng Đức (45)Nam năm ngoái. German Nam know year last i. 'Nam began to know German last year.' *'The state of Nam knowing German held last year.' ii b. *Nam biết tiếng Đức sang năm. Nam German know next year *'Nam will begin to know German next year.' i.
 - ii. * 'The state of Nam knowing German will hold next year.'



The ungrammaticality and unacceptability of (45b) is predictable. The sentence licenses neither the stative nor the achievement reading. On the stative reading (ii), the bare clause must choose the [–P] value, the default temporal reference of a stative predicate, to be modified by the temporal adverbial [–P]. A stative predicate modified by a temporal adverbial is ill formed. The configuration of (45b) on this reading is (46b).



On the achievement reading (i), the bare clause takes on the [+P] value, while the modifier is [-P] valued, blocking temporal modification. Briefly, on this reading (45b) is ungrammatical for the same reason that makes (39a) ungrammatical: The event time and the deictic temporal adverbial are not located in the same side of the temporal axis, as indicated in configuration (39c).

To conclude, deictic adverbials locate bounded events by placing the events along the temporal axis, directly determining on which side of the temporal axis they are situated. In Vietnamese, temporal modification is endocentric in which the temporal value of the initial head determines the temporal value of the compound. It is therefore expected that future denoting adverbials are base generated in the initial position, as the head of the compound, to override the past time value (the default temporal interpretation) of the modifier, the bare sentence. Past time denoting adverbial must be base generated in the modifier position, the final position since the head, which is the bare sentence, is by default construed as denoting past time.

Now back to the 'when'-questions, I assume, that the 'when'-phrase, following Duffield (2007), is temporally unspecified. Then how do the 'when'-questions obtain the temporal interpretations that we have observed? Extending the temporal modification analysis above, I propose that the 'when'-phrase inherits the temporal value from the position it is base-generated. Recall that the default temporal interpretation is overridden only when the temporal adverbial is head of the temporal modification. It follows naturally that a 'when'-phrase as the head obtains a temporal value opposite of the modifier, the bounded event sentence. By calculation this temporal value is non-past, [–P]. By contrast, a 'when'-phrase in the modifier position must take on the temporal value of the bare sentence, the head, which is past [+P]

The diagrams in (47) summarize the discussion.

(47)When-phrase in final position

When-question Head* Modifier [+P] [+P]'she leave' 'when' cô ấy đi khi nào 'When did she leave?'

b. When-phrase in initial position

When-question [-	·P]
Head	Modifier
[-P]	[+P]
'when'	'she leave
khi nào	cô ấy đi
'When will she leave?'	•

5 Conclusion

The temporal effect of when-questions in Vietnamese as reported in the literature is tied to the aspectual composition of the sentence. It is operative only in sentences that express bounded events. Vietnamese indicates that the pragmatic rule of default temporal reference by Smith and Erbaugh (2005) is not syntax-free. Temporal modification in Vietnamese requires the deictic adverbial to be in the head position to override the default temporal interpretation of the bare sentence. Consequently, a base-generated 'when'-phrase in the head position obtains a temporal value opposite of that of the bounded event sentence, while a basegenerated 'when'-phrase in the modifier position takes on the temporal value of the head. Hence, the past versus non-past contrast.

The temporal effect of argument wh-questions and declaratives derives from the syntactic operation of Generic Modification (GM). Typologically, Vietnamese is a language with the positive setting of the Compounding Parameter in terms of Snyder (2012). Canonical declaratives and argument wh-questions, with telic inducing material, license the application of GM or aspectual composition, yielding bounded events, hence past; by contrast, their non-canonical counterparts block the application, giving rise to an unbounded event description, hence non-past. Vietnamese illustrates what has been known in the literature since at least Verkuyl (1972) that certain predicate-argument configurations allow for a telic interpretation while others license only an atelic reading.

The temporal effect turns out to be a crosslinguistic issue of how bare sentences obtain temporal reference. It is equally plausible for either a covert tense analysis or a pragmatic proposal to account for the temporal reference of bare sentences in Vietnamese. However, the *lifetime effects* and the availability of nontemporal lexemes that anchor the eventualities to the speech time, described in the literature as 'adverbs that express categories of tense' (Nguyen 1997), pose a serious challenge to a covert tense analysis of Vietnamese. For instance, the following sentence is located at present, and inserting a particle that can shift its temporal location into past is ungrammatical.

- (48) a. Trời nóng quá! sky hot too 'It is too hot!'
 - b. *Trời đã nóng quá! sky PRT hot too (Intended) 'It was too hot!'

However, inserting a past time adverbial is acceptable, and importantly it must be inserted sentence initially (Truong and Nguyen 1963).

- c. Hôm qua trời nóng quá! yesterday sky hot too 'It was too hot yesterday!'
- d. *Trời nóng quá hôm qua! sky hot too yesterday (Intended) 'It was too hot yesterday!'

The analysis proposed in the paper would account for the grammaticality of (48c) by saying that in the temporal modification configuration of (48c) the temporal adverbial 'yesterday' is the head, and as such it overrides the default present tense reference of the modifier, the bare sentence expressing the state of the weather being too hot.

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