



The ambiguity of V+T+(de)+N in Mandarin Chinese

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On VTdeN phrase

- V(erb)+ASP(ect)+T(ime)+(de)+N(oun) phrase (VTdeN, henceforth) consists of:
 - V, a verb with an aspect marker;
 - T, a time modifier;
 - the particle *de*, which in some interpretations of the phrase can be optional; and
 - N, a noun (phrase).

- (1) wo xie_V le san-tian_T de zuo-ye_N
 I write ASP 3-day DE homework
- a. 'The homework that I wrote for 3 days' (NP)
 - b. 'I wrote three days of homework' (VP1)
 - c. 'I've been working on my homework for three days' (VP2)

VTdeN as NP

- NP with a relative sentence (RS): an obligatory *de*

- (2) a. wo xie le san-tian de zuo-ye
1.SG write ASP 3-day DE homework
'The homework that I wrote for 3 days' (with *de*)
- b. * wo xie le san-tian zuo-ye
1.SG write ASP 3-day homework
(without *de*)

VTdeN as VP1

- T modifies N: an optional *de*

- (3) a. wo (yi-tian) xie le san-tian de zuo-ye
1.SG (one-day) write ASP 3-day DE homework
'I wrote three days of homework' (with *de*)
- b. wo (yi-tian) xie le san-tian zuo-ye
1.SG (one-day) write ASP 3-day homework
'I wrote three days of homework in one day' (without *de*)

- answer to the question: How much homework did you do in one day?

VTdeN as VP2

- T modifies VP: an optional *de*

- (4) wo (zai-jia) xie le san-tian zuo-ye
1.SG (at-home) [write ASP 3-day homework]
'I've been working on my homework at home for three days' (without *de*)
- (5) wo (zai-jia) xie le san-tian de zuo-ye
1.SG (at-home) [write ASP 3-day DE homework]
'I've been working on my homework at home for three days' (with *de*)

- answer to the question: How long have you been writing your homework?
- problems in (5)
 - What licenses *de*?
 - How does T have the scope over verb?

Summary of the data

- one basic phrase, three possible interpretations, five structures
- VTdeN
 - NP: RS
 - ① with *de*
 - VP: T modifies NP
 - ① with *de*
 - ② without *de*
 - VP: T modifies VP
 - ① with *de*
 - ② without *de*

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Review of the literature

- Pseudo attribute (Huang 1981: 42), quasi attribute (Zhu 1982: 116-117)
V+quantifiers of T+N (Ma 1984: 40):
 - an object of ambiguity research since Chao (1979: 164)
 - description of the ambiguous phenomenon mostly within VP
 - licensing of the phrase: V, T and N(P)

Review of the literature

- description of the phenomenon mostly within VP e.g. Huang (1981: 41), Zhu (1982: 117), Wang (2010: 71), Yue (1996: 93-94)

- (6) a. ta dang le san-nian de bing
 3.SG be ASP 3-year DE soldier
 'He was a soldier for three years' (pseudo-attribute)
- b. jiao-wu-chu an-pai le yi-nian de ke
 The-Academic-Affairs-Office arrange ASP 1-year DE class
 'The Academic Affairs Office arranged a year of classes' (attribute)
- c. ta kan le si-ge-xiao-shi de dianying
 3.SG watch ASP 4-hour DE film
 'He watched the film for four hours' (quasi-attribute)
- (from Huang (1981: 41-42))

Review of the literature

- licensing of the phrase: V, T and N(P)
 - V: [+durative] for VTdeN phrase (Kuang 2015: 51)

(7) si le san-nian de Zhangsan
 die ASP 3-year DE Zhangsan
 'Zhangsan who died three years ago' (NP)
 - T: durative phrase (Miao 2020: 27)
 - N: bare Noun, in particular generic term (Yao & Chu 2003: 61)

(8) wo kan le yi-wan-shang de zhe ben shu
 1.SG read ASP a-night DE dem. CL book
 'The book I read all night' (NP)

(9) wo xie le yi-wan-shang de shuxue-zuoye
 1.SG write ASP a-night DE maths-homework
 'I've been working on my maths homework all night' (VP)

Review of the literature

- summary of the literature:
 - description of the properties
- remaining issues:
 - an explanation of the appearance of *de*
 - a formal analysis

