

# Resultative expressions in Mandarin Chinese

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5 March 2025

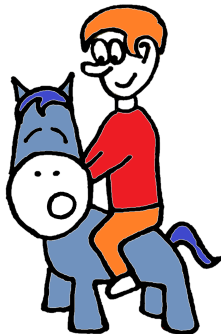


Slides available here:

[taywenkai.com](http://taywenkai.com)

## Resultative expressions in Mandarin Chinese

- (1) 张三 骑累了 马。  
 Zhāngsān qí - lèi - le mǎ.  
 Zhangsan ride-tired-PFV horse  
 ‘Zhangsan rode the horse tired.’



# Outline

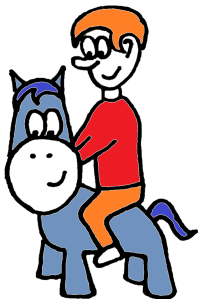
- 1 Argument structure
- 2 Argument structure of resultatives
- 3 Puzzle
  - Decompositional approach
  - Projectionist approach
- 4 Predictions
- 5 Cross-linguistic extensions

## Argument structure

(2) John rode the horse.

## Argument structure

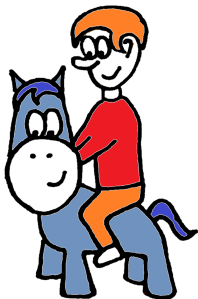
(2) John rode the horse.



## Argument structure

(2) John rode the horse.

✓



✗



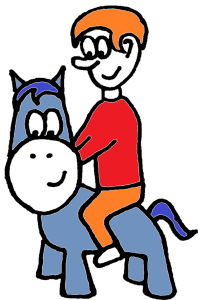
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- (3) 张三 骑了 马。  
 Zhāngsān qí-le mǎ.  
 Zhangsan ride-PFV horse  
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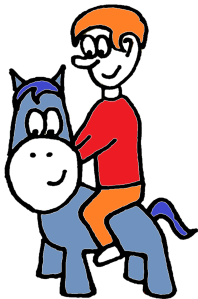


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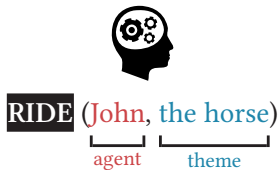
✓



✗



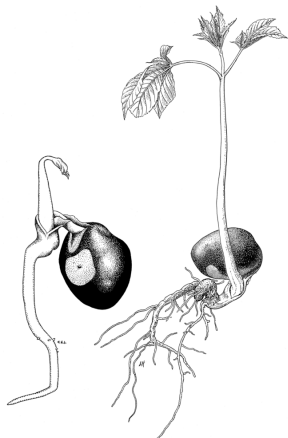
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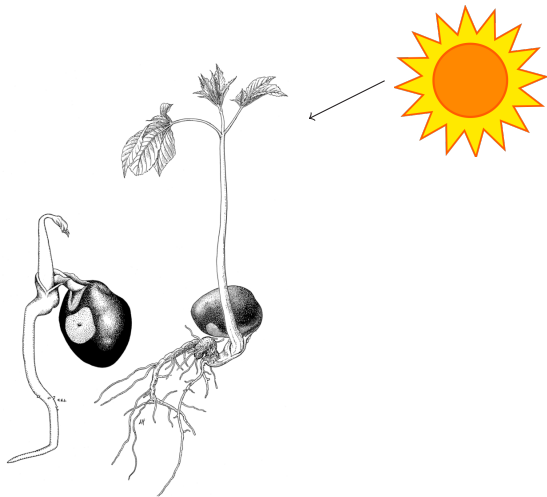
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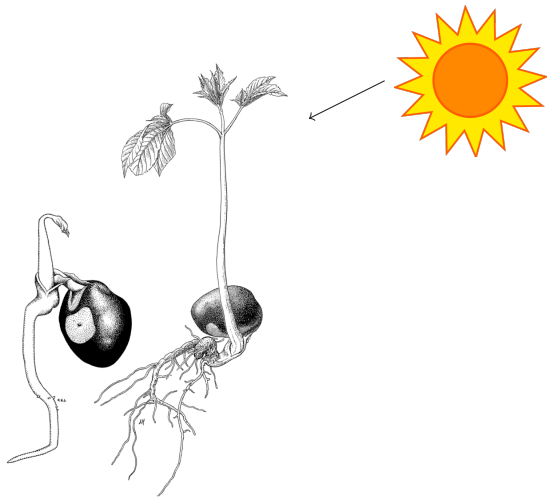
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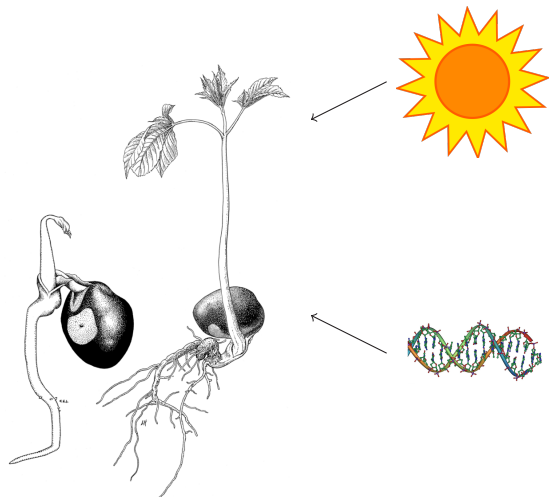


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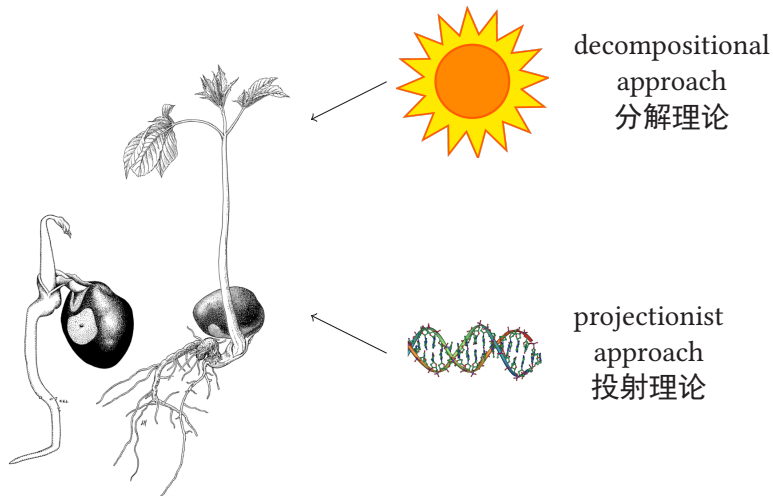
decompositional  
approach  
分解理论

# Argument structure



decompositional  
approach  
分解理论

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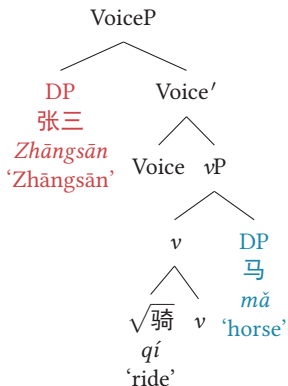
Decompositional approach



Projectionist approach

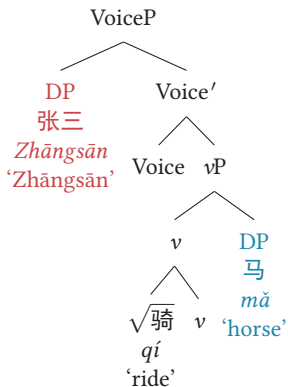


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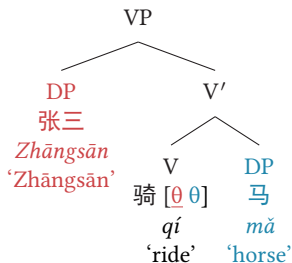
Decompositional approachProjectionist approach

## Argument structure

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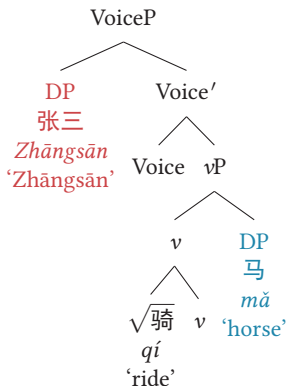


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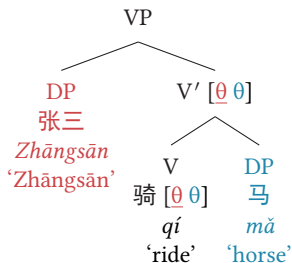


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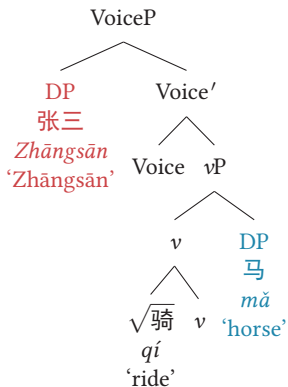


Projectionist approach

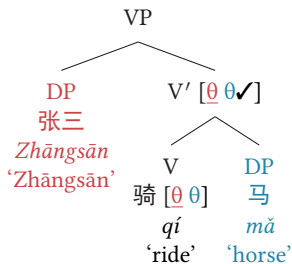


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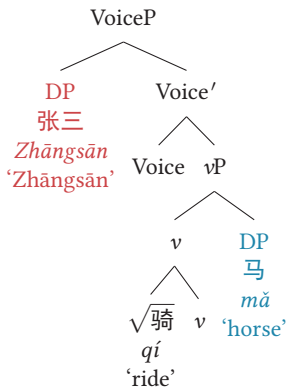


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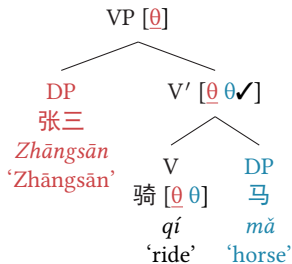


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Decompositional approach

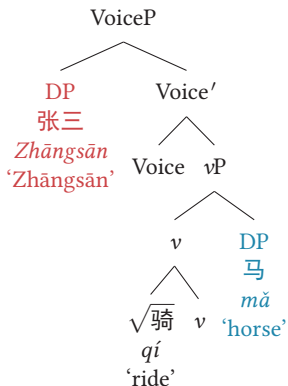


Projectionist approach

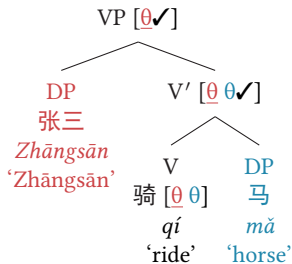


# Argument structure

Decompositional approach



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# Recap ★



## Recap ★

- ★ There are syntactic constraints on how we interpret arguments in a sentence. It is important for us to understand these constraints.

