Pre- and post-predicate degree morphemes in Vietnamese: Heads vs phrases

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1 Introduction

Degree morphemes in Vietnamese include items which <u>must precede</u> their gradable predicate (e.g. *rất* 'very'), those which <u>must follow</u> (e.g. *nhất* 'most'), and those which <u>may precede or follow</u> (e.g. *quá* 'too'):

(1) **Pre- and post-predicate degree morphemes:**

Nó {**rất** / ***nhất** / **quá**} *cao* {***rất** / **nhất** / **quá**}.
3sg very / most / too   tall   very / most / too
'They're {very tall / the tallest / too tall}.'

We refer to degree morphemes in these positions as PRE and POST.
These placement restrictions also hold with non-adjectival predicates:

(2)   a.   <u>With gradable adverbial modifier 'fast':</u>

Nó chạy {**rất** / ***nhất** / **quá**} *nhanh* {***rất** / **nhất** / **quá**}.
3sg run   very / most / too   fast   very / most / too
'They run {very fast / the fastest / too fast}.'

   b.   <u>With gradable verb phrase headed by 'miss':</u>

Nó {**rất** / ***nhất** / **quá**} *nhớ* bà   {***rất** / **nhất** / **quá**}.
3sg very / most / too   miss grandma   very / most / too
'They miss grandma {very much / the most / too much}.'

These simple examples give the impression that PRE and POST simply <u>immediately precede vs immediately follow</u> a gradable predicate.
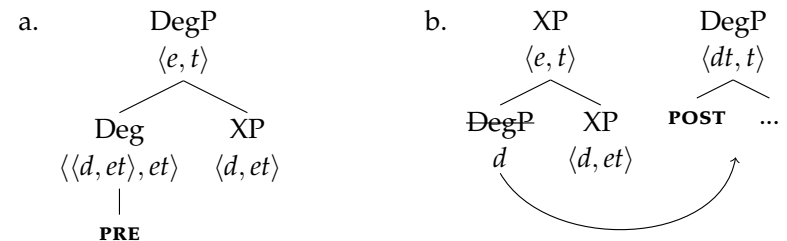
A few analytic possibilities:

1. <u>Degree morphemes are **heads**</u>: Some are lexically specified to project head-initial or head-final phrases. Surprising as Vietnamese is predominantly head-initial; possibly exclusively so (Duffield, 2013).[2]

2. <u>Degree morphemes are **adjuncts**</u>: Some are lexically specified to left-adjoin or right-adjoin. We then predict PRE and POST to have similar, parallel syntax, varying only in their position.

▶ 3. **PRE and POST differ substantially in their syntax:**
   – PRE are <u>functional heads</u> with a gradable predicate complement;
   – POST are heads of <u>phrasal modifiers</u> that denote <u>degree quantifiers</u> ($\langle dt, t \rangle$), which move to take scope;[3]
   – movement of degree quantifiers must be <u>overt</u> and <u>to the right</u> in Vietnamese.

(3)   **The structure of PRE vs POST:**

a.   DegP
      $\langle e, t \rangle$
     /   \
   Deg   XP
$\langle\langle d, et\rangle, et\rangle$ $\langle d, et\rangle$
    |
   PRE

b.   XP   DegP
      $\langle e, t \rangle$ $\langle dt, t \rangle$
     /   \   /   \
  ~~DegP~~   XP   **POST**   ...
    d $\langle d, et\rangle$

This proposal helps us make sense of the nature of the PRE vs POST division, in line with Vietnamese being a robustly head-initial language, but making use of (perhaps unusual) rightward movement.

Roadmap:

§2 PRE VS POST   §3 Proposal   §4 Expressions of nominal quantity   §5 Conclusion

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[2] The existing literature on this question exclusively discusses the status of sentence-final particles.
[3] See Neeleman, Van de Koot, and Doetjes 2004 for the idea that different degree morphemes in a single language could be functional heads or phrasal modifiers.

