

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

Michael Yoshitaka Erlewine and Anne Nguyen

National University of Singapore

LSA Annual Meeting, Denver

January 2023



Degree morphemes in Vietnamese include items which must precede their gradable predicate (e.g. *rất* ‘very’), those which must follow (e.g. *nhất* ‘most’), and those which may precede or follow (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. With gradable adverbial modifier ‘fast’:

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. With gradable verb phrase headed by ‘miss’:

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}.’

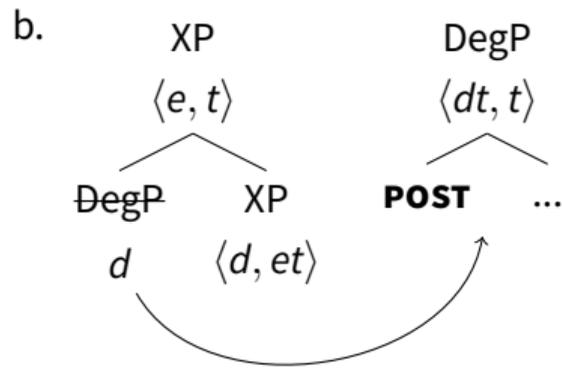
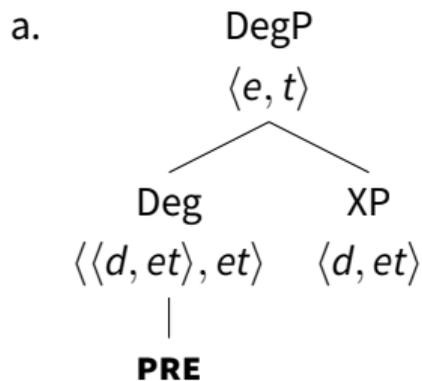
These simple examples give the impression that PRE and POST simply immediately precede vs immediately follow a gradable predicate.

1. Degree morphemes are **heads**: 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. Degree morphemes are **adjuncts**: 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 functional heads with a gradable predicate complement;
- POST are heads of phrasal modifiers that denote degree quantifiers ($\langle dt, t \rangle$), which move to take scope;
- movement of degree quantifiers must be overt and to the right in Vietnamese.

(3) The structure of PRE VS POST:



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.

§2 PRE VS POST

§3 Proposal

§4 Expressions of nominal quantity

§5 Conclusion

(4) An inventory of degree morphemes:

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

- There is no clear semantic criterion that predicts PRE VS POST .
- There is a syntactic difference: only POST can introduce arguments.

(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.’

- ▶ 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 QUÁ_{POST} 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 QUÁ_{PRE} 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’:**

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

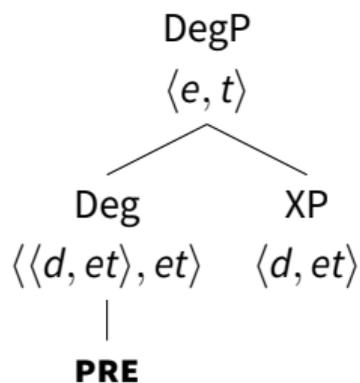
‘For putting in the living room, this table is {too big / big enough}.’

- ▶ PRE cannot introduce arguments, whereas POST can.

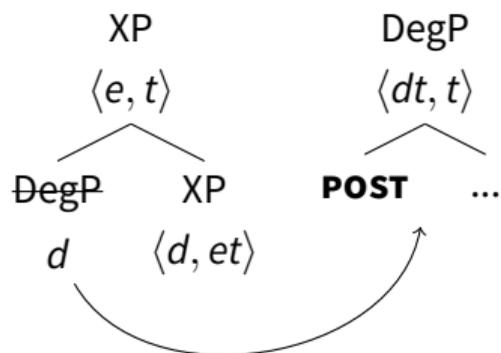
PRE and POST vary not only their linear position, but in fact **differ quite substantially in their syntax:**

- PRE are functional heads that take their gradable predicate as their syntactic and semantic argument; POST head phrasal modifiers.
- POST-phrases are degree quantifiers (type $\langle dt, t \rangle$) which move overtly and to the right to take scope.

(3) a.



b.