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- ★ There are syntactic constraints on how we interpret arguments in a sentence. It is important for us to understand these constraints.
- ★ According to the decompositional approach, these constraints are introduced by elements outside the verb.
- ★ According to the projectionist approach, these constraints are introduced by the verb itself.
- ★ Which approach is correct?

# Outline

- 1 Argument structure
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## Argument structure of resultatives

(4) John rode the horse tired.

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## Argument structure of resultatives

(4) John rode the horse tired.

✓



✗



✗



✗





## Argument structure of resultatives

- (5) 张三 骑累了 马。  
 Zhāngsān qí - lèi -le mǎ.  
 Zhangsan ride-tired-PFV horse  
 ‘Zhangsan rode the horse tired.’

## Argument structure of resultatives

- (5) 张三 骑累了 马。  
 Zhāngsān qí - lèi - le mǎ.  
 Zhangsan ride-tired-PFV horse

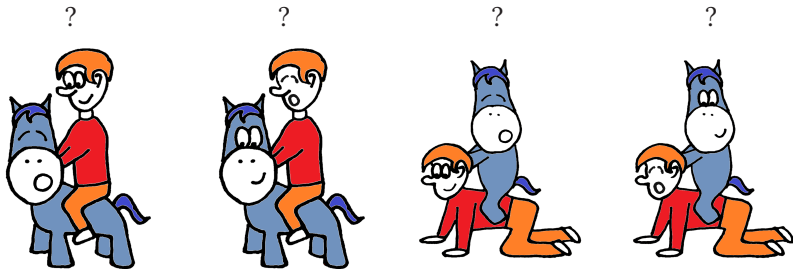
‘Zhangsan rode the horse tired.’



## Argument structure of resultatives

- (5) 张三 骑累了 马。  
 Zhāngsān qí - lèi - le mǎ.  
 Zhangsan ride-tired-PFV horse

‘Zhangsan rode the horse tired.’



## Argument structure of resultatives

- (6) 淘淘 追累了 友友。  
 Táotáo zhuī-lèi-le Yǒuyǒu.  
 Taotao chase-tired-PFV Youyou

## Argument structure of resultatives

- (6) 淘淘 追累了 友友。  
 Táotáo zhuī-lèi-le Yǒuyǒu.  
 Taotao chase-tired-PFV Youyou  
 (i) 淘淘追友友，友友累 ‘T. chased Y. → Y. got tired.’

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 (iv) \*友友追淘淘, 淘淘累 ‘Y. chased T. → T. got tired.’

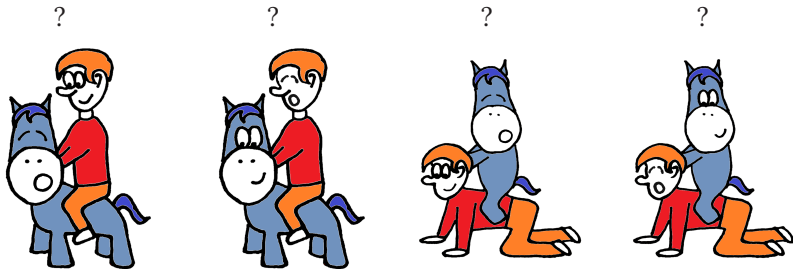
(adapted from Li 1995)



## Argument structure of resultatives

- (7) 张三 骑累了 马。  
 Zhāngsān qí - lèi - le mǎ.  
 Zhangsan ride-tired-PFV horse

'Zhangsan rode the horse tired.'



## Argument structure of resultatives

- (7) 张三 骑累了 马。  
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# Recap ★

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- ★ Mandarin V-V resultatives have more flexible argument structures than English resultatives.

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- ★ Mandarin V-V resultatives have more flexible argument structures than English resultatives.
- ★ But why?

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# Puzzle

In English, a verb projects the same obligatory arguments in simple sentences and in resultatives.

(8) John hammered the metal.

(9) John hammered the metal flat.

# Puzzle

In English resultatives, a verb cannot omit an obligatory **agent**...

- (10) \*[The metal]<sub>i</sub> **hammered**  $t_i$  **flat**.
- 



## Puzzle

In English resultatives, a verb cannot omit an obligatory **agent**...

(10) \***[The metal]<sub>i</sub>** **hammered** <sup>theme</sup> **t<sub>i</sub>** **flat**.

or an obligatory **theme**.

(11) \***John** <sup>agent</sup> **hammered** his back **sore**.

## Puzzle

But in Mandarin V-V resultatives, the first verb (V1) can omit its **agent**...

(12) <sup>theme</sup> 衣服 洗 干净 了。

*Yīfú*    **xǐ** -    **gānjìng** - *le*.  
clothes wash- clean-    PFV

'The clothes got clean from washing [i.e. being washed].'

(Williams 2005:161)

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‘The clothes got clean from washing [i.e. being washed].’ (Williams 2005:161)

or its **theme**.

(13) <sup>agent</sup> 老魏 切 钝了菜刀。

*Lǎo Wèi*    **qiē** -    **dùn** - *le*    *càidāo*.  
Lao Wei cut- dull- PFV knife

‘Lao Wei made the knife dull by cutting something.’ (adapted from Williams 2005:61)

## Puzzle

In Mandarin, a verb can sometimes omit its **agent** in a simple sentence...

(14)  衣服洗了。

*Yīfú*    **xǐ** -le.  
clothes wash-PFV

‘The clothes [were] washed.’

## Puzzle

In Mandarin, a verb can sometimes omit its **agent** in a simple sentence...

(14) <sup>theme</sup> 衣服 洗了。

*Yīfú*    **xǐ** -le.  
clothes wash-PFV

‘The clothes [were] washed.’

and when it appears as V1 in a resultative.

(15) <sup>theme</sup> 衣服 洗 干净了。

*Yīfú*    **xǐ** -    **gānjìng** - le.  
clothes wash- clean-    PFV

‘The clothes got clean from washing [i.e. being washed].’

(Williams 2005:161)

## Puzzle

But in Mandarin, a verb can never omit its obligatory **theme** in a simple sentence...

(16) \*老魏切了 (菜刀)。  
 agent  
 (A red arrow points from the word 'agent' to the character '魏' in the sentence above.)

\**Lǎo Wèi* **qiē** -le (càidāo).

Lao Wei cut-PFV knife

Intended: 'Lao Wei cut something (with a knife).'

## Puzzle

But in Mandarin, a verb can never omit its obligatory **theme** in a simple sentence...

(16) \*老魏切了(菜刀)。  
 agent  
 Lao Wei cut PFV knife

\**Lǎo Wèi qiē -le (càidāo).*

Lao Wei cut-PFV knife

Intended: 'Lao Wei cut something (with a knife).'

so why can V1 omit its **theme** in a resultative?

(17) 老魏切钝了菜刀。  
 agent  
 Lao Wei cut dull PFV knife

*Lǎo Wèi qiē - dùn - le càidāo.*

Lao Wei cut- dull- PFV knife

'Lao Wei made the knife dull by cutting something.' (adapted from Williams 2005:61)

## Puzzle ★

Why can V1 omit its arguments in a Mandarin V-V resultative...

(18) <sup>agent</sup>老魏切钝了菜刀。

*Lǎo Wèi qiē - dùn - le càidāo.*  
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Lao Wei cut- dull- PFV knife

'Lao Wei made the knife dull by cutting something.' (adapted from Williams 2005:61)

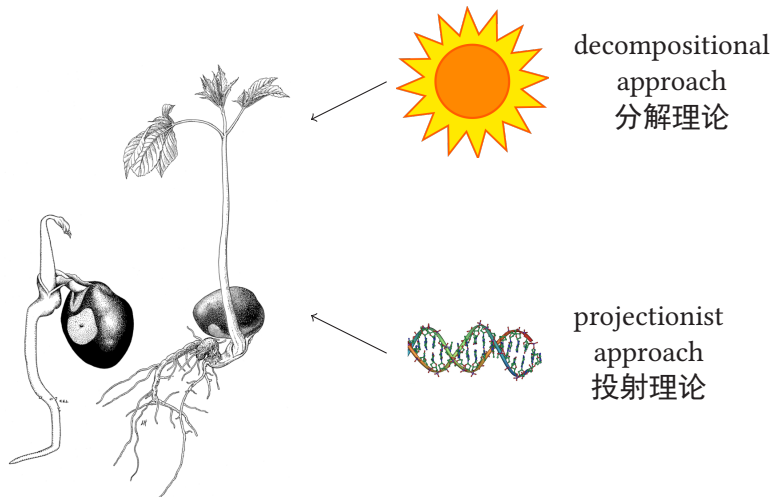
but not in an English resultative?

