Featural Relativized Minimality in Child Mandarin Passives

Minqi Liu, Victoria Mateu, and Nina Hyams

University of California, Los Angeles

liuminqi@ucla.edu

Featural Relativized Minimality in adult grammar

(featural) Relativized Minimality (fRM) (Rizzi 1990, 2004, 2013, a.o.)

In the configuration … X … Z … Y …, a dependency cannot hold between X and Y when there is a Z such that

(i) Z structurally intervenes, and

(ii) Z matches the specification of X in the relevant morphosyntactic features

(featural) intervention: … $X_{[F]}$ … [$Z_{[F]}$ … [$Y_{[F]}$ …]]

(1) a. [Who$_{[wh]}$ [C$_{[\bullet wh \bullet]}$ [__ saw what$_{[wh]}$]]]?

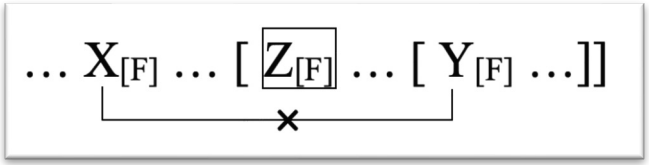
b. *[What$_{[wh]}$ [C$_{[\bullet wh \bullet]}$ did [who$_{[wh]}$ see __]]]?

Featural Relativized Minimality in child grammar

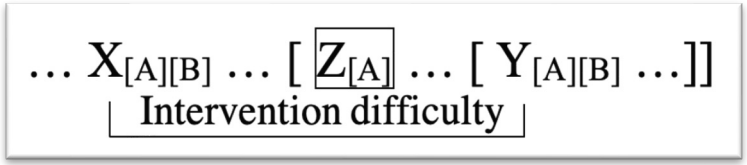
How are locality constraints (e.g., fRM) represented in child grammars?

Intervention Hypothesis: Children are subject to a stricter version of (featural) Relativized Minimality (e.g., Hyams & Snyder 2005, Friedmann et al. 2009, Adani et al. 2010, Orfitelli 2012, Snyder & Hyams 2015).

Adults:



Children:



- The featural mismatch between X and Z mitigates the Intervention difficulty.

Overarching questions

1. What features are relevant for the calculation of intervention in child grammar?
2. Are these features language-specific or universal?
3. Do children's intervention difficulties reflect their developing grammar or their developing processing capacity?

What *features* are relevant?

Previous studies in other languages have shown that children's difficulty with intervention is lessened when the two arguments *mismatch* in…

- Number: Italian (Adani et al. 2010), English (Adani et al. 2014), Spanish (Mateu, 2022)
- Gender: Hebrew (Belletti et al. 2012)
- Animacy: Italian (Arosio et al., 2011), French (Bentea et al. 2016), English (Mateu & Hyams 2021)
- NP type: Hebrew (Friedmann et al. 2009), English (Choe 2013)

Cross-linguistic differences:

e.g., Belletti et al. (2012): only phi-features functioning as attractors for syntactic movement (e.g., Starke 2001, Rizzi 2004) enter into the computation of intervention

Object relative clause	Number mismatch	Gender mismatch
child Hebrew	improvement	improvement
child Italian	improvement	no improvement

Why Mandarin passives

1. Two types of passive structures:

(2) a. Long passives

老鼠	被	猫	咬	了
laoshu	*bei*	*mao*	*yao*	*le*
mouse	BEI	cat	bite	PERF

'The mouse was bitten by the cat.'

b. Short passives

老鼠	被	咬	了
laoshu	*bei*	*yao*	*le*
mouse	BEI	bite	PERF

'The mouse was bitten.'

1st prediction of the Intervention Hypothesis:

Long passives will be harder for children to comprehend than short passives

(3) a. **Dependency in Mandarin LongPass:**

The mouse BEI$_{PASS}$ [$_{IP}$ *the cat* [$_{vP}$ *bite*-PERF __]]

intervener

'The mouse was bitten by the cat.'

b. **Dependency in Mandarin ShortPass:**

The mouse BEI$_{PASS}$ [$_{VP}$ *bite*-PERF __]

'The mouse was bitten.'

