

Anteriority and simultaneity in Vietnamese

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Abstract

We describe several facts concerning temporal interpretation of sentences in Vietnamese and present an account which is based on the analysis proposed in Abusch (1988) as it is interpreted by Heim (1994). Our account assumes that tense is explicitly represented in Vietnamese as a pronoun. Thus, it constitutes supporting evidence for the pronominal theory of tense and for the universality of T as a syntactic category (Chomsky 1995).

1 Preliminary

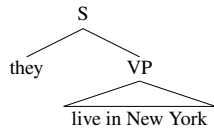
1.1 Two issues concerning tense

Debates on tense as a linguistic category have raised two issues concerning its representation. The first concerns semantics: is tense quantificational or pronominal?

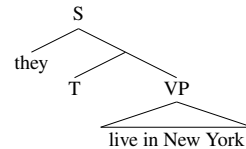
- (1) a. A man came into the room = $\exists x(x \text{ is a man} \wedge x \text{ came into the room})$ quantificational
 b. He₇ came into the room = $\frac{g(7) \text{ came into the room}}{g(7) \text{ is a man}}$ pronominal
- (2) John kissed Mary
 a. Quantificational interpretation (cf. Prior 1967, Montague 1973)
 $\exists t(t \text{ precedes the speech time} \wedge \text{John kisses Mary at } t)$
 b. Prenominal interpretation (cf. Partee 1973, Kratzer 1998)
 $\frac{\text{John kisses Mary at } t}{t \text{ precedes the speech time}}$

The second issue concerns syntax: is tense explicitly represented in morphologically tenseless languages such as Vietnamese?

- (3) Họ sống ở New York
 They live in New York
- (4) a. Tense is not syntactically represented (cf. Wu 2009, Lin 2006, Cao 1998)



- b. Tense is syntactically represented (cf. Duffield and Phan 2010, Phan 2013)



1.2 Observations on Vietnamese

1.2.1 Temporal anteriority

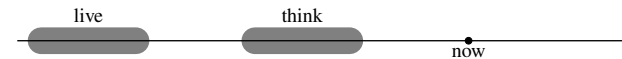
In Vietnamese, the tense morpheme **đã** expresses temporal anteriority. It is incompatible with present or future interpretation. This is evidenced by the three-way contrast shown in (5), given the common knowledge that Barack Obama is a former, while Donald Trump is the current, president of the US.

- (5) a. Barack Obama đã sống trong Nhà Trắng
 Barack Obama ĐÃ live in White House
 b. #Donald Trump đã sống trong Nhà Trắng
 Donald Trump ĐÃ live in White House
 c. #Tổng thống tương lai đã sống trong Nhà Trắng
 the future president ĐÃ live in White House

1.2.2 Past under past

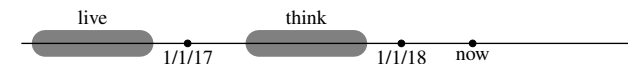
In the “past-under-past” configuration, where **đã** is embedded under another **đã**, the “backward-shifted” reading is attested, while the “simultaneous” and the “forward-shifted” readings are not available: (6) entails that the time of Mary’s living in New York precedes the time of John’s thought, which itself precedes the time of utterance.

- (6) John đã nghĩ rằng Mary đã sống ở New York
 John ĐÃ think that Mary ĐÃ live in New York

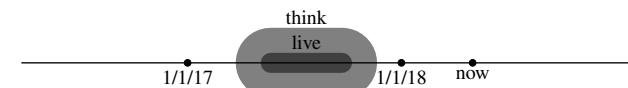


This is evidenced by the three-way contrast in (7). (Note that the time adverbials in the complement clause are to be read “de dicto,” i.e. in the scope of **nghĩ** ‘think.’)

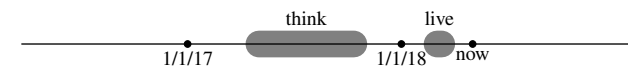
- (7) a. Năm ngoái, John đã nghĩ rằng trước đó Mary đã sống ở New York
 last year John ĐÃ think that before that Mary ĐÃ live in New York



- b. #Năm ngoái, John đã nghĩ rằng vào lúc đó Mary đã sống ở New York
 last year, John ĐÃ think that at that time Mary ĐÃ live in New York



- c. #Năm ngoái, John đã nghĩ rằng sau đó Mary đã sống ở New York
 last year, John ĐÃ think that after that Mary ĐÃ live in New York



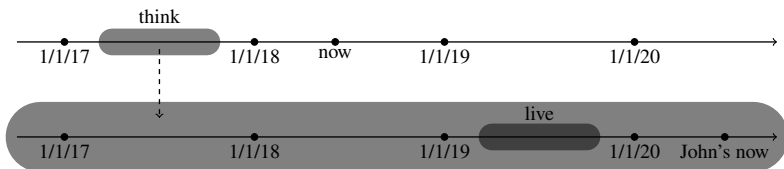
1.2.3 Subjective evaluation

Note, however, that there is a difference with respect to how the two precedence relations described by (6), repeated below in (8), are evaluated.