(19) \*<sup>agent</sup>John cut the knife dull.

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# Argument structure



## Decompositional approach

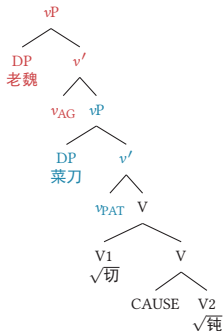
Williams (2005) and Huang (2006) claim that Mandarin verbs never project any arguments.

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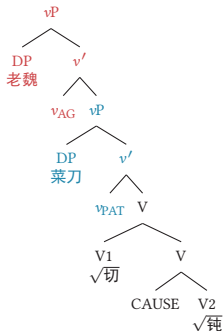


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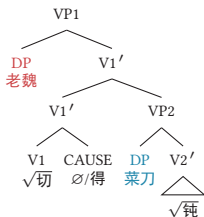
adapted from Williams (2005):

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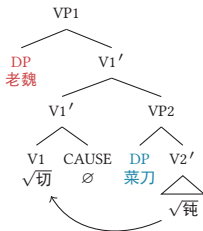
(21) [x CAUSE-<MANNER> [BECOME [y <STATE>]]]



# Decompositional approach

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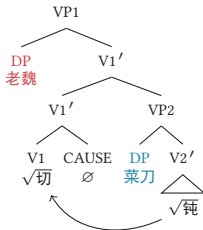
(22) 老魏切钝了菜刀。



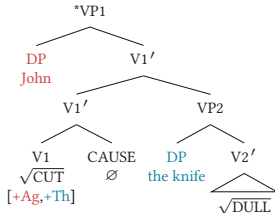


# Decompositional approach

(22) 老魏切钝了菜刀。



(23) \*John cut the knife dull.



## Recap ★

Puzzle: Why can V1 omit its arguments in a Mandarin V-V resultative but not in an English resultative?

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Decompositional approach:

- ★ V1 does not project any arguments in Mandarin V-V resultatives because Mandarin verbs never project any arguments.

## Recap ★

Puzzle: Why can V1 omit its arguments in a Mandarin V-V resultative but not in an English resultative?

Decompositional approach:

- ★ V1 does not project any arguments in Mandarin V-V resultatives because Mandarin verbs never project any arguments.
- ★ V1 must project its arguments in English resultatives because English verbs always project their arguments.

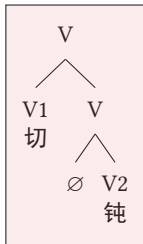
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# Projectionist approach

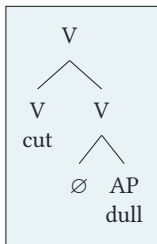
(24) 老魏 **切** **钝** 了菜刀。

MORPHOLOGY 词法



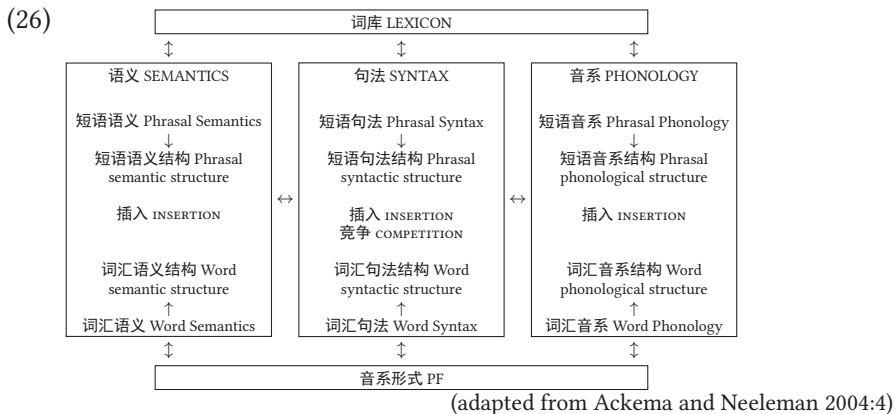
(25) \*John **cut** the knife **dull**.

SYNTAX 句法



# Projectionist approach

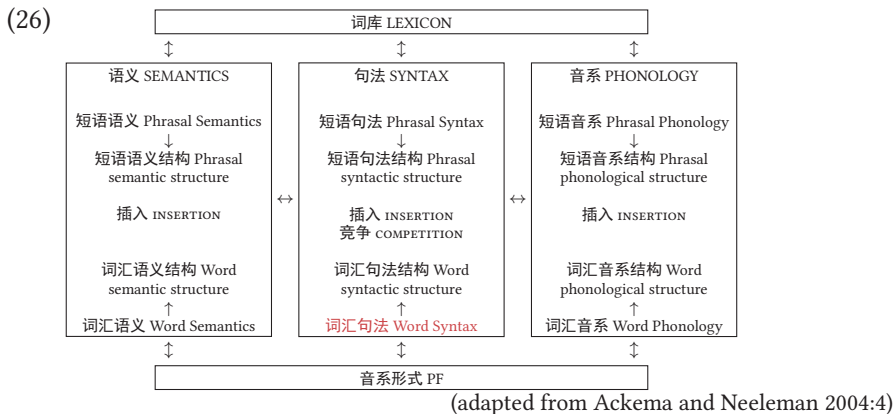
- ★ Morphology (=word syntax) and (phrasal) syntax are distinct subsystems in the grammar (cf. Di Sciullo and Williams 1987).





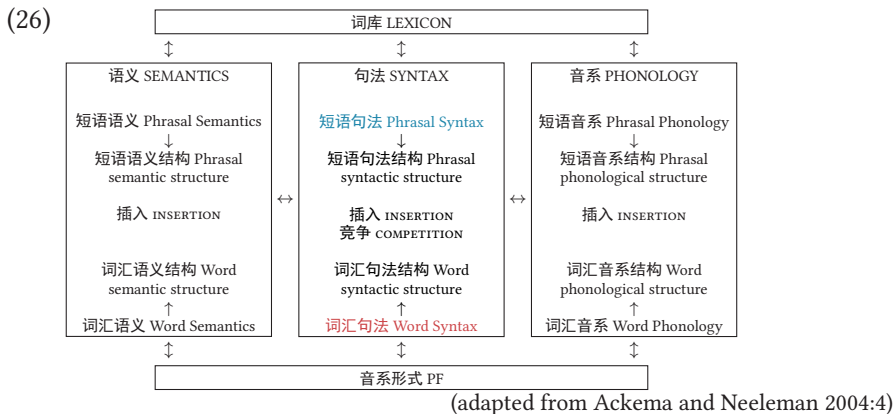
# Projectionist approach

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# Projectionist approach

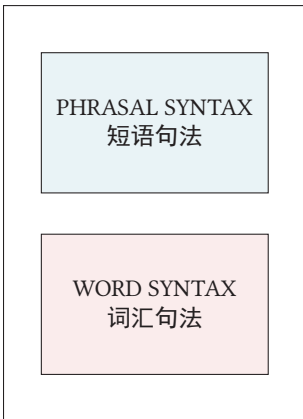
- ★ **Morphology (=word syntax)** and **(phrasal) syntax** are distinct subsystems in the grammar (cf. Di Sciullo and Williams 1987).



# Projectionist approach

(27)

SYNTAX 句法



# Projectionist approach

(28)



# Projectionist approach

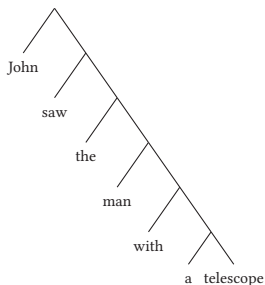
## Projectionist approach

(29) John saw the man with the telescope.

Projectionist approach 

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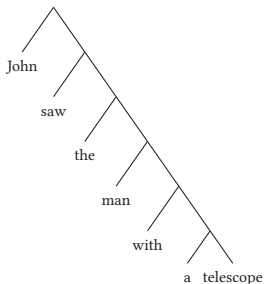
(30)



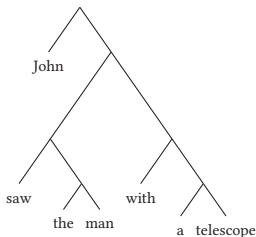
# Projectionist approach

(29) John saw the man with the telescope.

(30)



(31)

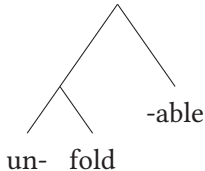




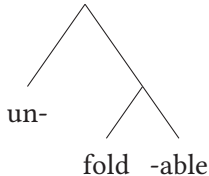
# Projectionist approach

(32) This bag is **unfoldable**.

(33) [un-fold]-able



(34) un-[fold-able]



## Projectionist approach

(35) John is [<sub>A</sub> happy].

(36) John is [<sub>AP</sub> quite happy].

(37) John is [<sub>AP</sub> more happy [than sad]].

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(38) [<sub>A</sub> happi]-ness

(39) \* [<sub>AP</sub> quite happi]-ness

(40) \* [<sub>AP</sub> more happy [than sad]]-ness

(Bresnan and Mchombo 1995:192)

## Projectionist approach

Morphological compounds need not inherit the argument structure of their components (Ackema and Neeleman 2004).

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Affixes can suppress arguments...