Why Mandarin passives

2. There are no adjectival-verbal passive homophones in Mandarin

→ Mandarin-speaking children cannot resort to an "adjectival strategy" (5b) to interpret short passives (5a) (cf. Borer and Wexler 1987, 1992)

(5) English: *The door was **closed***.
a. Passive interpretation: Someone closed the door.
b. Adjectival interpretation: The door was in a closed state.

(5') Mandarin: *门被关了* 'The door was closed.'
a. Passive interpretation: Someone closed the door.
b. Adjectival interpretation: N/A

3. No morphological agreement on the verb

→ raising the question of *what features* - if any - might be relevant for intervention in a language like Mandarin

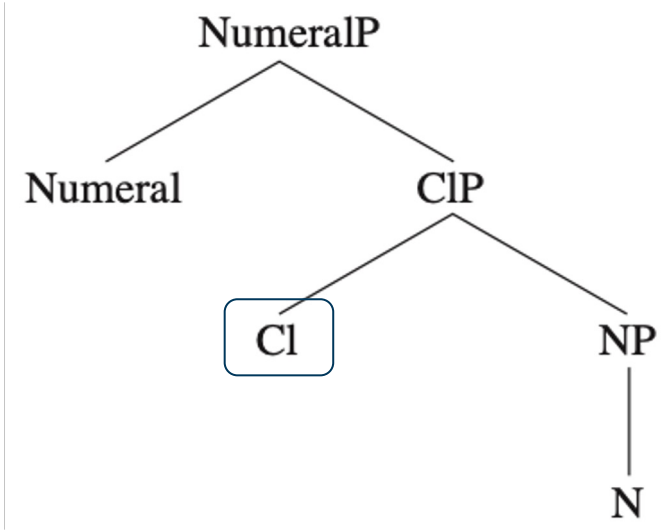
What features are relevant in child Mandarin?

The current study in Mandarin manipulates two different features:

- **Number**, canonically a phi-feature that has been found to modulate intervention in other languages (e.g., Italian, Hebrew, Spanish)
- **Shape**, an inherent lexical feature that has not been previously tested with regards to intervention

- In Mandarin, neither Number nor Shape is marked on the verb nor triggers movement to subject
- Number and Shape are both encoded on classifiers.

Background: Mandarin classifiers



- The classifier (Cl^0) has the individualizing function and Number is located on Cl^0 (e.g., Cheng & Sybesma 1999, 2012, Borer 2005)

- Numerals require the presence of classifiers

(6) 一*(个)苹果
*yi-**(ge)** pingguo*
one-CL apple
'one apple'

Background: Mandarin classifiers

Plural classifier *-xie* combines with the numeral *one* and marks the DP as plural:

(7) 一些苹果
*yi-**xie** pingguo*
one-CL apple
'some apples'

Specific classifiers mark *the inherent lexical properties* of the noun, such as the shape or size of the denoted entity.

-tiao s(emantically)-selects for some entities that are *thin and long*, such as 'snake' and 'street' in (8a), but not entities of other shapes in (8b).

(8) a. 一条蛇/街道
*yi-**tiao** she / jiedao*
one-CL snake / street
'a snake/street'

b. 一条*猴子/*汽车
*yi-**tiao** *houzi / *qiche*
one-CL monkey / car
Intended: 'a monkey/car'

Background: classifiers in child Mandarin

-ge (e.g., Loke 1991, Hu, 1993, Tse et al. 2007)

- Most frequent in Mandarin
- Acquired first; functions as a place-holder before children produce specific classifiers

-xie 'plural'

- Occurs early in child spontaneous speech

-tiao 'shape' (e.g., Erbaugh 1986)

- Occurs early in child spontaneous speech

(9) 还有一个救护车 (2;2)
*hai you yi-**ge** jiuhuche*
still exist one-CL ambulance
'There is still an ambulance.'