2 PRE VS POST

(4) **An inventory of degree morphemes:**[4]

PRE:		POST:
rất 'very'	*quá...* 'too'	*nhất...* 'most'
khá 'rather'	*thật* 'really'	*hơn...* 'more'
hơi 'quite'	*hết sức* 'very'	*bằng...* 'as'
đủ 'enough'	*tuyệt đối* 'absolutely'	*như...* 'like'
hoàn toàn 'completely'	*cực (kì) / vô cùng* 'extremely'	*lắm* 'very'
		phết 'quite'
	đến nỗi... 'to the extent that'	*ghê* 'so'

- There is no clear semantic criterion that predicts PRE vs POST placement.

- There is a *syntactic* difference: only POST can introduce arguments.

The comparative *hơn* and equative *bằng* and *như* introduce standards:

(5) **Standards of comparatives and equatives:**

a. Minh *cao* {**hơn** / **bằng** / **như**} [standard Kim].
Minh tall more / as / like Kim
'Minh is {taller than / as tall as} Kim.'

b. Minh đi bộ *nhanh* {**hơn** / **bằng** / **như**} [stnd Kim {đi bộ / chạy}].
Minh walk fast more / as / like Kim walk / run
'Minh walks {faster than / as fast as} Kim walks/runs.'

The superlative *nhất* can introduce a comparison class description. *Đến nỗi* introduces a result clause like English 'so...that.' (See MS.)

► All of these degree morphemes that introduce arguments so far — *hơn*, *bằng*, *như*, *nhất*, *đến nỗi* — are exclusively POST. Their arguments immediately follow the degree morpheme.

The only other degree morpheme that introduces an argument is excessive *quá*, which can be PRE or POST:

(6) ***quá*POST can introduce a standard, but *quá*PRE cannot:**

a. Sợi dây này *dài* **quá** [standard 2m].
CL string this long QUÁPOST 2m
≈ 'The string is longer than 2m (and that's a problem).'

b. *Sợi dây này **quá** {[standard 2m]} *dài* {[standard 2m]}.
CL string this QUÁPRE 2m long 2m
'The string is too long (*than 2m).'

► In fact, *quá*PRE and *quá*POST differ substantially (Erlewine and Nguyen, 2022). *Quá*PRE is a purpose-oriented excessive that makes reference to a contextually determined purpose (like English 'too'), whereas *quá*POST is a comparative with a malefactive inference.

The evaluation of PRE meanings can also be modified, but always indirectly, by manipulating the context.

(7) **Specifying comparison class with *so với* 'compared with' adjunct:**

So **với** các bạn, Kim {**rất** / **hơi** / **khá**} *cao*.
compare with PL friend Kim very / quite / rather tall
'Compared to her friends, Kim is {very / quite / rather} tall.'

(8) **Specifying purpose of excessive *quá* and sufficiency *đủ*:**

Để đặt ở phòng khách, cái bàn này {**quá** / **đủ**} *to*
for put LOC living-room CL table this too / enough big
'For putting in the living room, this table is {too big / big enough}.'

► PRE cannot introduce arguments, whereas POST can.

3 Proposal

PRE and POST vary not only their linear position, but in fact **differ quite substantially in their syntax:**

- PRE are functional heads that take their gradable predicate as their syntactic and semantic argument (3a); POST head phrasal modifiers (3b).

- POST-phrases are degree quantifiers (type $\langle dt, t \rangle$) which move overtly and to the right to take scope.

We model gradable predicates as relations between degrees (type d) and individuals (type e) (Cresswell, 1976):

(9) $\llbracket cao \text{ 'tall'} \rrbracket = \lambda d \, . \, \lambda x \, . \, \text{HEIGHT}(x) \geq d$ (type $\langle d, et \rangle$)

We illustrate PRE and POST derivations with (10) and (11) as representatives.

(10) Minh **rất** *cao*.
Minh very tall
'Minh is very tall.'

(11) Minh *cao* **hơn** Kim.
Minh tall more Kim
'Minh is taller than Kim.'