- (41)
- |                    |               |
|--------------------|---------------|
| A                  |               |
| 可爱 'lovable(y)'    |               |
| └───┬───┘          |               |
| affix <sub>A</sub> | V             |
| 可- '-able'         | 爱 'love(x,y)' |

- (42) 我爱小猫。  
I love this kitten.

- (43) 小猫很可爱。  
This kitten is lovable.

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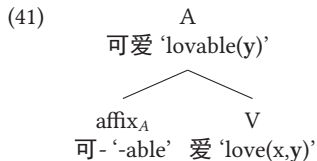
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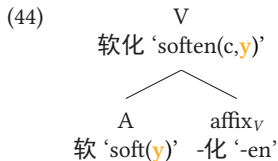
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(42) 我爱小猫。  
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...or introduce arguments.



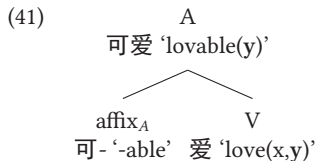
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My hair is soft.

(46) 我软化了头发。  
I softened my hair.

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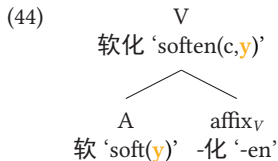
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# Projectionist approach

- ★ V-V resultatives are compounds built in morphology, not syntax.

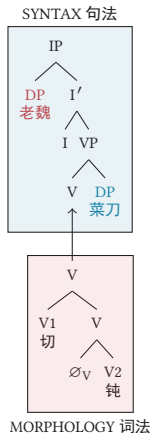
(47) 老魏切钝了菜刀。

*Lǎo Wèi qiē-dùn-le cǎidāo.*

Lao Wei cut-dull-PFV knife

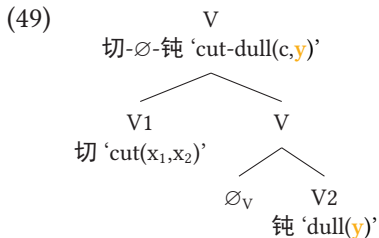
‘Lao Wei made the knife dull by cutting something.’ (adapted from Williams 2005)

(48)



# Projectionist approach

- ★ V-V resultatives contain a null affix  $\emptyset$  that binds all available arguments of V2 but none of the arguments of V1.



## Projectionist approach

$\emptyset$  denotes a macroevent  $e$  with two subevents: a causing event  $e_1$  and a caused event  $e_2$ .

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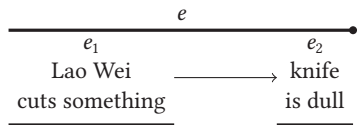
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Lao Wei cut-dull-PPV knife

‘Lao Wei made the knife dull by cutting something.’ (adapted from Williams 2005)



## Projectionist approach

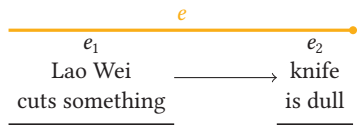
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‘Lao Wei made the knife dull by cutting something.’ (adapted from Williams 2005)



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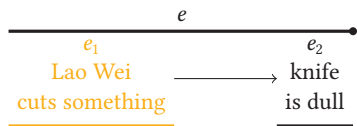
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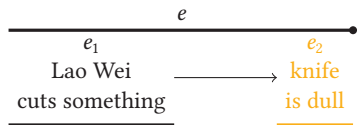
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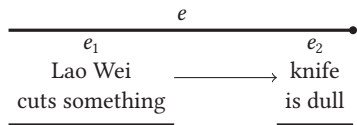
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(51)  $[[\emptyset]] = \dots \lambda e \dots \exists e_2 \exists e_1. [\text{CAUSE}(e, e_1, e_2) \dots]$

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The semantic content of  $e_2$  and  $e_1$  are supplied by the semantic predicates denoted by V2 and V1.

$$(52) \llbracket \emptyset \rrbracket = \lambda \mathbf{R}_2 \lambda \mathbf{R}_1 \dots \lambda e \dots \exists e_2 \exists e_1. [\text{CAUSE}(e, e_1, e_2) \wedge \dots \wedge \mathbf{R}_2(\mathbf{e}_2, \dots) \wedge \mathbf{R}_1(\mathbf{e}_1, \dots)]$$

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$\emptyset$  adds a causer.

$$(53) \llbracket \emptyset \rrbracket = \lambda R_2 \lambda R_1 \dots \lambda c \lambda e \dots \exists e_2 \exists e_1. [\text{CAUSE}(e, e_1, e_2) \wedge \text{Causer}(e) = c \wedge R_2(e_2, \dots) \wedge R_1(e_1, \dots)]$$

## Projectionist approach

$\emptyset$  binds all available arguments of  $e_2$  denoted by  $V_2$ ...

$$(54) \llbracket \emptyset \rrbracket = \lambda R_2 \lambda R_1 \lambda y \lambda c \lambda e \dots \exists e_2 \exists e_1. [\text{CAUSE}(e, e_1, e_2) \wedge \text{Causer}(e) = c \wedge R_2(e_2, y) \wedge R_1(e_1, \dots)]$$

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but none of the arguments of  $e_1$  denoted by V1.

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$\emptyset$  binds all available arguments of  $e_2$  denoted by V2...

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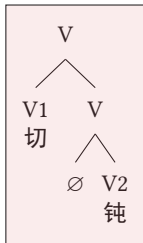
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$\therefore$  The arguments of  $\emptyset$  and of the V-V resultative can, but need not, be interpreted as arguments of V1.

# Projectionist approach

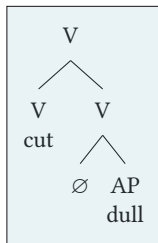
(56) 老魏 **切** **钝** 了菜刀。

MORPHOLOGY 词法



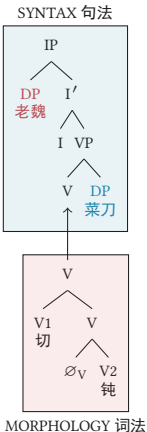
(57) \*John **cut** the knife **dull**.

SYNTAX 句法

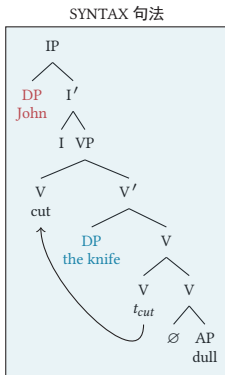


# Projectionist approach

(58) 老魏 **切** **钝** 了菜刀。



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Puzzle: Why can V1 omit its arguments in a Mandarin V-V resultative?

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- ★ V-V resultatives contain  $\emptyset$  that binds all available arguments of V2 but none of the arguments of V1.
- ★  $\therefore$  V1 does not project any arguments in Mandarin V-V resultatives because Mandarin V-V resultatives are compounds.

# Outline

- 1 Argument structure
- 2 Argument structure of resultatives
- 3 Puzzle
  - Decompositional approach
  - Projectionist approach
- 4 Predictions**
- 5 Cross-linguistic extensions



## Two types of resultative expressions

### V-V compound resultative:

- (60) *Bǎobao* **kū** - **xǐng** -*le* *māma*.  
 baby cry-awake-PFV mother  
 ‘The baby cried Mother awake.’

### V-*de* phrasal resultative:

- (61) *Bǎobao* **kū** *de* [*māma* **xǐng** -*le*].  
 baby cry DE mother awake-PFV  
 ‘The baby cried until/ and as a result Mother woke up.’

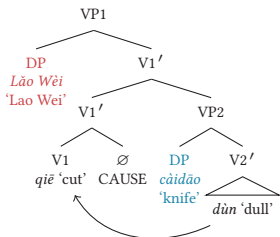
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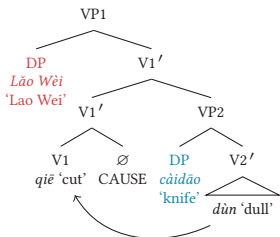
- (62) *LW* **qiē** - **dùn** -*le* *càidāo*.  
*LW* cut-dull-PFV knife



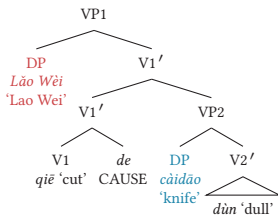
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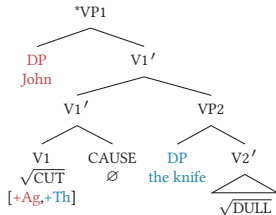
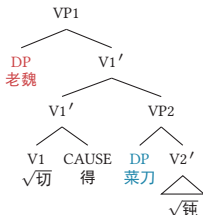
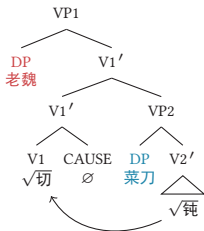


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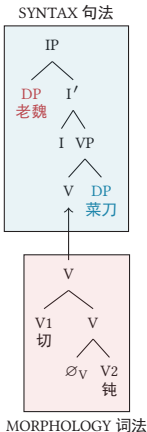
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(64)老魏切钝了菜刀。 (65)老魏切得[菜刀钝了]。 (66)\*John cut the knife dull.

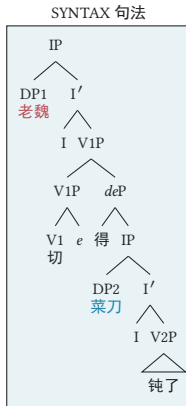


# Projectionist approach

(67) 老魏切钝了菜刀。



(68) 老魏切得[菜刀钝了]。



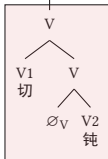
# Projectionist approach

(69)老魏切钝了菜刀。 (70)老魏切得[菜刀钝了]。 (71)John cut the knife dull.