(10) wo (zai-jia) xie le san-tian de zuo-ye
 1.SG (at-home) [write ASP 3-day DE homework]
 'I've been working on my homework at home for three days'

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A glimpse into the Chinese NP

- head final phrase
 - Mod.+*de*+NP

	Modifier	<i>de</i>	NP
AdjP	kun-nan 'difficult'	<i>de</i>	zuo-ye 'homework'
NP	zuo-tian 'yesterday'	<i>de</i>	zuo-ye 'homework'
PP	gei wo 'for me'	<i>de</i>	zuo-ye 'homework'
VP	bu-zhi 'assigned'	<i>de</i>	zuo-ye 'homework'
RC	lao-shi bu-zhi 'assigned by the teacher'	<i>de</i>	zuo-ye 'homework'

- The noun phrase marker *de* can be omitted in some cases of AP, NP and VP, but not in case of PP or RC.

(11) piao-liang (de) yifu / mu-tou (de) zhuozi / sheng (de) fan
 beautiful (DE) clothes / wood (DE) table / to-be-left-over (DE) food
 'beautiful clothes / wooden tables / leftovers'

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NP: RS

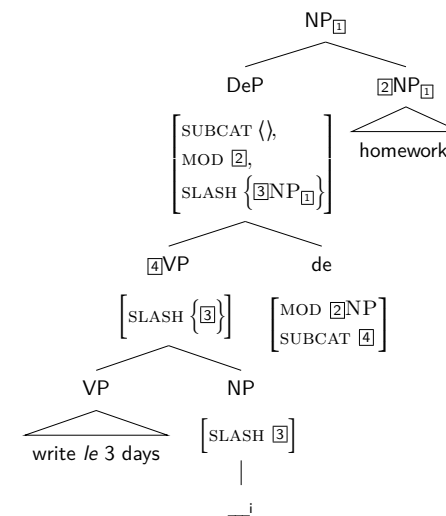
- VTdeN as an NP: RC with an obligatory *de*

- (12) a. wo xie le san-tian de zuo-ye
 1.SG write ASP 3-day DE homework
 'The homework that I wrote for 3 days'
- b. * wo xie le san-tian zuo-ye
 1.SG write ASP 3-day homework
- (13) [NP_{RC} wo xie le san-tian] de zuo-ye
 I write ASP 3-day DE homework

- relative clause analysis in HPSG (Müller 2013: ch.11; Kim 2016: ch.13; Müller et al. 2021: ch.14)

- (14) wo xie le san-tian _i de zuo-ye;
 1.SG write ASP 3-day DE homework
 'The homework that I wrote for 3 days'

NP: RS



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VP: T modifies NP

- VTdeN as a VP: T modifies NP
 - With *de*
 - Without *de*

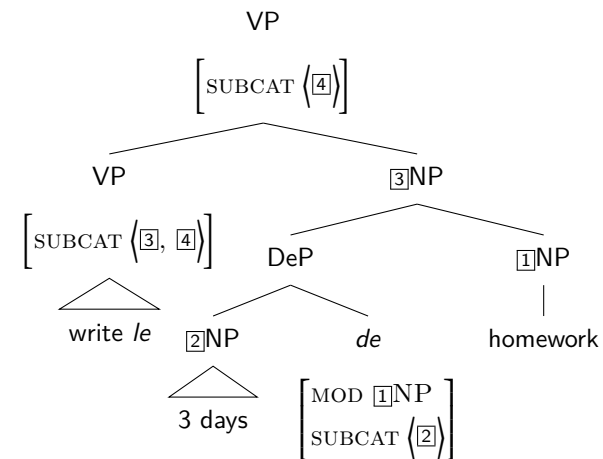
VP: T modifies NP with *de*

- VPdeN as a VP with *de*

(15) wo (yi-tian) xie le san-tian de zuo-ye
 1.SG (one-day) write ASP 3-day DE homework
 'I wrote three days of homework'

(16) [_{VP} wo xie le [_{NP} san-tian de zuo-ye]]
 I write ASP three-day DE homework

- a standard case: Mod.(NP)+*de*+NP → a complex NP

VP: T modifies NP with *de*VP: T modifies NP without *de*

- VPdeN as a VP without *de*: V+ASP+T+/*de*+N

(17) wo (yi-tian) xie le san-tian zuo-ye
 1.SG (one-day) write ASP 3-day homework
 'I wrote three days of homework in one day'