- (8) John đã nghĩ rằng Mary đã sống ở New York
 John ĐÃ think that Mary ĐÃ live in New York

Specifically, while it must be objectively true that the time of John’s thought precedes the time of utterance, it does not have to be objectively true that the time of Mary’s living in New York precedes the time of John’s thought or the time of utterance. Thus, suppose that John’s thought about Mary occurred in 2017, but at that time, John wrongly believed the year to be 2020. If John said to himself “Mary lived in New York in 2019,” then (8) can be uttered truthfully. This is illustrated by (9).

- (9) Năm ngoái, John bị thần kinh. Nó tưởng đó là năm 2020, và đã nghĩ rằng Mary đã sống ở New York vào năm 2019.
 Last year John went crazy he mistook it to be year 2020 and ĐÃ think that Mary ĐÃ live in New York in year 2019

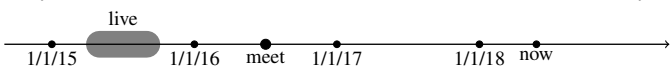


In other words, when a past tense attitude verb has a past tense sentential complement, what is required is that (i) the time at which the attitude obtains precedes the time of utterance, and (ii) the attitude holder subjectively locates the event described by the complement in his past. The actual temporal relation between the event time and the attitude time on the one hand and the utterance time on the other is irrelevant for the evaluation of the sentence.

1.2.4 Relative clauses

When **đã** is embedded under another **đã**, but the embedded **đã** is contained in a relative clause instead of a complement clause, both the backward-shifted and the forward-shifted readings are available, as is the simultaneous reading.

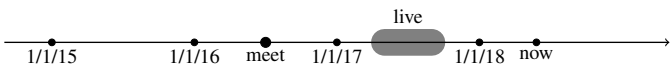
- (10) a. Vào năm 2016, John đã gặp cái người đàn bà mà đã sống ở New York vào năm 2015
 In year 2016, John ĐÃ meet the woman who ĐÃ live in New York in year 2015



- b. Vào năm 2016, John đã gặp cái người đàn bà mà đã sống ở New York vào thời điểm đó
 In year 2016, John ĐÃ meet the woman who ĐÃ live in New York at that time



- c. Vào năm 2016, John đã gặp cái người đàn bà mà đã sống ở New York vào năm 2017
 In year 2016, John ĐÃ meet the woman who ĐÃ live in New York in year 2017



1.2.5 Bare clauses

Unembedded bare clauses

We now turn to sentences without an overt tense morpheme, which we will call “bare clauses.” It has been claimed that matrix bare clauses are compatible with past, present, and future interpretation, as evidenced by the felicity of all sentences in (11).

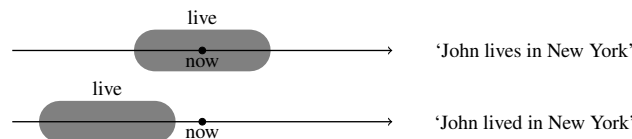
- (11) a. Barack Obama sống trong Nhà Trắng
 Barack Obama live in the White House
 b. Donald Trump sống trong Nhà Trắng
 Donald Trump live in the White House
 c. Tổng thống tương lai sống trong Nhà Trắng
 the future president live in the White House

However, it seems that a bare clause can describe a future event only if it is a planned event (cf. Dowty 1979). Controlling for this factor, we observe that a bare clause does not really allow a future reading: (12) is severely degraded without the auxiliary **sẽ** ‘will.’

- (12) Hôm nay, John coi Mary là bạn, nhưng ngày mai, John *(sẽ) coi Mary là kẻ thù
 Today John consider Mary be friend but tomorrow John will consider Mary be enemy

We take the difference between (11c) and (12) to show that it is much more difficult to construe John’s considering Mary an enemy as a planned event than it is to construe the future president living in the White House as one. We will henceforth disregard the “planned event” reading of matrix bare clauses and assume that these only have the past and the present tense reading.