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

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

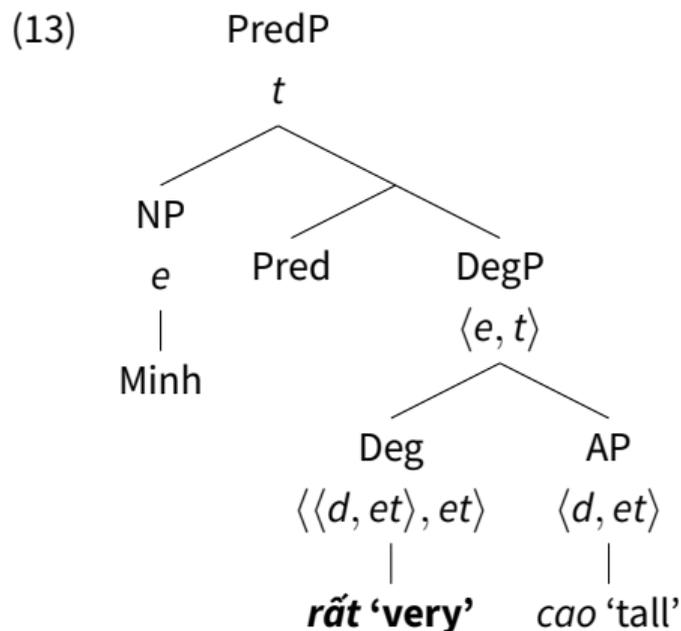
(11) Minh *cao* **hơn** Kim.
Minh tall more Kim
'Minh is taller than Kim.'

- ▶ 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 $\langle e, t \rangle$.

$\llbracket \textit{r\hat{a}t} \rrbracket^c (G)(x)$ claims that there is a degree that G holds of x that significantly exceeds the contextual standard, s_c :

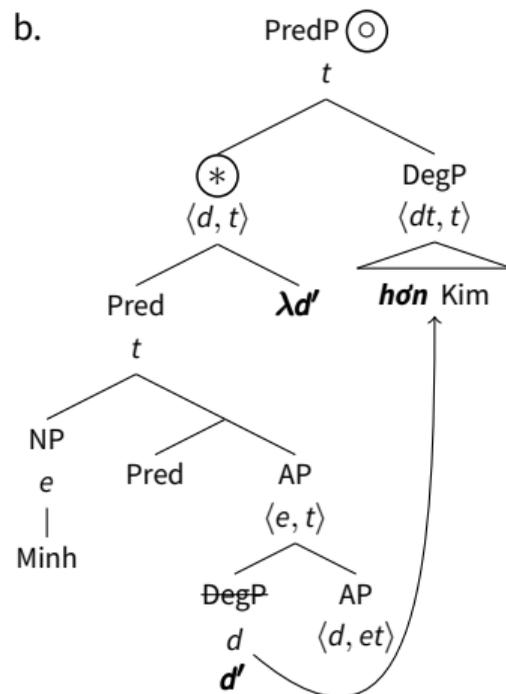
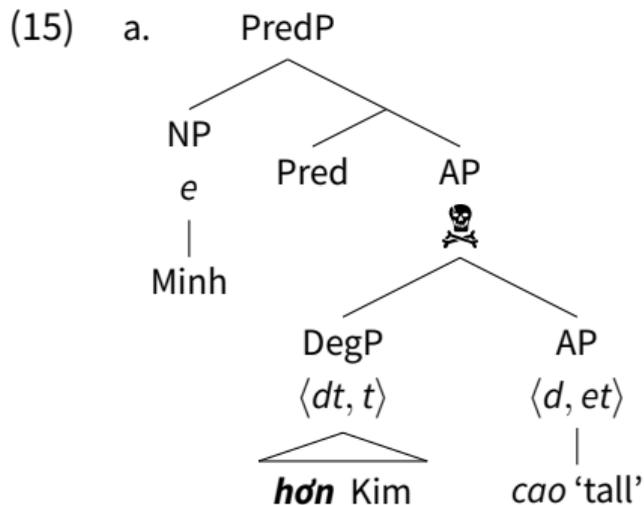
$$(12) \quad \llbracket \textit{r\hat{a}t} \textit{ 'very'} \rrbracket^c = \lambda G_{\langle d, et \rangle} . \lambda x . \max (\lambda d . G(d)(x)) \gg s_c \quad (\text{type } \langle \langle d, et \rangle, et \rangle)$$

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.



- (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.”