(18) [_{VP} wo xie le [_{NP} san-tian zuo-ye]]
 I write ASP three-day homework

The differences between NP with *de* und without *de*

- NP with *de* or without *de*

- different degrees of lexicalization (Sun 2015)

(19) bai-zhi vs. bai de zhi
 white-paper vs. white DE paper
 'white paper/ blank paper vs. white paper'

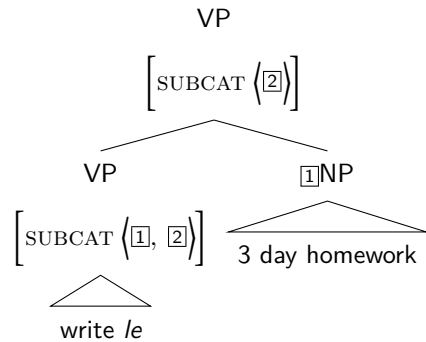
- focus Change (Xu & Qian 2005)

(20) ta bang nong-min gan le yi-tian de nong-huo vs.
 3.SG helped farmer do ASP one-day DE farm-work vs.
 yi-tian nong-HUO
 one-day farm-work
 'He helped the farmers to do a day of farm work'

- N+*de*+N phrase → syntactic process
- N+N compound → morphological process

VP: T modifies NP without *de*

- VPdeN as a VP without *de*



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VP: T modifies VP

- VTdeN as a VP: T modifies VP
 - Without *de*
 - With *de*

VP: T modifies VP without *de*

- VPdeN as a VP without *de*: V+ASP+T+ / +N

(21) wo (zai-jia) xie le san-tian zuo-ye
 1.SG (at-home) [write ASP 3-day homework]
 'I've been working on my homework at home for three days'

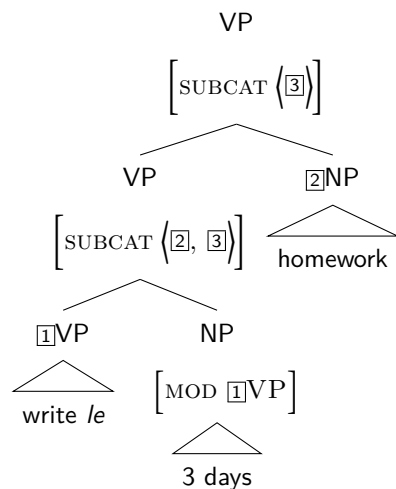
(22) [VP wo xie le san-tian [NP zuo-ye]]
 I write ASP three-day homework

- unmarked position for durative phrase

(23) wo zai-sha-mo-li zou le shi-tian
 1.SG in-desert walk ASP ten-day
 'I walked in the desert for ten days'

VP: T modifies VP without *de*

- VPdeN as a VP without *de*: V+ASP+T+ / +N



VP: T modifies V with *de*

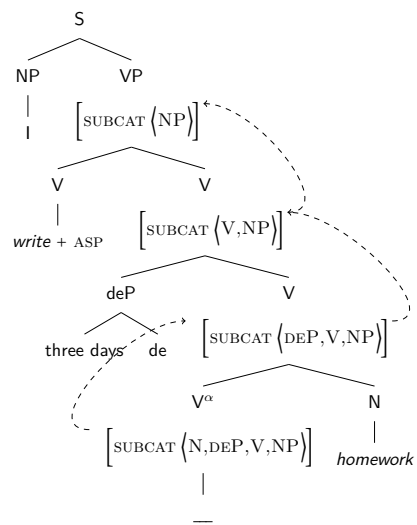
- VPdeN as a VP with *de*: V+ASP+T+*de*+N

(24) wo (zai-jia) xie le san-tian de zuo-ye
 1.SG (at-home) write ASP 3-day DE homework
 'I've been working on my homework at home for three days'

- What is licensing DE?
- How does *san-tian* ('three days') modify event?