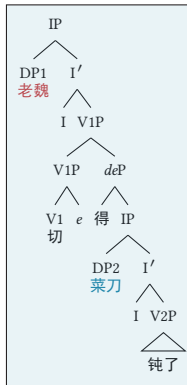
SYNTAX 句法



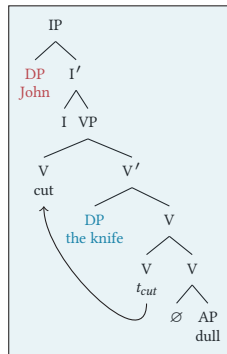
MORPHOLOGY 词法



SYNTAX 句法



SYNTAX 句法



# Projectionist approach

Predictions:



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- 1 V-*de* resultatives are accessible to syntactic operations while V-V resultatives are not. ★
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## Prediction #1

V1 in a V-*de* phrasal resultative can be independently modified...

*Context: The baby cried at home until the neighbours woke up next door.*

(72) Bǎobao zài jiā lǐ kǔ de [línjū xǐng -le].  
 baby at house inside cry DE neighbour awake-PFV

‘The baby cried at home until the neighbours woke up (next door).’

(n=5, mean=6.6, SD=0.9)

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(n=5, mean=6.6, SD=0.9)

...whereas V1 in a V-V compound resultative cannot be independently modified.

*Context: same as above.*

(73) \**Bǎobao zài jiā lǐ kū - xǐng -le línjū.*  
 baby at house inside cry-awake-PFV neighbour

Intended: ‘The baby cried at home until the neighbours woke up (next door).’

(n=5, mean=3.6, SD=1.7)

## Prediction #1

V2 in a V-*de* phrasal resultative can be independently modified...

- (74) *Bǎobao* **kū** *de* [*māma* *mímíhúhúde* **xǐng** *-le*].  
 baby cry DE mother in.a.daze awake-PFV

‘The baby cried until Mother woke up in a daze.’

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- (74) *Bǎobao* **kū** *de* [*māma* *mímíhúhúde* **xǐng** -*le*].  
 baby cry DE mother in.a.daze awake-PFV

‘The baby cried until Mother woke up in a daze.’

...whereas V2 in a V-V compound resultative cannot be independently modified.

- (75) *Bǎobao* **kū** - (*\*mímíhúhúde*) - **xǐng** -*le* (*\*mímíhúhúde*) *māma*  
 baby cry- in.a.daze -awake-PFV in.a.daze mother  
 (*\*mímíhúhúde*).  
 in.a.daze

‘The baby cried and as a result Mother woke up (\*in a daze).’

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V2 in a V-*de* phrasal resultative can be independently modified...

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‘The baby cried until Mother woke up in a daze.’

...whereas V2 in a V-V compound resultative cannot be independently modified.

- (75) *Bǎobao* **kū** - (*\*mímíhúhúde*) - **xǐng** -*le* (*\*mímíhúhúde*) *māma*  
 baby cry- in.a.daze -awake-PFV in.a.daze mother  
 (*\*mímíhúhúde*).  
 in.a.daze

‘The baby cried and as a result Mother woke up (\*in a daze).’

See Appendix for a discussion of apparent exceptions involving *V-de/bu-V* constructions and *A-not-A* questions with *V1*.



## Projectionist approach

Predictions:

- 1 *V-de* resultatives are accessible to syntactic operations while *V-V* resultatives are not.
- 2 *V1* must project its arguments in *V-de* resultatives but not in *V-V* resultatives.

## Projectionist approach

Predictions:


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- 2 V1 must project its arguments in V-*de* resultatives but not in V-V resultatives. ★

## V-*de* resultatives with transitive V1

V-*de* resultatives with DP2 that is interpreted as the theme of V1 are degraded (Zhang 2001; Zhang 2020).

Q: *Zěnme le?* ‘What happened?’

(76) \**Mǎli rǎn de [tóufà hóng -le].*  
 Mary dye DE hair red-PFV



Intended: ‘Mary dyed her hair red.’

(n=15, mean=1.8, SD=0.9)

## V-*de* resultatives with transitive V1

V-*de* resultatives with DP2 that is interpreted as the theme of V1 are degraded (Zhang 2001; Zhang 2020).

Q: *Zěnme le?* ‘What happened?’

- (76) \**Mǎli rǎn de [tóufà hóng -le].*  
 Mary dye DE hair red-PFV

Intended: ‘Mary dyed her hair red.’

(n=15, mean=1.8, SD=0.9)

- (77) *Mǎli kū de [yǎnjīng hóng -le].*  
 Mary cry DE eye red-PFV

‘Mary cried her eyes red.’

(n=15, mean=6.1, SD=1.2)

## V-*de* resultatives with transitive V1

There is no comparable contrast in V-V resultatives.

Q: *Zěnme le?* ‘What happened?’

- (78) Mǎli **rǎn**-**hóng** -le *tóufà*.  
 Mary dye-red-PFV eye  
 ‘Mary dyed her hair red.’
- 

(n=15, mean=5.3, SD=1.7)

- (79) Mǎli **kū**-**hóng** -le *yǎnjīng*.  
 Mary cry-red-PFV eye  
 ‘Mary cried her eyes red.’
- 

(n=15, mean=5.8, SD=1.1)

## V-*de* resultatives with transitive V1

Why are some V-*de* resultatives with transitive V1 degraded?

## V-*de* resultatives with transitive V1

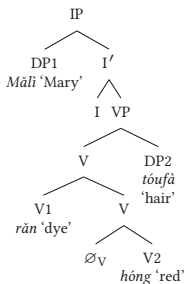
Why are some V-*de* resultatives with transitive V1 degraded?

This can be explained if we assume that:

- ★ V-*de* and V-V resultatives have different structures, and
- ★ Transitive V1 must project its internal argument in V-*de* but not in V-V resultatives.

Analysis of V-*de* resultatives with transitive V1

(80) V-V:

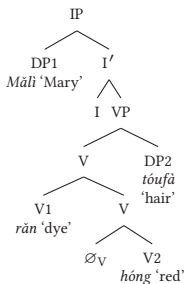




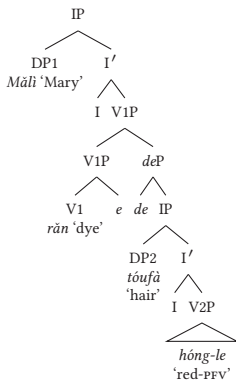
# Analysis of V-*de* resultatives with transitive V1

Claim: Transitive V1 must project its internal argument in a V-*de* resultative.

(80) V-V:



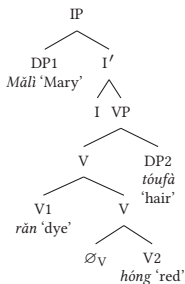
(81) V-*de*:



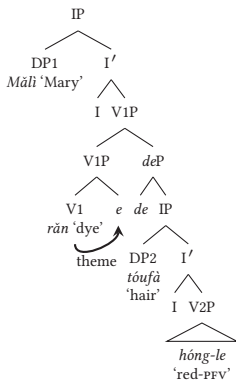
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Claim: Transitive V1 must project its internal argument in a V-*de* resultative.

(80) V-V:

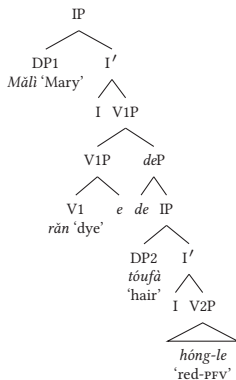


(81) V-*de*:



Analysis of V-*de* resultatives with transitive V1

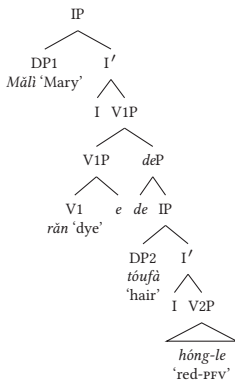
(82)



# Analysis of V-*de* resultatives with transitive V1

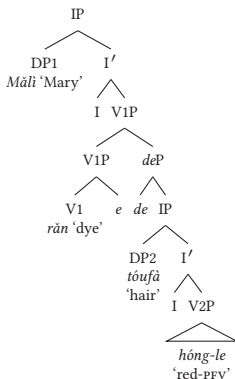
- 1 The *de*-phrase is an adjunct.
- 2 The internal argument of V1 must be phonologically null.
- 3 *pro* cannot depend on an antecedent to its right.

(82)



# Analysis of V-*de* resultatives with transitive V1

- 1 The *de*-phrase is an adjunct. (82)
- 2 The internal argument of V1 must be phonologically null.
- 3 *pro* cannot depend on an antecedent to its right.



## Analysis of V-*de* resultatives with transitive V1

V1 in a V-*de* phrasal resultative can be independently modified.

*Context: The baby cried at home until the neighbours woke up next door.*

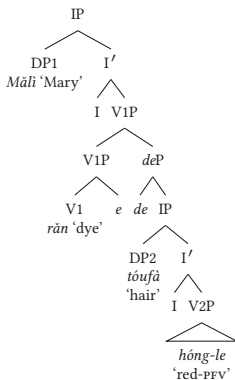
(83) *Bǎobao zài jiā lǐ kū de [línjū xǐng -le].*  
 baby at house inside cry DE neighbour awake-PFV

‘The baby cried at home until the neighbours woke up (next door).’