(10) 一些小汽车 (2;9)
*yi-**xie** xiaoqiche*
one-CL car
'some cars'

(11) 这边一条线 (2;4)
*zhebian yi-**tiao** xian*
here one-CL line
'Here is a line.'

Predictions on possible results

What is relevant for intervention?	Possible outcomes
Overt features • Both Number and Shape encoded on classifiers in Mandarin	Number Mismatch = Shape Mismatch > Match

Design and materials

A two-choice sentence-picture matching task

- Manipulations:
  - Sentence type: **Actives, Long Passives, Short Passives**
  - Featural condition: **Match, Number Mismatch, Shape Mismatch**
- 54 trials, six per condition crossing four actional verbs:
  - *yao-zhu* ‘bite’, *zhua-dao* ‘grab’, *zhuang-dao* ‘bump’, *ya-zhu* ‘pin down’
- A semi-random order
  - Trials of the same sentence types were never adjacent
  - Only two adjacent trials contained the same verb

Design and materials

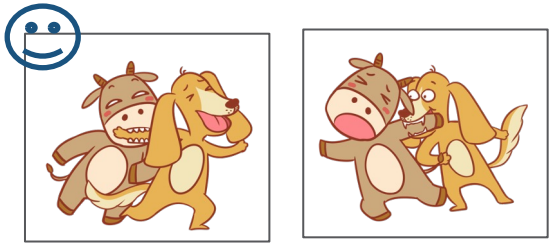
(12) Actives

a. Match

一个小牛咬住了一个小狗

[yi-ge	xiaoniu]	yaozhu-le	[yi-ge	xiaogou]
one-CL	cow	bite-PERF	one-CL	dog

'A cow bit a dog.'

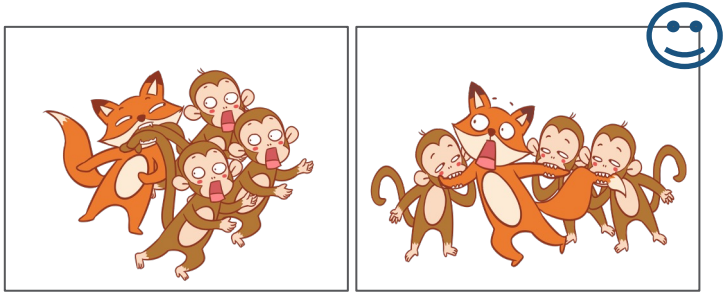


b. Number Mismatch

一些猴子咬住了一个狐狸

[yi-xie	houzi]	yaozhu-le	[yi-ge	huli]
one-CL[+PL]	monkey	bite-PERF	one-CL	fox

'Some monkeys bit a fox.'

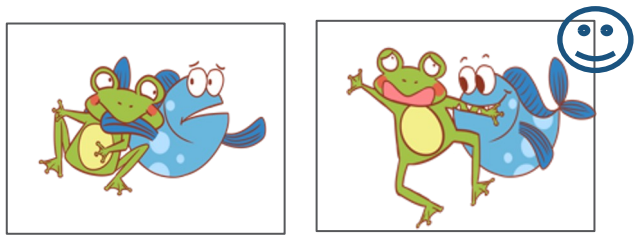


c. Shape Mismatch

一条小鱼咬住了一个青蛙

[yi-tiao	xiaoyu]	yaozhu-le	[yi-ge	qingwa]
one-CL$_{specific}$	fish	bite-PERF	one-CL	frog

'A fish bit a frog.'



Design and materials

(13) Long Passives

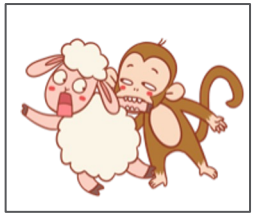
a. Match

一个小羊被一个猴子咬住了

[yi-ge xiaoyang] bei [yi-ge houzi] yaozhu-le

one-CL sheep BEI one-CL monkey bite-PERF

'A sheep was bitten by a monkey.'