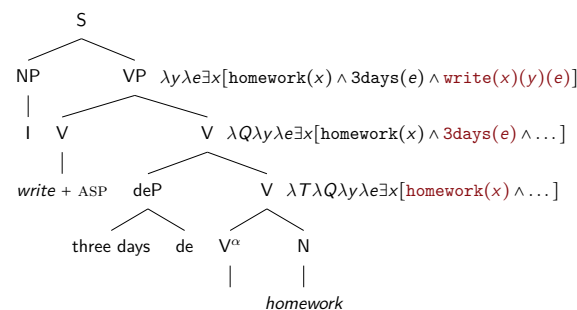
(25) a. [VP wo xie le san-tian de [NP zuo-ye]]
 I write ASP 3-day DE homework
 b. [VP wo xie le [NP san-tian de zuo-ye]]
 I write ASP 3-day DE homework

T modifies V: Constructional analysis



- Construction (V^α) acts as head.
- unary rule or empty element
- V^α selects all elements in the structure as arguments.
- All syntactic combinations: *head-argument-structure*

T modifies V: Constructional analysis



Positive:

- deP can be better constrained.
- It seems to be a simple solution.

Negative:

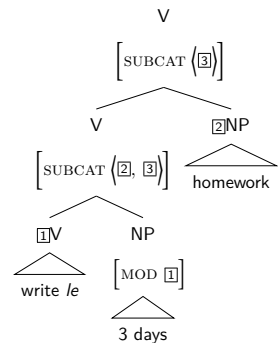
- What is the reason to assume V^α ?

- $[[V^\alpha]] = \lambda P \lambda T \lambda Q \lambda y \lambda e \exists x [P(x) \wedge T(e) \wedge Q(x)(y)(e)]$
- $[[homework]] = \lambda x' [homework(x')]$
- $[[three\ days\ de]] = \lambda e' [3days(e')]$
- $[[write]] = \lambda x' \lambda y' \lambda e' [write(x')(y')(e')]$

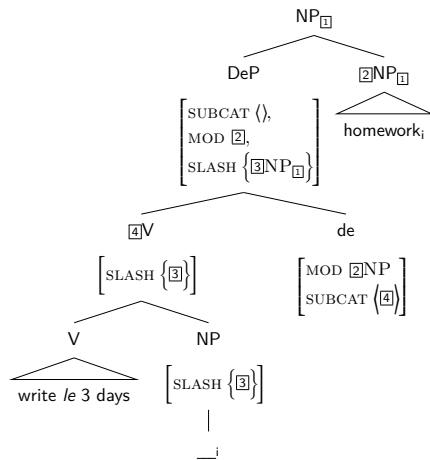
T modifies V: RC analysis

- For RC analysis, no new assumptions are needed.

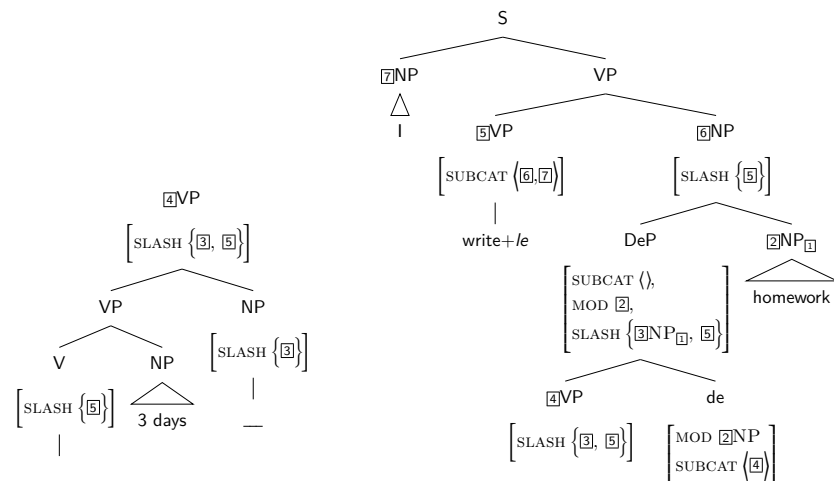
VP structure:



RC structure:

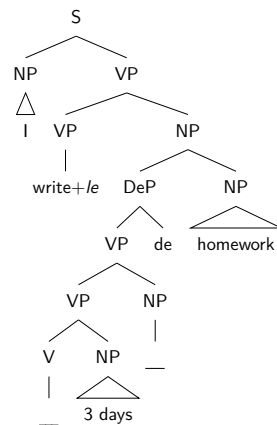


T modifies V: RC analysis



T modifies V: RC analysis

- Only phrasal types that are already in the grammar are needed.
- It seem more complex than the constructional analysis.
- It works straightforward.
- The bracketing paradox can be solved:
 - syntactic attachment to N
 - semantic scope over V



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