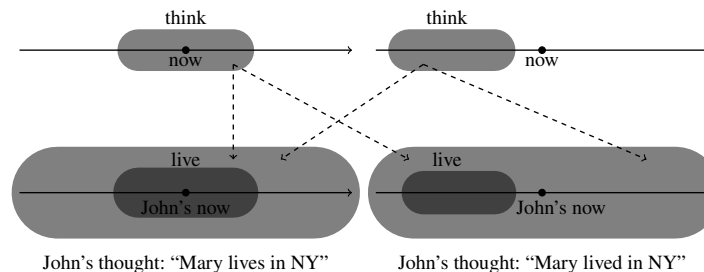
- (13) John sống ở New York
 John live in New York



Embedded bare clauses

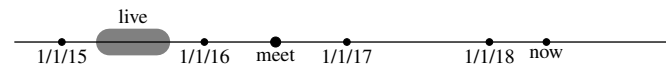
We now turn to embedded bare clauses. It is observed that when a bare clause is embedded under an attitude verb, it only has the backward-shifted and the simultaneous reading, but does not have the forward-shifted reading: (14) is true iff John’s thought to himself is either “Mary lived in New York (in the past)” or “Mary lives in New York (at the present), but not when it is “Mary will live in New York (in the future).”

- (14) John nghĩ rằng Mary sống ở New York
 John think that Mary live in New York

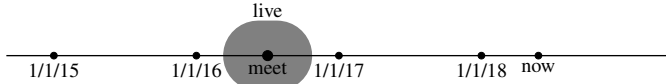


When a bare clause is a relative clause instead of a complement, all three readings are available.

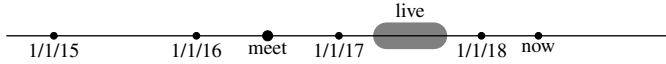
- (15) a. Vào năm 2016, John đã gặp cái người đàn bà mà sống ở New York vào năm 2015
 In year 2016, John ĐÃ meet the woman who live in New York in year 2015



- b. Vào năm 2016, John đã gặp cái người đàn bà mà sống ở New York vào thời điểm đó
In year 2016, John ĐÃ meet the woman who live in New York at that time



- c. Vào năm 2016, John đã gặp cái người đàn bà mà sống ở New York vào năm 2017
In year 2016, John ĐÃ meet the woman who live in New York in year 2017

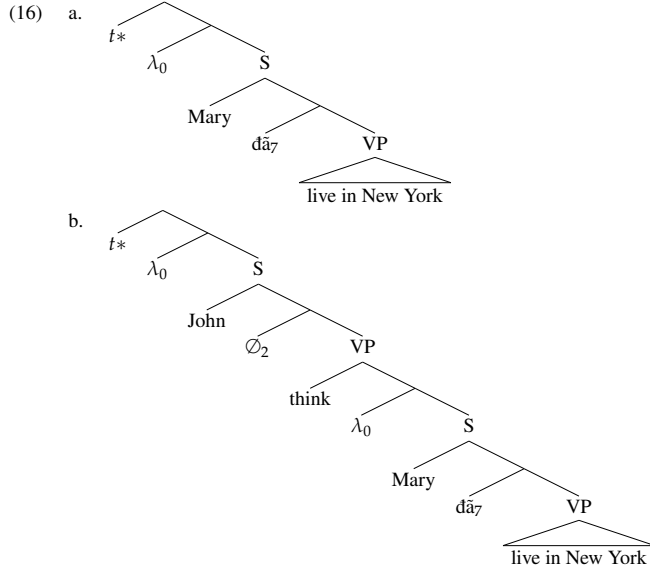


2 Analysis

We formulate our account for the facts presented above using the concepts and tools of the framework proposed in Abusch (1988) as interpreted by Heim (1994), making some simplifications in order to facilitate exposition.

Syntactic assumptions

- Linguistic variables are of type e (individuals) and type i (time intervals)
- T is the locus for the two type i pronouns $\mathbf{d\tilde{a}}_n$ and \mathcal{O}_n
- VPs are of type $\langle i, \langle e, t \rangle \rangle$
- Propositional attitude verbs are of type $\langle \langle i, t \rangle, \langle i, \langle e, t \rangle \rangle \rangle$
- Every sentence combines with a distinguished binder λ_0 which binds variables of type i
- Every unembedded sentence combines with a distinguished tense pronoun t^*