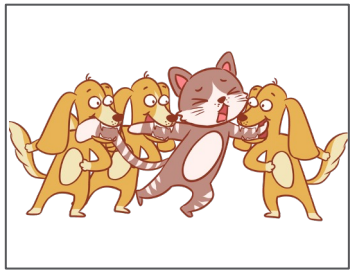
b. Number Mismatch

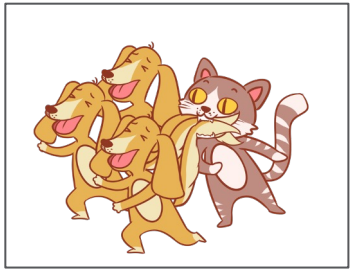
一个小猫被一些小狗咬住了

[yi-ge xiaomao] bei [yi-xie xiaogou] yaozhu-le

one-CL cat BEI one-CL[+PL] dog bite-PERF

'A cat was bitten by some dogs.'





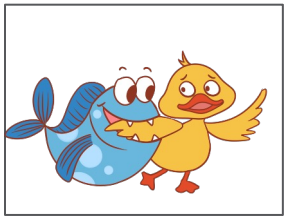
c. Shape Mismatch

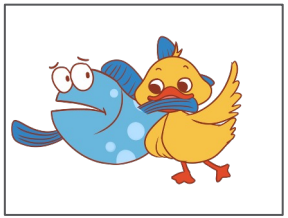
一个鸭子被一条小鱼咬住了

[yi-ge yazi] bei [yi-tiao xiaoyu] yaozhu-le

one-CL duck BEI one-CL$_{specific}$ fish bite-PERF

'A duck was bitten by a fish.'





Design and materials

(14) Short Passives

a. “Match”

一个小羊被咬住了

[yi-**ge**	xiaoyang]	bei	yaozhu-le
one-CL	sheep	BEI	bite-PERF

‘A sheep was bitten.’

b. “Number Mismatch”

一些小猫被咬住了

[yi-**xie**	xiaomao]	bei	yaozhu-le
one-CL[+PL]	cat	BEI	bite-PERF

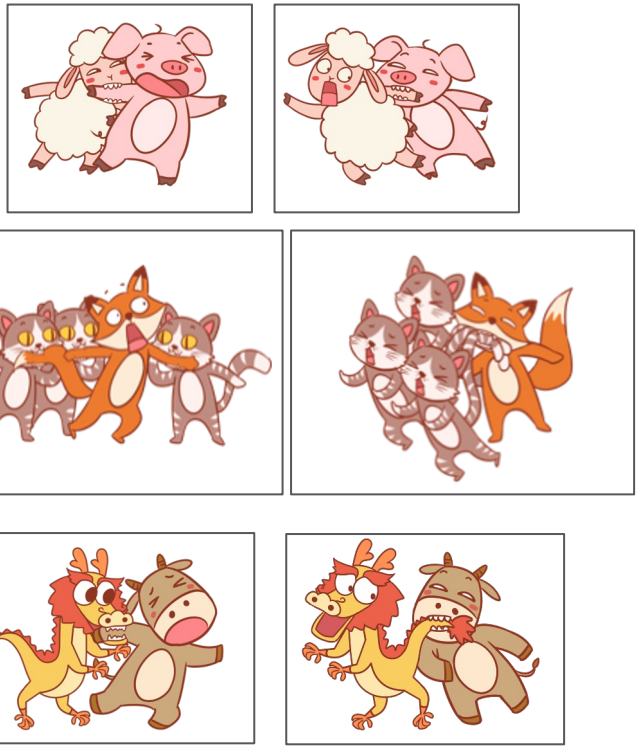
‘Some cats were bitten.’

c. “Shape Mismatch”