PRE with *rất* 'very':

▶ Each PRE is a functional head in the extended projection of a gradable predicate (Abney, 1987; Corver, 1990; Kennedy, 1999; Grimshaw, 2000), which may be AP, AdvP, or VP. Each PRE takes a $\langle d, et \rangle$ complement and returns a non-gradable predicate of type $\langle e, t \rangle$.[5]
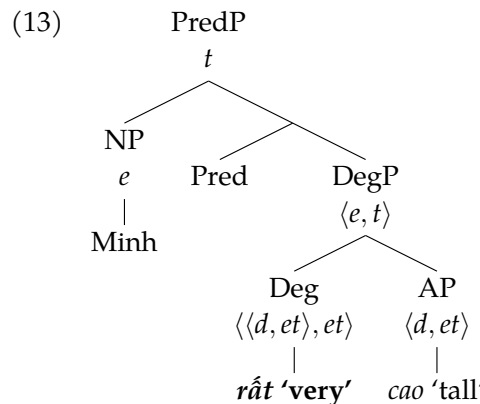
$\llbracket rất \rrbracket^c (G)(x)$ claims that there is a degree that G holds of x that significantly exceeds the contextual standard, s_c:

(12) $\llbracket rất \text{ 'very'} \rrbracket^c = \lambda G_{\langle d, et \rangle} \, . \, \lambda x \, . \, \max (\lambda d \, . \, G(d)(x)) \gg s_c$ $(\langle \langle d, et \rangle, et \rangle)$
where $\gg$ is 'significantly exceeds' (see Fara 2008; Morzycki 2015: 119)
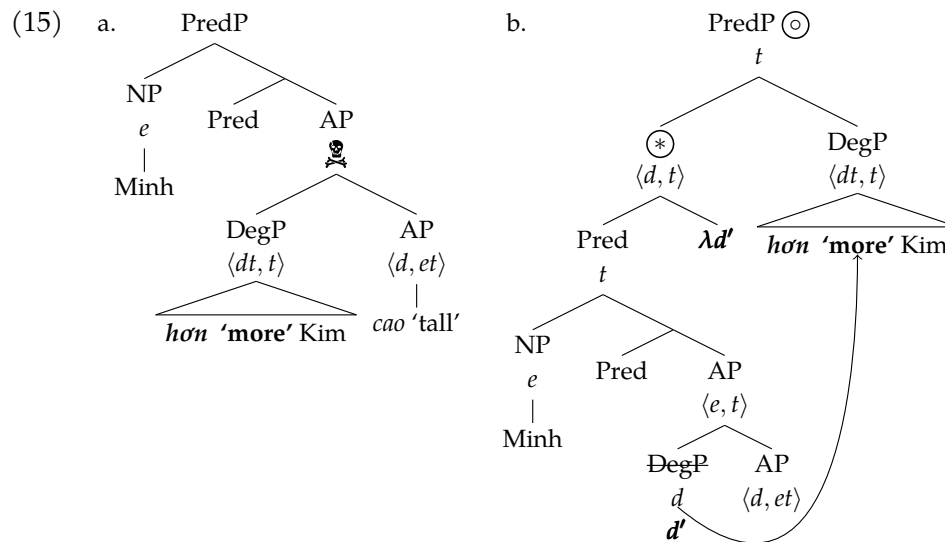

We assume the subject is introduced syntactically by a functional head such as Pred (see e.g. Bowers, 2001). The subject later moves to its higher position.

(13) PredP
t
NP — e — Minh
Pred
DegP $\langle e, t \rangle$
Deg $\langle \langle d, et \rangle, et \rangle$ — *rất* **'very'**
AP $\langle d, et \rangle$ — *cao* 'tall'

(14) a. $\llbracket \text{DegP} \rrbracket^c$
$= \lambda x \, . \, \text{HEIGHT}(x) \gg s_c$

b. $\llbracket \text{PredP} \rrbracket^c$
$= 1$ iff $\text{HEIGHT}(\text{Minh}) \gg s_c$

"Minh's height significantly exceeds the contextual standard."

POST with *hơn* 'more':

▶ Each POST forms a phrase with its argument (if any) and adjoins to a gradable predicate.[6] POST DegPs cannot compose in-situ, so must move, overtly, to the right.