Semantic assumptions

- $\llbracket \mathbf{d\tilde{a}}_n \rrbracket^{g,c} = \frac{g(n)}{g(n) < g(0)}$
- $\llbracket \mathcal{O}_n \rrbracket^{g,c} = \frac{g(n)}{g(n) \leq g(0)}$
- $\llbracket \lambda_0 \phi \rrbracket^{g,c} = [\lambda t \llbracket \phi \rrbracket^{g^{t/0},c}]$
- $\llbracket t^* \rrbracket^{g,c} = t_c$, the utterance time of context c
- $\llbracket \text{live in New York} \rrbracket^{g,c} = [\lambda t [\lambda x [x \text{ lives in New York at } t]]]$
- $\llbracket \text{ng\tilde{h}\tilde{i}} \rrbracket^{g,c} = [\lambda p [\lambda t [\lambda x [p(t') = 1 \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } t]]]]$
- $\llbracket \text{Mary} \rrbracket^{g,c} = \text{Mary}$, $\llbracket \text{John} \rrbracket^{g,c} = \text{John}$

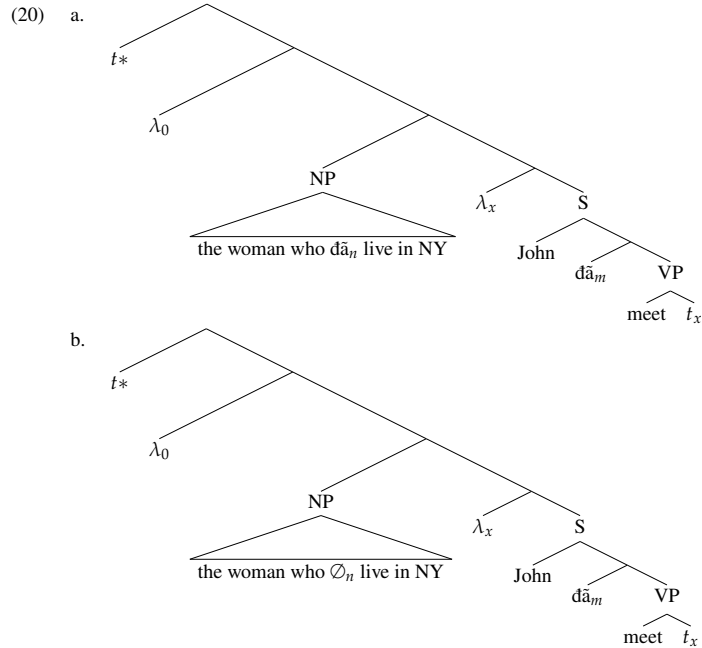
Sample derivations

- (17) $[\alpha \ t^* \ [\beta \ \lambda_0 \ [\gamma \ \text{Mary} \ [\delta \ \mathbf{d\tilde{a}}_7 \ [e \ \text{live in NY}]]]]]$
- $\llbracket \alpha \rrbracket^{g,c} = \llbracket \beta \rrbracket^{g,c}(\llbracket t^* \rrbracket^{g,c}) = \llbracket \beta \rrbracket^{g,c}(t_c)$
 - $\llbracket \beta \rrbracket^{g,c} = [\lambda t \llbracket \gamma \rrbracket^{g^{t/0},c}]$
 - $\llbracket \gamma \rrbracket^{g^{t/0},c} = \llbracket \delta \rrbracket^{g^{t/0},c}(\llbracket \text{Mary} \rrbracket^{g^{t/0},c}) = \llbracket \delta \rrbracket^{g^{t/0},c}(\text{Mary})$
 - $\llbracket \delta \rrbracket^{g^{t/0},c} = \llbracket e \rrbracket^{g^{t/0},c}(\llbracket \mathbf{d\tilde{a}}_7 \rrbracket^{g^{t/0},c}) = \llbracket e \rrbracket^{g^{t/0},c} \left(\frac{g^{t/0}(7)}{g^{t/0}(7) < g^{t/0}(0)} \right) = \frac{\llbracket e \rrbracket^{g^{t/0},c}(g(7))}{g(7) < t}$
 $= [\lambda x [x \text{ lives in NY at } g(7)]]$
 - $\llbracket \gamma \rrbracket^{g^{t/0},c} = \frac{g(7) < t}{g(7) < t} (\text{Mary}) = \frac{[\lambda x [x \text{ lives in NY at } g(7)]](\text{Mary})}{g(7) < t}$
 - $\llbracket \beta \rrbracket^{g,c} = \left[\lambda t \left[\frac{[\lambda x \in \mathcal{D}_e, x \text{ lives in NY at } g(7)]](\text{Mary})}{g(7) < t} \right] \right]$
 - $\llbracket \alpha \rrbracket^{g,c} = \left[\lambda t \left[\frac{[\lambda x \in \mathcal{D}_e, x \text{ lives in NY at } g(7)]](\text{Mary})}{g(7) < t} \right] \right] (t_c)$
 $= \frac{[\lambda x [x \text{ lives in NY at } g(7)]](\text{Mary})}{g(7) < t_c}$
 $= 1 \text{ iff } g(7) < t_c \text{ and Mary lives in NY at } g(7)$
- (18) $[\alpha \ t^* \ [\zeta \ \lambda_0 \ [\eta \ \text{John} \ [\theta \ \mathcal{O}_2 \ [\kappa \ \text{think} \ [\beta \ \lambda_0 \ [\gamma \ \text{Mary} \ [\delta \ \mathbf{d\tilde{a}}_7 \ [e \ \text{live in NY}]]]]]]]]]]]$
- $\llbracket \alpha \rrbracket^{g,c} = \llbracket \zeta \rrbracket^{g,c}(\llbracket t^* \rrbracket^{g,c}) = \llbracket \zeta \rrbracket^{g,c}(t_c)$