## Analysis of V-*de* resultatives with transitive V1

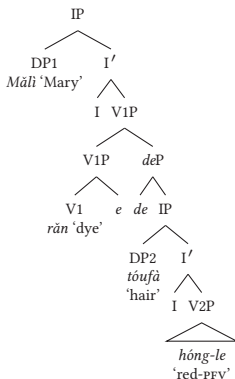
- 1 The *de*-phrase is an adjunct. (84)
- 2 The internal argument of V1 must be phonologically null.
- 3 *pro* cannot depend on an antecedent to its right.

See Appendix for a discussion of **wh**-questions and **A-not-A** questions in V-*de* resultatives.



## Analysis of V-*de* resultatives with transitive V1

- 1 The *de*-phrase is an adjunct.
- 2 The internal argument of V1 must be phonologically null.
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## Analysis of V-*de* resultatives with transitive V1

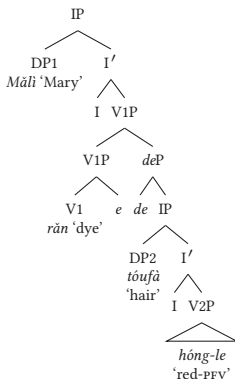
The internal argument of V1 must be phonologically null.

- (85) \**Zhāngsān* **tī** *qiú* *de* [*jiǎo* **zhǒng** -*le*].  
 Zhangsan kick ball DE foot swollen-PFV
- 

Intended: ‘Zhangsan kicked the ball and as a result his feet became swollen.’

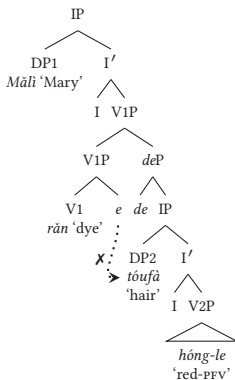
## Analysis of V-*de* resultatives with transitive V1

- (86)
- 1 The *de*-phrase is an adjunct.
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# Analysis of V-*de* resultatives with transitive V1

- (86)
- 1 The *de*-phrase is an adjunct.
  - 2 The internal argument of V1 must be phonologically null.
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## Analysis of *V-de* resultatives with transitive V1

In general, a pronoun can only be referentially dependent on an antecedent to its left (Williams 1994, 1997).

## Analysis of *V-de* resultatives with transitive V1

In general, a pronoun can only be referentially dependent on an antecedent to its left (Williams 1994, 1997).

(87) \*His<sub>i</sub> mother likes JOHN<sub>i</sub>.

## Analysis of V-*de* resultatives with transitive V1

In general, a pronoun can only be referentially dependent on an antecedent to its left (Williams 1994, 1997).

(87) \*His<sub>i</sub> mother likes JOHN<sub>i</sub>.

(88) His<sub>i</sub> mother LIKES John<sub>i</sub>.

## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnme le?* ‘What happened?’

(89) \**Mǎli rǎn pro de [tóufà hóng -le].*  
 Mary dye DE hair red-PFV

Intended: ‘Mary dyed her hair red.’

(n=15, mean=1.8, SD=0.9)


## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnmē le?* ‘What happened?’

- (89) \**Mǎlì rǎn pro de [tóufà hóng -le].*  
 Mary dye DE hair red-PFV

Intended: ‘Mary dyed her hair red.’

(n=15, mean=1.8, SD=0.9)

- (90) *Mǎlì kū de [yǎnjīng hóng -le].*  
 Mary cry DE eye red-PFV
- 


‘Mary cried her eyes red.’

(n=15, mean=6.1, SD=1.2)

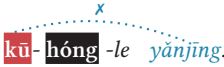


## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnme le?* ‘What happened?’

- (91) *Mǎli rǎn-hóng -le tóufà.*  
 Mary dye-red-PFV eye  
 ‘Mary dyed her hair red.’
- 

(n=15, mean=5.3, SD=1.7)

- (92) *Mǎli kū-hóng -le yǎnjīng.*  
 Mary cry-red-PFV eye  
 ‘Mary cried her eyes red.’
- 

(n=15, mean=5.8, SD=1.1)

## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnme le?* ‘What happened?’

(93) \**Bǎobao tī pro de [māma xǐng -le].*  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=2.9, SD=1.3)


## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnme le?* ‘What happened?’

- (93) \**Bǎobao* **tī** *pro de* [*māma* **xǐng** -*le*].  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=2.9, SD=1.3)

- (94) *Bǎobao* **nào** *de* [*māma* **xǐng** -*le*].  
 baby make.noise DE mother awake-PFV
- 

‘The baby made noise and as a result Mother became awake.’

(n=15, mean=4.9, SD=2.0)

## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnme le?* ‘What happened?’

- (95) *Bǎobao*   **tī**-**xǐng** -*le*   *māma*.  
 baby   kick-awake-PFV   mother
- 

‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=6.0, SD=1.4)


## Analysis of V-*de* resultatives with transitive V1

Q: *Zěnme le?* ‘What happened?’

- (95) *Bǎobao* **tī**-**xǐng** -*le* *māma*.  
 baby kick-awake-PFV mother
- 

‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=6.0, SD=1.4)

- (96) *Bǎobao* **nào**-**xǐng** -*le* *māma*.  
 baby make.noise-awake-PFV mother
- 

‘The baby made noise and as a result Mother became awake.’

(n=15, mean=6.0, SD=1.4)

## Analysis of V-*de* resultatives with transitive V1

It has been reported in the literature, however, that some V-*de* resultatives headed by transitive V1 are grammatical.

- (97) Bǎoyù **zhuī** de [Dǎiyù qìchuǎnxūxū].  
 Baoyu chase DE Daiyu pant  
 ‘Baoyu chased Daiyu and as a result Daiyu gasped.’ (Zhang 2001:217)
- 

- (98) Wūsōng **dǎ** de [lǎohǔ liúxuě-le].  
 Wusong beat DE tiger bleed-PFV  
 ‘Wusong beat the tiger so that it bled.’ (Zhang 2001:192)
-

## Analysis of V-*de* resultatives with transitive V1

Q: *Māma zěnme le?* ‘What happened to Mother?’

(99) ??*Bǎobao tī pro de [māma xǐng -le].*  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=3.3, SD=1.6)

## Analysis of V-*de* resultatives with transitive V1

Q: *Māma zěnme le?* ‘What happened to Mother?’

(99) ??*Bǎobao tī pro de [māma xǐng -le].*  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=3.3, SD=1.6)

(100) *Bǎobao nào de [māma xǐng -le].*  
 baby make.noise DE mother awake-PFV

‘The baby made noise and as a result Mother became awake.’

(n=15, mean=4.9, SD=1.8)



## Analysis of V-*de* resultatives with transitive V1


Q: *Māma zěnme le?* ‘What happened to Mother?’

(99) ??*Bǎobao tī pro de [māma xǐng -le].*  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=3.3, SD=1.6)

(100) *Bǎobao nào de [māma xǐng -le].*  
 baby make.noise DE mother awake-PFV



‘The baby made noise and as a result Mother became awake.’

(n=15, mean=4.9, SD=1.8)

See Appendix for a discussion of **why the improvement in (99) is so marginal.**

## Analysis of V-*de* resultatives with transitive V1

Q: *Māma zěnme le?* ‘What happened to Mother?’

(101) *Bǎobao tī-xǐng-le māma.*  
 baby kick-awake-PFV mother

‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=5.2, SD=1.6)

## Analysis of V-*de* resultatives with transitive V1

Q: *Māma zěnme le?* ‘What happened to Mother?’

- (101) *Bǎobao* **tī**-**xǐng**-*le* *māma*.  
 baby kick-awake-PFV mother
- 

‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=5.2, SD=1.6)

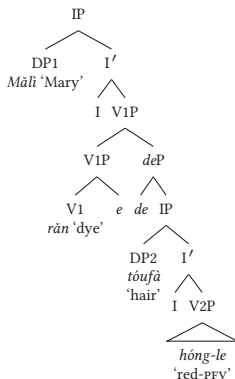
- (102) *Bǎobao* **nào**-**xǐng**-*le* *māma*.  
 baby make.noise-awake-PFV mother
- 

‘The baby made noise and as a result Mother became awake.’

(n=15, mean=5.4, SD=1.6)

# Analysis of V-*de* resultatives with transitive V1

- (103)
- 1 The *de*-phrase is an adjunct.
  - 2 The internal argument of V1 must be phonologically null.
  - 3 *pro* cannot depend on an antecedent to its right.



# Recap ★

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- ★ In *V-de* resultatives, V1 must project its internal argument.

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- ★ In V-*de* resultatives, V1 must project its internal argument.
- ★ In V-V resultatives, V1 does not project its internal argument.

## Recap ★

- ★ In *V-de* resultatives, V1 must project its internal argument.
- ★ In *V-V* resultatives, V1 does not project its internal argument.
- ★ Whether V1 projects its arguments in a Mandarin resultative depends on whether the resultative is a compound or not.



## Recap ★

Puzzle: Why can V1 omit its arguments in a Mandarin V-V resultative?

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Decompositional approach:

- ★ V1 does not project any arguments in Mandarin V-V resultatives because Mandarin verbs never project any arguments. ✗

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Decompositional approach:

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Projectionist approach:

- ★ V1 does not project any arguments in Mandarin V-V resultatives because Mandarin V-V resultatives are compounds. ✓

# Outline

- 1 Argument structure
- 2 Argument structure of resultatives
- 3 Puzzle
  - Decompositional approach
  - Projectionist approach
- 4 Predictions
- 5 Cross-linguistic extensions**

## Compound vs phrasal resultatives across languages

- ★ It may be possible to generalise this conclusion to explain the differences between compound and phrasal resultatives cross-linguistically.