(15) a. PredP
NP — e — Minh
Pred
AP ☠
DegP $\langle dt, t \rangle$ — *hơn* **'more'** Kim
AP $\langle d, et \rangle$ — *cao* 'tall'

b. PredP ⊙
t
∗ $\langle d, t \rangle$
Pred
t
NP — e — Minh
Pred
AP $\langle e, t \rangle$
D̶e̶g̶P̶ d — *d′*
AP $\langle d, et \rangle$
$\lambda d′$
DegP $\langle dt, t \rangle$ — *hơn* **'more'** Kim

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[5] For gradable adverbs, PRE denotations will have to be systematically type-shifted to compose directly with the adverb. For instance, taking manner adverbs to be predicates of events (type v) (see e.g. Davidson, 1967; Parsons, 1990), if a gradable manner adverb has type $\langle d, vt \rangle$, corresponding PRE meanings must be $\langle \langle d, vt \rangle, vt \rangle$. Note that POST meanings need not type-shift for composing with gradable adverbs.

[6] The POST-phrase could also be a specifier of the gradable predicate, as in the analysis of degree morphemes in Jackendoff 1977. This choice is not important here.

We follow Lemon 2020 in the view that all comparative standards in Vietnamese are underlyingly clausal.

(16) a. DegP = [*hơn* [$_{\text{standard}}$ *op* $\lambda d''$. Kim $\cancel{d''\text{-tall}}$]]

     b. ⟦standard⟧ $= \lambda d''$. HEIGHT(Kim) $\geq d''$

     c. ⟦*hơn* 'more'⟧ $= \lambda D_2$. λD_1 . $\max(D_1) > \max(D_2)$ $(\langle dt, \langle dt, t \rangle \rangle)$

     d. ⟦DegP⟧ $= \lambda D_{1,\langle d,t \rangle}$. $\max(D_1) > $ HEIGHT(Kim)

     e. ⟦⊛⟧ $= \lambda d'$. HEIGHT(Minh) $\geq d'$

     f. ⟦PredP ⊙⟧ $= 1$ iff HEIGHT(Minh) $>$ HEIGHT(Kim)
        "Minh's height exceeds Kim's height."

3.1 Evidence from multiple degree morphemes

(17) **Grammatical and true baseline sentences:**

Context: We need an actor less than 1.5m tall. Minh is 1.8m tall and Kim is 1.6m tall.

  a. Minh **rất** cao.   b. Minh **quá** cao.   c. Minh cao **hơn** Kim.
     Minh very tall   Minh too tall   Minh tall more Kim

     'Minh is very tall.'   'Minh is too tall.'   'Minh is taller than K.'

(18) **PRE and POST cannot cooccur:**

  a. * Minh **rất** cao **hơn** Kim.   b. * Minh **quá** cao **hơn** Kim.
     Minh very tall more Kim   Minh too tall more Kim

     ≈ *'Minh is very taller than Kim.'   ≈ *'Minh is too taller than Kim.'

▶ Although PRE are functional heads and POST are adjuncts, their semantics <u>correctly predicts PRE and POST to not be able to cooccur.</u> PRE and POST both serve to saturate the degree argument of the predicate.

(19) **POST-phrases can be conjoined:**

Sâm *cao* [**hơn** Kim], [**hơn** Hoa], và [**hơn** Mai].
Sâm tall more Kim   more Hoa   and   more Mai
'Sâm is taller than Kim, taller than Hoa, and taller than Mai.'

(20) **PRE cannot be conjoined:**

Q: Are they tall enough to play basketball?

  a. Nó **đủ**   cao, thực ra là **rất** cao.
     3sg enough tall in fact   very tall
     'They're tall enough; in fact, very tall.'

  b. * Nó **đủ**   (và) **rất** cao.
     3sg enough   and very tall

▶ POST are phrasal degree quantifiers ($\langle dt, t \rangle$) and can be conjoined, just as quantificational NPs ($\langle et, t \rangle$) can, using a high type conjunction (Partee and Rooth, 1983). In contrast, functional heads cannot be conjoined.

3.2 Evidence from extraction

(21) **Our proposal for POST and an alternative:**

  a. [~~POST...~~ predicate] [POST...]   *rightward POST movement*
  b. predicate [[POST...] ~~predicate~~]   *leftward predicate pred. movement*

▶ Extraction is possible from the predicate but not from POST's argument.