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



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

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

$$b. \quad [_{\text{standard}}] = \lambda d'' . \text{HEIGHT}(\text{Kim}) \geq d''$$

$$c. \quad [_{\text{hơn 'more'}}] = \lambda D_{2, \langle d, t \rangle} . \lambda D_{1, \langle d, t \rangle} . \max(D_1) > \max(D_2) \quad (\text{type } \langle dt, \langle dt, t \rangle \rangle)$$

$$d. \quad [_{\text{DegP}}] = \lambda D_{1, \langle d, t \rangle} . \max(D_1) > \text{HEIGHT}(\text{Kim})$$

$$e. \quad [_{\odot}] = \lambda d' . \text{HEIGHT}(\text{Minh}) \geq d'$$

$$f. \quad [_{\text{PredP } \odot}] = 1 \text{ iff } \text{HEIGHT}(\text{Minh}) > \text{HEIGHT}(\text{Kim})$$

“Minh’s height exceeds Kim’s height.”

Consider the cooccurrence of 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.
Minh very tall
'Minh is very tall.' | b. Minh quá cao.
Minh too tall
'Minh is too tall.' | c. Minh cao hơn Kim.
Minh tall more Kim
'Minh is taller than K.' |
|---|---|---|

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

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

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

Next, consider degree morphemes in the same class:

(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

Our analysis also naturally accounts for these facts:

- ▶ 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.

We might consider a variant of our account that involves leftward movement of the predicate instead (21b).

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

a. [[~~POST...~~ predicate] [POST...]

rightward POST movement

b. predicate [[POST...] predicate]

leftward pred. movement

Evidence against the approach in (21b) comes from extraction:

- ▶ 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*: movement of the POST-phrase in (21a) renders its contents frozen for further movement. They are the opposite of what would be predicted by the alternative in (21b).

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

a. [{POST...} predicate] [POST...]



rightward POST movement

b. predicate [[POST...] predicate]



leftward pred. movement

Why do POST DegP move?

1. Because POST DegP are phrasal? 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.

Why do POST DegP move?

2. For the needs of semantic composition? Indeed, POST DegP are of type $\langle dt, t \rangle$ and therefore cannot be interpreted in-situ. However, bare measure phrases are also obligatorily POST.

(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.

Why do POST DegP move?

- ▶ 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.

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

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 {**quá** / **lắm** / **nhất** / **hơn** Kim / **như** Kim}.

Minh buy very quite enough too many book 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:

- PRE are in the extended projection of *nhiều/ít*, inside the nominal.
- POST are at the right edge of a clausal projection (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 *nhều* noun phrase:**

Minh [_{VP} mua [_{NP} *nhều* sách] [để cho Mai]] {**quá / lắm / nhất / hơn** Kim / **như** Kim}.
Minh buy many book for give Mai too very most 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 *nhều* noun phrase:**

* Minh {**rất / hơi / đủ / quá**} [_{VP} mua [_{NP} *nhều* 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.

Concentrate on the matrix attachment construal of ‘to the teacher’:

(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.

Concentrate on the matrix attachment construal of ‘to the teacher’:

(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.

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

(**PRE**) XP (**POST**)

where XP = gradable VP/AP/AdvP/NP

- ▶ We argue that **PRE and POST differ substantially in their syntax.**
 - PRE are functional heads that take XP as their syntactic and semantic argument;
 - POST head phrasal modifiers that are degree quantifiers which must move to take scope.

Supports the claim in Neeleman, Van de Koot, and Doetjes 2004 that degree morphemes in a single language can include both functional heads and phrasal modifiers.

Along the way, we also offer the first, detailed description of the inventory of degree constructions in Vietnamese. See MS (on LingBuzz) for concrete syntactic descriptions and semantic denotations for many of these morphemes.

The success of our analysis strengthens the case for the existence of rightward movement 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, rightward movements are driven by the needs of semantic interpretation.

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

For comments and discussion, we thank Hadas Kotek, Ryan Walter Smith, Jianrong Yu, and the audience at the 2022 Singapore Summer Meeting at NUS. We also thank an anonymous reviewer for comments on a related paper which informed the scope of our investigation here. This work is supported by the National University of Singapore under grant R-103-001-178-133.