一条小龙被咬住了

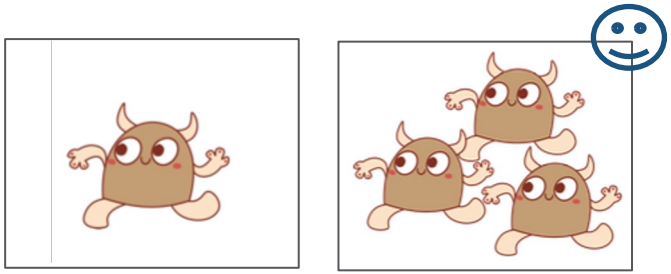
[yi-**tiao**	xiaolong]	bei	yaozhu-le
one-CL$_{specific}$	dragon	BEI	bite-PERF

‘A dragon was bitten.’

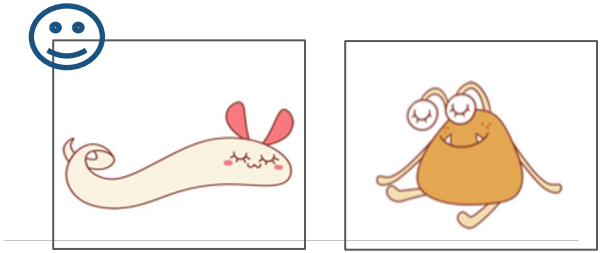


Procedure

- Online experiment with the assistance of parents/teachers/care-takers
- A familiarization session
- A pre-test session with novel nouns to make sure participants have the knowledge of these target classifiers: ***-ge, -xie, -tiao***



一些米拉在跑
“one-***xie*** milas are running”



一条布娜在睡觉
“one-***tiao*** buna is sleeping”

Subjects

- 80 monolingual Mandarin-speaking children aged 3;01-6;08 (*M* = 4;11), recruited from Changsha, Hunan, China
    - 3yos (3;01-3;11, *M* = 3;08, *N* = 19)
    - 4yos (4;01-4;11, *M* = 4;05, *N* = 22)
    - 5yos (5;00-5;11, *M* = 5;05, *N* = 19)
    - 6yos (6;00-6;08, *M* = 6;04, *N* = 20)
- All showed above-chance performance with control trials, i.e., >13/18 in Actives

Results

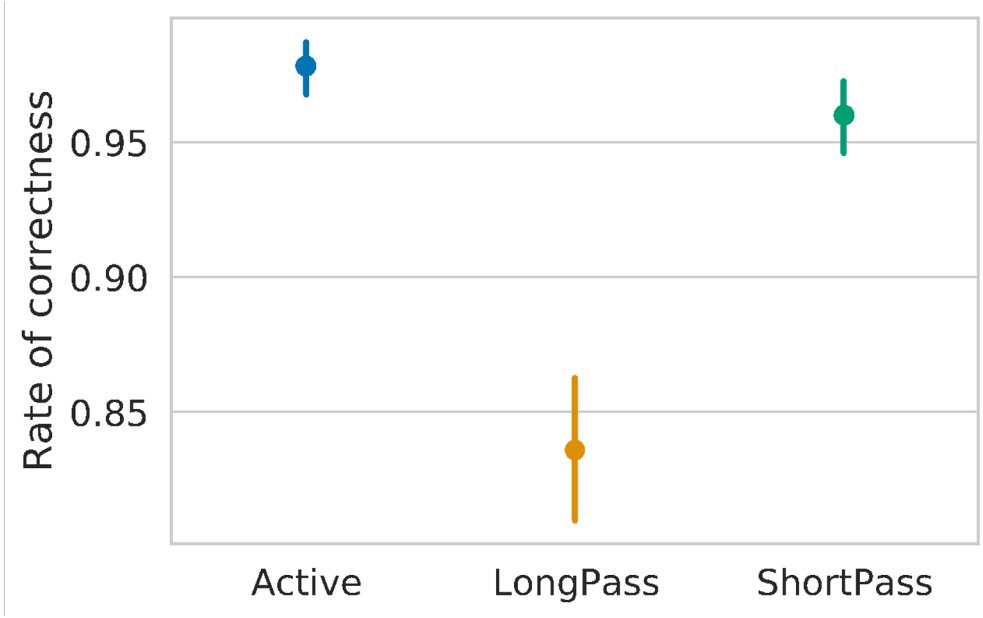
- Mixed-effects logistic regression
- Full model:

  Correct Response ~ Sentence Type × Featural Condition × Age (in months)
  + (1 | Child) + (1 | Verb)

- Stepwise model comparison:
  - **Age** (in months) is not a significant predictor *($X^2(7) = 8.5264$, $p = 0.2885$)*

Results

The effect of **Sentence Type** is significant *($X^2(6) = 188.86, p < 0.001$)*



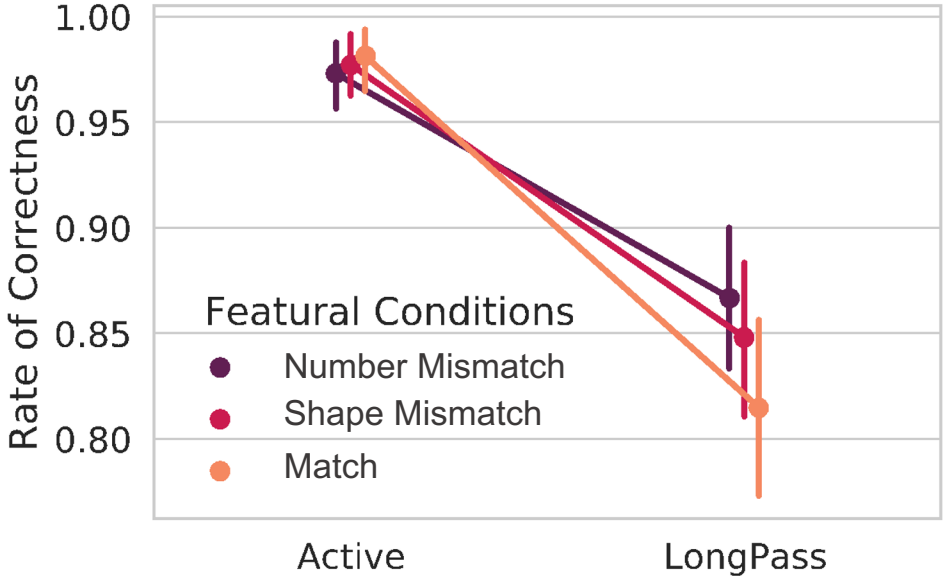
Short passives = Actives
(z-value = -1.888, p = 0.059)

Long passives < Actives
*(z-value = -7.243, p < 0.001 ***)*

Long passives < Short passives
*(z-value = -10.198, p < 0.001 ***)*

Results

Featural Condition is not a significant predictor *($X^2(8) = 7.2351$, $p = 0.5115$)*, nor is the **interaction** between Sentence Type and Featural Condition *($X^2(2) = 3.395$, $p = 0.1831$)*



Number Mismatch = Match
(z-value = -1.236, p = 0.216)

Shape Mismatch = Match
(z-value = -0.951, p = 0.341)

Number Mismatch = Shape Mismatch
(z-value = 0.283, p = 0.7772)

Summary and discussion

Result 1: Long passives < Short passives = Actives

- Good comprehension with short passives (no 'adjectival strategy')
- Worst comprehension of long passives
- **Intervention Effects in long passives**

(3) a. **Dependency in Mandarin LongPass:**

The mouse BEI_{PASS} [$_{IP}$ *the cat* [$_{vP}$ *bite*-PERF __]]

intervener

'The mouse was bitten by the cat.'

b. **Dependency in Mandarin ShortPass:**

The mouse BEI_{PASS} [$_{VP}$ *bite*-PERF __]

'The mouse was bitten.'