(22) **Baseline *hơn* comparative with clausal standard:**

Hoa hát bài hát này *hay*   **hơn** nó hát bài hát kia.
Hoa sing CL song this skillful more 3sg sing CL song that
'Hoa sang this song more skillfully than she sang that song.'

(23) **Topicalization out of the predicate but not out of the standard:**

  a. *Bài hát này* thì Hoa hát __ *hay*   **hơn** nó hát bài hát kia.
     CL song this TOP Hoa sing   skillful more 3sg sing CL song that

     'This song, Hoa sang __ more skillfully than she sang that song.'

  b. * *Bài hát kia* thì Hoa hát bài hát này *hay*   **hơn** nó hát __.
     CL song that TOP Minh sing CL song this skillful more 3sg sing

     'That song, Hoa sang this song more skillfully than she sang __.'

(and similarly with relativization, in MS)

▶ Such contrasts are easily explained as a *freezing effect* (see e.g. Corver, 2006; Hartmann et al., 2018): <u>movement of the POST-phrase in (21a) renders its contents frozen for further movement.</u> They are the opposite of what would be predicted by the alternative in (21b).

3.3 Motivating POST-movement

1. <u>Because POST DegP are phrasal?</u> In-situ POST DegP may violate a surface filter on certain complex modifiers, such as the *Head-Final Filter* or Branan's (to appear) *Left Edge Ban*:

   (24) **Effects of the Head-Final Filter (Williams, 1982):**
   - a. a proud man
   - b. * a [proud of his family] man
   - c. a man [proud of his family]

   However, recall that some POST do not introduce arguments and therefore are not complex, but nonetheless move rightward.

2. <u>For the needs of semantic composition?</u> Indeed, POST DegP are of type $\langle dt, t \rangle$ and therefore cannot be interpreted in-situ. However...

   (25) **Bare measure phrases must be POST, not PRE:**

   Minh {*1.8m} *cao* {1.8m}.
   Minh   tall   1.8m
   'Minh is 1.8m tall.'

   Bare measure phrases are syntactically complex but plausibly type *d*, and therefore potentially able to compose in-situ.[7]

► 3. **Rightward POST movement is conventionalized:** POST movement may have originally been motivated by its phrase structure or semantics, but has since generalized to all POST DegP.[8]

We return to the rightward nature of POST movement in the conclusion.

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[7] There are, however, also accounts of measure phrases that take them to denote degree quantifiers as well. See e.g. Schwarzschild 2005.

[8] Beck et al. (2009: 24) observe this to be a point of crosslinguistic variation: "The degree argument position of a gradable predicate {may/may not} be overtly filled." Support for this view comes from the existence of PRE degree demonstratives, which are syntactically simplex and of type *d*, but which are now limited to certain fixed expressions. See MS for discussion.

4 Expressions of nominal quantity

Degree morphemes can also be used to describe the quantity of nominals headed by *nhiều* 'many/much' and *ít* 'few/little.'

(26) **PRE and POST describing the quantity of an object noun phrase:**

Minh mua {**rất** / **hơi** / **đủ** / **quá**} *nhiều* sách
Minh buy   very   quite   enough   too   many book
{**quá** / **lắm** / **nhất** / **hơn** Kim / **như** Kim}.
 too   very   most   more Kim   like Kim
'They bought {very many / quite many / enough / too many / very many / the most / more / as many} books (than/as Kim).'

At first glance, such examples appear to show PRE and POST at the left and right edge of *nhiều/ít*-headed NPs, respectively. However, upon closer inspection:

- <u>PRE are in the extended projection of *nhiều/ít*</u>, inside the nominal.

- <u>POST are at the right edge of a clausal projection</u> (where it takes scope), not at the right edge of the nominal.

(27) subject (*PRE) [$_{VP}$ V [$_{NP}$ (PRE) many/few (*POST) N ... (*POST) ...] ...] (POST)

► POST can be separated from its quantity NP but PRE cannot.

(28) **POST separated from an object *nhiều* noun phrase:**

Minh [$_{VP}$ mua [$_{NP}$ *nhiều* sách] [để cho Mai]] {**quá** / **lắm** / **nhất** /
Minh   buy   many book   for give Mai   too   very   most
hơn Kim / **như** Kim}.
more Kim   like Kim
'Minh bought {too many / very many / the most / more / as many} books to give Mai (than/as Kim did).'