## Compound vs phrasal resultatives across languages

- Mandarin compound resultatives:

- (104) *Mǎlì* **rǎn**-**hóng**-*le* *tóufà*.  
 Mary dye-red-PFV eye  
 ‘Mary dyed her hair red.’
- 

- Mandarin phrasal resultatives:

- (105) \**Mǎlì* **rǎn** *de* [*tóufà* **hóng**-*le*].  
 Mary dye DE hair red-PFV  
 Intended: ‘Mary dyed her hair red.’
-

## Compound vs phrasal resultatives across languages

### ■ Japanese compound resultatives:

(106) *John-wa niwatori-o sime-korosi -ta.*  
 John-TOP chicken-ACC choke-kill-PST

‘John choked the chicken to death.’

(Nishiyama 1998:194)

(Note: *kubi* ‘neck’ must be realised as the internal argument of *sime-* ‘choke’ in a simple clause.)

### ■ Japanese phrasal resultatives:

(107) \**John-ga huku-o buruu -ni nut -ta.*  
 John-NOM clothes-ACC blue-NI paint-PST

Intended: ‘John painted something (e.g. the wall) and as a result his clothes became blue.’

## Compound vs phrasal resultatives across languages

- English phrasal resultatives:

(108) \*The bears frightened the campground empty. (Carrier and Randall 1992:187)





## Compound vs phrasal resultatives across languages

- English phrasal resultatives:

(108) \*The bears **frightened** the campground **empty**. (Carrier and Randall 1992:187)

- Dutch phrasal resultatives:

(109) \**dat Jan zijn handen moe breekt*  
 that John his hands tired breaks

Intended: 'that John breaks [something] and as a result his hands became tired'  
 (Neeleman 1994:141, translation mine)

# Conclusion ★

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- ★ Whether V1 projects its arguments in a Mandarin resultative depends on whether the resultative is a compound or not.

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## Conclusion ★

- ★ Whether V1 projects its arguments in a Mandarin resultative depends on whether the resultative is a compound or not.
- ★ It may be possible to generalise this conclusion to explain the differences between compound and phrasal resultatives cross-linguistically.
- ★ This proposal has implications for the debate between decompositional and projectionist approaches to argument structure.

# Thank you!

Special thanks to:

- my supervisor Hans van de Koot
- Huacheng Cao, Jiajia Chen, Kayla Chen, Chenjia Cathy Gao, Xu Han, Yiling Huo, Xinhao Jiang, Shaokang Jin, Alex Kwek, Fangyu Miao, Erying Qin, Shenshen Wang, Qiuha Charles Yan, Xinxin Yan, Boyan Yin, Daniel Yue, Xia Zeng, Ruoying Zhao for judgements
- the organisers for the invitation



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## Further research

- (110) 张三 骑累了 马。  
 Zhāngsān qí - lèi - le mǎ.  
 Zhangsan ride-tired-PFV horse

‘Zhangsan rode the horse tired.’



## Further research: hybrid resultatives

How should we analyse the following resultative verb compounds (RVCs) in Mandarin?

- (111) 洗澡盆 灌满了 (水)。  
xǐzǎopén guàn-mǎn-le (shuǐ)  
bath.tub pour-full-PFV water  
'The bathtub got full (of water).'



## Further research: hybrid resultatives

How should we analyse the following resultative verb compounds (RVCs) in Mandarin?

- (111) 洗澡盆 灌满了 (水)。  
 xǐzǎopén guàn-mǎn-le (shuǐ)  
 bath.tub pour-full-PFV water

‘The bathtub got full (of water).’

- (112) 宝玉 骑累了 (马)。  
 Bǎoyù qí-lèi-le (mǎ)  
 Baoyu ride-tired-PFV horse

‘Baoyu rode himself tired (of the horse).’

(adapted from Sybesma 1999)

## Further research: V-*de/bu*-V constructions

V-*de/bu*-V constructions have a low modal operator *de/bu*...

(113) 老魏 踢得/不断 那条木板。

Lǎo Wèi tī-dé/bù-duàn nà tiáo mùbǎn

Lao Wei kick-DE/BU-snap that CLF plank

‘Lao Wei {**was/was not**} able to cause the plank to snap by kicking it.’

Further research: *V-de/bu-V* constructions

*V-de/bu-V* constructions have a low modal operator *de/bu...*

- (113) 老魏      踢得/不断      那条木板。  
 Lǎo Wèi    tī-dé/bù-duàn    nà tiáo mùbǎn  
 Lao Wei    kick-DE/BU-snap    that CLF plank

‘Lao Wei {was/was not} able to cause the plank to snap by kicking it.’

...that can take scope over the external argument. How is this possible?

- (114) 三个人            就    推得倒            那辆车。  
 Sān gè rén            jiù    tuī-dé-dǎo            nà liǎng chē.  
 three CLF people    then    push-DE-topple    that CLF car

‘(A group of) three people could make that car topple by pushing.’

(Williams 2005:258)

## Further research: change-of-state verbs

In English, change-of-state verbs like *break* come in intransitive and transitive forms.

(115) The window **broke**.

(116) John **broke** the window.

## Further research: change-of-state verbs

But in Mandarin, many intransitive change-of-state verbs lack transitive counterparts. Why?

(117) 窗子破了。

Chuāngzi      pò-le.  
window      break-PFV

‘The window broke.’ (Lin 2001:33)

(118) \*老张破了窗子。

Lǎozhāng      pò-le      chuāngzi.  
Laozhang      break-PFV      window

‘Intended: ‘Laozhang broke the window.’ (Lin 2001:33)

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## Apparent exceptions to prediction #1

### Apparent exception #1: V-*de/bu*-V constructions

- (119) *Zhāngsān xǐ-{de/bu}-gānjìng zhè xiē yīfu.*  
 Zhangsan wash-DE/BU-clean this CLF clothes  
 ‘Zhangsan {can/cannot} wash these clothes clean.’

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But V-*de/bu*-V constructions are also inaccessible to syntactic operations.

- (120) *Zhāngsān xǐ-{de/bu}- (\*fēicháng) -gānjìng (\*fēicháng) zhè xiē yīfu*  
 Zhangsan wash-DE/BU- extremely clean extremely this CLF clothes  
 (\**fēicháng*).  
 extremely  
 ‘Zhangsan {can/cannot} wash these clothes (\*extremely) clean.’

## Apparent exceptions to prediction #1

Apparent exception #2: A-not-A question with V1 in a V-V resultative

(121) *Zhāngsān xǐ-méi-xǐ-gānjìng zhè xiē yīfu?*  
 Zhangsan wash-not-wash-clean this CLF clothes

‘Did Zhangsan wash these clothes clean or did he not wash these clothes clean?’

## Apparent exceptions to prediction #1

Apparent exception #2: A-not-A question with V1 in a V-V resultative

(121) *Zhāngsān xǐ-méi-xǐ-gānjìng zhè xiē yīfu?*  
 Zhangsan wash-not-wash-clean this CLF clothes

‘Did Zhangsan wash these clothes clean or did he not wash these clothes clean?’

But (121) could be analysed as an A-not-A question formed from the entire compound, not just V1.

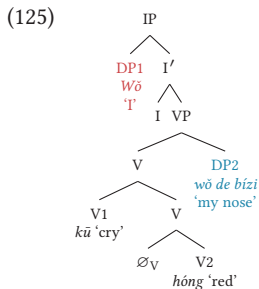
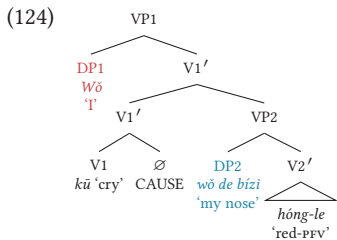
(122) *Tā xǐ-bù-xǐhuān zhè běn shū?*  
 he li-not-like this CLF book

‘Does he like or not like this book?’

(Hagstrom 2017)

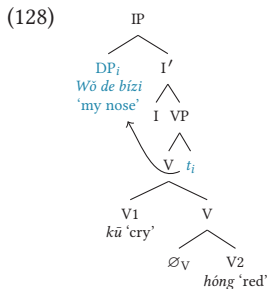
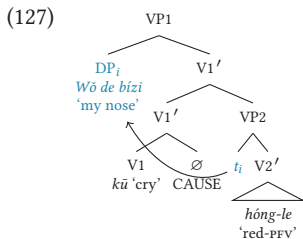
# wh-questions in V-V vs V-*de* resultatives

- (123) *Wǒ kū - hóng -le wǒ de bizi.*  
 I cry-red-PFV 1SG DE nose  
 'I cried my nose red.'



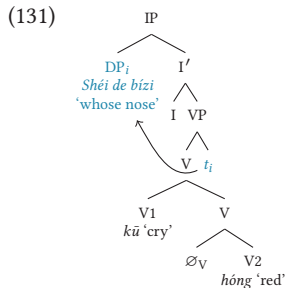
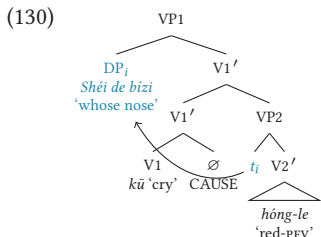
# wh-questions in V-V vs V-*de* resultatives

- (126) *Wǒ de bízi kǔ - hóng -le.*  
 1SG DE nose cry-red-PFV  
 'My nose [was] cried red.'



# wh-questions in V-V vs V-*de* resultatives

- (129) *Shéi de bízi kǔ - hóng -le?*  
 who DE nose cry-red-PFV  
 ‘Whose nose [was] cried red?’