 - $\llbracket \zeta \rrbracket^{g,c} = [\lambda t \llbracket \eta \rrbracket^{g^{t/0},c}]$
 - $\llbracket \eta \rrbracket^{g^{t/0},c} = \llbracket \theta \rrbracket^{g^{t/0},c}(\llbracket \text{John} \rrbracket^{g^{t/0},c}) = \llbracket \theta \rrbracket^{g^{t/0},c}(\text{John})$
 - $\llbracket \theta \rrbracket^{g^{t/0},c} = \llbracket \kappa \rrbracket^{g^{t/0},c}(\llbracket \mathcal{O}_2 \rrbracket^{g^{t/0},c}) = \llbracket \kappa \rrbracket^{g^{t/0},c} \left(\frac{g^{t/0}(2)}{g^{t/0}(2) \leq g^{t/0}(0)} \right) = \frac{\llbracket \kappa \rrbracket^{g^{t/0},c}(g(2))}{g(2) \leq t}$
 - $\llbracket \kappa \rrbracket^{g^{t/0},c} = \llbracket \text{think} \rrbracket^{g^{t/0},c}(\llbracket \beta \rrbracket^{g^{t/0},c})$
 $= [\lambda t [\lambda x [\llbracket \beta \rrbracket^{g^{t/0},c}(t') = 1 \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } t]]]$
 $= [\lambda t [\lambda x [g(7) < t' \text{ and Mary lives in NY at } g(7) \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } t]]]$
 - $\llbracket \theta \rrbracket^{g^{t/0},c} = \frac{[\lambda x [g(7) < t' \text{ and Mary lives in NY at } g(7) \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } g(2)]]}{g(2) \leq t} (\text{John})$
 - $\llbracket \eta \rrbracket^{g^{t/0},c} = \frac{[\lambda x [g(7) < t' \text{ and Mary lives in NY at } g(7) \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } g(2)]](\text{John})}{g(2) \leq t}$
 - $\llbracket \zeta \rrbracket^{g,c} = \left[\lambda t \left[\frac{[\lambda x [g(7) < t' \text{ and Mary lives in NY at } g(7) \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } g(2)]](\text{John})}{g(2) \leq t} \right] \right]$
 - $\llbracket \alpha \rrbracket^{g,c} = \left[\lambda x [g(7) < t' \text{ and Mary lives in NY at } g(7) \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } g(2)]](\text{John}) \right]$
 $= \frac{[\lambda x [g(7) < t' \text{ and Mary lives in NY at } g(7) \text{ for every } t' \text{ at which } x \text{ locates } x \text{ at } g(2)]](\text{John})}{g(2) \leq t_c}$
 $= 1 \text{ iff } g(2) \leq t_c \ \& \ \text{for every } t' \text{ at which John locates himself at } g(2), g(7) < t' \ \& \ \text{Mary lives in NY at } g(7)$

Relative clauses

We assume that NPs of every type can undergo QR (cf. Heim 1997). Thus, (19a) and (19b) can have the structures in (20a) and (20b), respectively. The simultaneous reading is generated if $n = m$. The backward shifted reading is generated if $g(n) < g(m)$. And the forward shifted reading is generated if $g(n) > g(m)$.

- (19) a. John đã gặp cái người đàn bà mà đã sống ở New York
 John ĐÃ meet the woman who ĐÃ live in New York
 b. John đã gặp cái người đàn bà mà sống ở New York
 John ĐÃ meet the woman who live in New York



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