(29) **PRE cannot be separated from its *nhiều* noun phrase:**

* Minh {**rất** / **hơi** / **đủ** / **quá**} [$_{VP}$ mua [$_{NP}$ *nhiều* sách]].
Minh   very   quite   enough   too   buy   many book
Int.: 'Minh bought {very many / quite many / enough / too many} books.'

► These results follow from our general analysis of PRE vs POST:

- PRE always takes the gradable predicate as its complement;
- POST DegP moves to the right edge of a propositional node (a clausal projection such as PredP/TP) to take scope.

See MS for details of the syntax/semantics of such structures.

As Heim 2000 shows for English, the scope-taking of degree quantifiers can introduce scope ambiguities, just as with quantificational NPs. Lemon (2020: 503) has observed the same with *hơn* comparatives in Vietnamese.

► Configurations like (28) can be used to show that POST takes scope in its pronounced position.

(30) *hơn Minh* **inside of matrix 'to the teacher':**

Kim nói rằng Mai đọc [NP *nhiều* sách] [**hơn** Minh] [với thầy giáo].
Kim tell C Mai read many book more Minh to teacher
'Kim told the teacher that Mai read more books than Minh.'

a. ✓ Context 1 (tell > more): Kim told the teacher "*Mai* read more books than *Minh*."

b. ✓ Context 2 (more > tell): *Kim* told the teacher that Mai read 5 books. *Minh* told the teacher that Mai read 4 books.

(31) *hơn Minh* **to the right of matrix 'to the teacher':**

Kim nói rằng Mai đọc [NP *nhiều* sách] [với thầy giáo] [**hơn** Minh].
Kim tell C Mai read many book to teacher more Minh
'Kim told the teacher that Mai read more books than Minh.'

a. # Context 1 (tell > more): Kim told the teacher "*Mai* read more books than *Minh*."

b. ✓ Context 2 (more > tell): *Kim* told the teacher that Mai read 5 books. *Minh* told the teacher that Mai read 4 books.

The contrast in (30–31) is precisely what is predicted by our analysis.

► POST always moves overtly to its scope position. In some cases, the linear position of POST disambiguates its scope.[9]

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[9] The pattern here is reminiscent of the Extraposition-Scope Generalization as in Gawron 1995, Bhatt and Pancheva 2004, and Alrenga et al. 2012. However, unlike in the discussion there, what is on the right here includes the degree morpheme itself, not just its standard.

5 Conclusion

Degree morphemes in Vietnamese come in two forms, **PRE and POST**. At first glance, they appear to simply <u>immediately precede vs immediately follow</u> their gradable predicates.

$$(\textbf{PRE}) \text{ XP } (\textbf{POST})$$
where XP = gradable VP/AP/AdvP/NP

► We argue that **PRE and POST differ substantially in their syntax.**

Along the way, we also offer <u>the first, detailed description of the inventory of degree constructions in Vietnamese</u>. See MS for concrete syntactic descriptions and semantic denotations for many of these morphemes.

The success of our analysis strengthens the case for the existence of <u>rightward movement</u> in grammar.

- Examples such as (30–31) show that POST DegP can move rightward across finite clause boundaries.
- Ross (1967: 307) proposes that rightward displacement in English (e.g. heavy NP shift and extraposition from NP) are clause-bound.
- However, subsequent work has shown that they *can* cross clause boundaries where semantically necessitated (Overfelt, 2015), and similarly for QR (Cecchetto, 2004; Syrett, 2015) which is covert but arguably rightward (Fox and Nissenbaum, 1999; Fox, 2002).

This discussion highlights a potential generalization:

► Whereas leftward movements are driven by morphosyntactic needs of functional heads, <u>rightward movements are driven by the needs of semantic interpretation.</u>

The study of POST degree constructions in Vietnamese offers a fruitful future testing ground for theories of rightward movement.

> **Handout with references:** tinyurl.com/lsa2023handout
> **Slides:** tinyurl.com/lsa2023slides
> **MS:** lingbuzz.net/006792

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