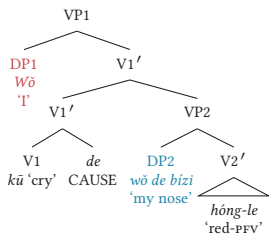
## wh-questions in V-V vs V-*de* resultatives

(132) *Wǒ* **kū** *de* [*wǒ de bizi* **hóng** -*le*].

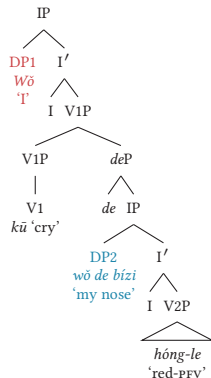
I cry DE 1SG DE nose red-PFV

'I cried my nose red.'

(133)



(134)

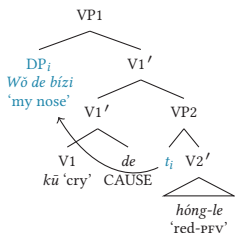


## wh-questions in V-V vs V-*de* resultatives

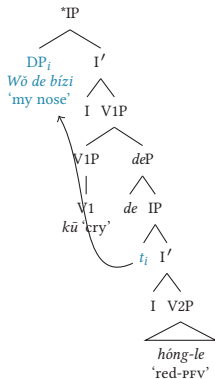
- (135) [*Wǒ de bizi*]<sub>i</sub> **kū** de [*e*] **hóng** -le].  
 1SG DE nose cry DE red-PFV

'My nose [was] cried red.'

(136)



(137)

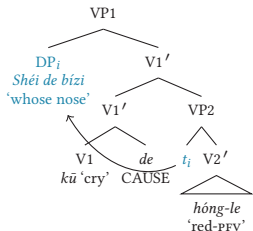


# wh-questions in V-V vs V-*de* resultatives

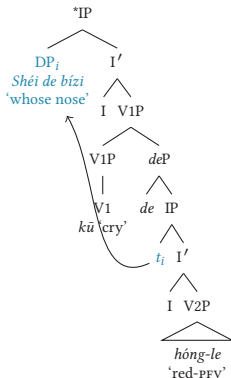
(138) \**[Shéi de bízi]<sub>i</sub> kū de [e<sub>i</sub> hóng -le]?*  
 who DE nose cry DE red-PFV

‘Whose nose [was] cried red?’

(139)



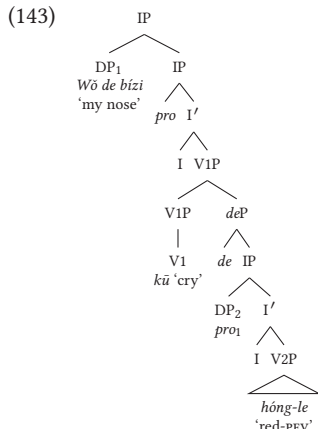
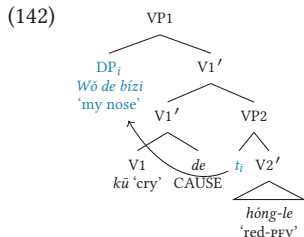
(140)



## wh-questions in V-V vs V-*de* resultatives

- (141) [*Wǒ de bízi*]<sub>i</sub> **kū** de [*e*<sub>i</sub> **hóng**]-le].  
 1SG DE nose cry DE red-PFV

'My nose [was] cried red.'



## A-not-A questions in *V-de* resultatives

It has been claimed that the *de*-phrase in a *V-de* resultative is a complement because it can contain A-not-A questions.

(144) *Tā pǎo dé [(rén) lèi-bù-lèi]?*  
 he run DE person tired-not-tired

‘Is he tired because of the running?’

(Li 1990:57)

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This claim is based on the view that A-not-A questions are formed via covert movement of a question operator (Huang 1982 *et seq.*).

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This claim is based on the view that A-not-A questions are formed via covert movement of a question operator (Huang 1982 *et seq.*).

The evidence cited in support of this view is that A-not-A question formation is sensitive to islands: embedded A-not-A questions can take matrix scope if they are embedded in complement clauses but not in islands.

## A-not-A questions in V-*de* resultatives

However, there is some debate as to whether A-not-A questions that are embedded in complement clauses can indeed take matrix scope.

(145) *Nǐ juéde [tā huì-bù-huì shēngqì]?*  
 you feel he will-not-will get.angry

‘Do you think he will be angry?’

(Huang 1991:123)

Or: ‘Will he be angry, do you think?’

(parenthetical reading, McCawley 1994)

(146) \**Lǐsì xǐhuān [wǒmen hē-bù-hē píjiǔ]?*  
 Lisi like we drink-not-drink beer

‘Does Lisi like for us to drink beer?’

(McCawley 1994)



## A-not-A questions in *V-de* resultatives

Jia (2015) shows that in a question where an embedded A-not-A question apparently takes matrix scope, a quantified matrix subject cannot bind a variable in the embedded object.

(147) *Měi gè rén<sub>i</sub> dōu juéde [Zhāngsān<sub>j</sub> xǐ-bù-xǐhuān zìjǐ<sub>j</sub>/<sup>\*i</sup>]<sub>i</sub>?*  
 every CLF person all think Zhangsan like-not-like self

‘Does everyone<sub>i</sub> think that Zhangsan<sub>j</sub> likes him<sub>i</sub>/<sup>\*</sup>himself<sub>j</sub> or does everyone think that Zhangsan<sub>j</sub> does not like him<sub>i</sub>/<sup>\*</sup>himself<sub>j</sub>?’

(Jia 2015, translation mine)

## A-not-A questions in *V-de* resultatives

Suppose we assume an analysis of A-not-A questions in which the A-not-A question operator does not move, but generates a set of binary propositions in situ (Jia 2015).

## A-not-A questions in *V-de* resultatives

Suppose we assume an analysis of A-not-A questions in which the A-not-A question operator does not move, but generates a set of binary propositions in situ (Jia 2015).

If so, one cannot conclude that the *de*-phrase must be a complement simply because it can contain an A-not-A question.

## Analysis of V-*de* resultatives with transitive V1

Why is the improvement in (149) so marginal?

Q: *Zěnme le?* ‘What happened?’

(148) \**Bǎobao tī pro de [māma xǐng -le].*  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=2.9, SD=1.3)

Q: *Māma zěnme le?* ‘What happened to Mother?’

(149)?*Bǎobao tī pro de [māma xǐng -le].*  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=3.3, SD=1.6)

## Analysis of *V-de* resultatives with transitive V1

The comparable English sentence in (152) improves significantly.

You: What happened?

Dad:

(150) The baby **kicked** her until Mother woke up. (n=5, mean=2.6, SD=1.3)

(151) The baby **cried** until Mother woke up. (n=5, mean=7.0, SD=0.0)

You: What happened to Mother?

Dad:

(152) The baby **kicked** her until Mother woke up. (n=5, mean=5.0, SD=1.0)

(153) The baby **cried** until Mother woke up. (n=5, mean=6.2, SD=1.8)

## Analysis of V-*de* resultatives with transitive V1

*pro* in Mandarin has fewer referential possibilities than an overt pronoun.

In a pragmatically neutral context, *pro* in the object position of an embedded clause cannot corefer with a **matrix subject**.

- (154) *Zhāngsān<sub>i</sub> shuō* [*{ta<sub>i</sub>/ e<sub>i</sub>}* *bù rènshì Lǐsì*].  
 Zhangsan say he not know Lisi  
 ‘Zhangsan said that [he] did not know Lisi.’

(adapted from Huang 1984:537)

- (155) *Zhāngsān<sub>i</sub> shuō* [*Lǐsì bù rènshì {ta<sub>i</sub>/ \*e<sub>i</sub>}*].  
 Zhangsan say Lisi not know him  
 ‘Zhangsan said that Lisi did not know [him].’

(adapted from Huang 1984:537)

## Analysis of V-*de* resultatives with transitive V1

*pro* in Mandarin has fewer referential possibilities than an overt pronoun.

In a pragmatically neutral context, *pro* in the object position of an embedded clause cannot corefer with a **topic**.

- (156) *Zhāngsān<sub>i</sub>, tā<sub>i</sub> shuō [tā<sub>i</sub>/ e<sub>i</sub>] méi kànjiàn Lǐsì.*  
 Zhangsan he say he no see Lisi  
 ‘Zhangsan<sub>i</sub>, he<sub>i</sub> said that he<sub>i</sub> didn’t see Lisi.’

(adapted from Huang 1984:558)

- (157) *Zhāngsān<sub>i</sub>, tā<sub>i</sub> shuō [Lǐsì méi kànjiàn {tā<sub>i</sub>/ \*e<sub>i</sub>}].*  
 Zhangsan he say Lisi no see him  
 ‘Zhangsan<sub>i</sub>, he<sub>i</sub> said that Lisi didn’t see [him<sub>i</sub>].’

(adapted from Huang 1984:558)

## Analysis of *V-de* resultatives with transitive V1

Given that *pro* in *V-de* resultatives with a transitive V1 is in an object position, it may be that *pro* is relatively limited in its ability to refer to a topic.



## Analysis of *V-de* resultatives with transitive V1

Given that *pro* in *V-de* resultatives with a transitive V1 is in an object position, it may be that *pro* is relatively limited in its ability to refer to a topic.

This could be why (158) does not improve dramatically in a context where Mother is already mentioned in the contextual question.

(158)? *Bǎobao* **tī** *pro* *de* [*māma* **xǐng** -le].  
 baby kick DE mother awake-PFV

Intended: ‘The baby kicked (Mother) and as a result Mother became awake.’

(n=15, mean=3.3, SD=1.6)