MS: lingbuzz.net/006792

- Abney, Steven. 1987. The English noun phrase in its sentential aspect. Doctoral Dissertation, Massachusetts Institute of Technology.
- Bowers, John. 2001. Predication. In *The handbook of contemporary syntactic theory*, ed. Mark R. Baltin and Chris Collins, 299–333. Wiley-Blackwell.
- Branan, Kenyon. to appear. *The Left Edge Ban*. Oxford University Press.
- Cecchetto, Carlo. 2004. Explaining the locality conditions of QR: Consequences for the theory of phases. *Natural Language Semantics* 12:345–397.
- Corver, Norbert. 1990. The syntax of left branch extractions. Doctoral Dissertation, Tilburg University.
- Cresswell, Max J. 1976. The semantics of degree. In *Montague Grammar*, ed. Barbara Hall Partee, 261–292. Academic Press.
- Duffield, Nigel. 2013. Head-first: On the head-initiality of Vietnamese clauses. In *Linguistics of Vietnamese: an international survey*, ed. Daniel Hole and Elisabeth Löbel, 127–154. de Gruyter.

- Erlewine, Michael Yoshitaka, and Anne Nguyen. 2022. Ingredients of excess: A study of Vietnamese *quá*. Manuscript, National University of Singapore.
- Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33:63–96.
- Fox, Danny, and Jon Nissenbaum. 1999. Extraposition and scope: A case for overt QR. In *Proceedings of WCCFL 18*, ed. Sonya Bird, Andrew Carnie, Jason D. Haugen, and Peter Norquest, 132–144.
- Grimshaw, Jane. 2000. Locality and extended projection. In *Lexical specification and insertion*, ed. Peter Coopmans, Martin B. H. Everaert, and Jane Grimshaw, 115–134. John Benjamins.
- Heim, Irene. 2000. Degree operators and scope. In *Proceedings of SALT 10*, ed. Brendan Jackson and Tanya Matthews, 40–64.
- Kennedy, Christopher. 1999. *Projecting the adjective: The syntax and semantics of gradability and comparison*. New York: Garland.

- Lemon, Tyler. 2020. Vietnamese subcomparatives, the grammar of degrees, and comparative deletion. In *Proceedings of Sinn und Bedeutung 24*, ed. Michael Franke, Nikola Kompa, Mingya Liu, Jutta L. Mueller, and Juliane Schwab, volume 1, 497–514.
- Neeleman, Ad, Hans van de Koot, and Jenny Doetjes. 2004. Degree expressions. *The Linguistic Review* 21:1–66.
- Overfelt, Jason. 2015. Rightward movement: A study in locality. Doctoral Dissertation, University of Massachusetts Amherst.
- Partee, Barbara Hall, and Mats Rooth. 1983. Generalized conjunction and type ambiguity. In *Meaning, use and the interpretation of language*, ed. Arnim von Stechow. de Gruyter.
- Ross, John Robert. 1967. Constraints on variables in syntax. Doctoral Dissertation, Massachusetts Institute of Technology.
- Syrett, Kristen. 2015. Experimental support for inverse scope readings of finite-clause-embedded antecedent-contained-deletion sentences. *Linguistic Inquiry* 46:579–592.
- Williams, Edwin S. 1982. The NP cycle. *Linguistic Inquiry* 13:277–295.

In descriptions of subject quantity, POST cannot be at the right edge of the nominal:

(32) **POST of subject quantity must be separated from the subject:**

- a. (Có) [_{NP} *Nhiều* (bạn) học sinh] nghỉ học hôm nay {**quá** / **lắm** / **nhất** / **hơn**
have many CL student skip study today too very most more
hôm qua / **như** hôm qua}.
yesterday like yesterday
'{Too many / very many / the most / more / as many} students skipped class
today (than/as yesterday).'
- b. * (Có) [_{NP} *Nhiều* (bạn) học sinh {**quá** / **lắm** / **nhất** / **hơn** hôm qua / **như**
have many CL student too very most more yesterday like
hôm qua}] nghỉ học hôm nay.
yesterday skip study today

(33) **PRE in subject noun phrase:**

(Có) [_{NP} {**Rất** / **Khá** / **Quá** / **Cực kì**} *nhều* (bạn) học sinh] nghỉ học hôm nay.
have very quite too extremely many CL student skip study today
'{Very / quite / too / extremely} many students skipped class today.'