Summary and discussion

1. What features are relevant for the calculation of intervention in child grammar?

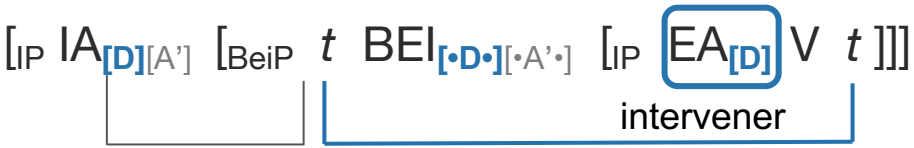
Overt features • Both Number and Shape encoded on classifiers in Mandarin	Number Mismatch = Shape Mismatch > Match
Candidate for phi-feature cross-linguistically • Number but not Shape is cross-linguistically a candidate for phi-features	Number Mismatch > Shape Mismatch = Match
Features that trigger syntactic processes (movement or agreement) (building on Belletti et al. 2012) • In Mandarin, neither Number or Shape is marked on the verb nor triggers movement	Number Mismatch = Shape Mismatch = Match

Summary and discussion

1. What features are relevant for the calculation of intervention in child grammar?

Only morphosyntactic features triggering syntactic agreement and/or movement are relevant for the computation of Intervention – mere morphological realization is not enough

Mandarin long passives (F. Chen 2022, building on Longenbaugh's 2017 analysis for English *tough*-constructions):



→ Neither Number nor Shape participates in this process

Summary and discussion

2. Are these features language-specific or universal?

e.g., Number in…

Italian (Adani et al. 2010, Belletti et al. 2012), Hebrew (Belletti et al. 2012), English (Adani et al. 2014), Spanish (Mateu, 2022), etc.

Mandarin

(and potentially other languages lacking S-V Number agreement)

Universal: Relative/Intervention locality constraints

Language-specific: What triggers intervention

→ The importance of comparative acquisition studies

Summary and discussion

3. Do children's intervention difficulties reflect their developing grammar or their developing processing capacity?

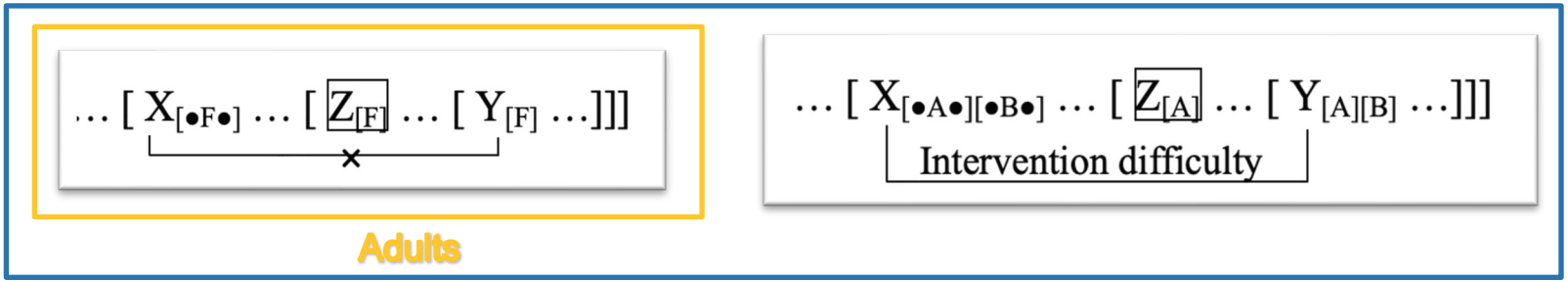
→ Our results are most compatible with a grammatical account of Intervention Effects.

- Mere dissimilarity does not improve children's intervention difficulties
- There is a formal, grammatical characterization of what may count as a relevant feature for intervention

→ Future studies

Takeaway

- L1 acquisition data can inform linguistic theory in meaningful ways
- Intervention locality (e.g., fRM) in adult vs. child grammar



- While the intervention locality is universal, what triggers intervention is language-specific
- The structural difference between long vs. short passives in Mandarin is well observed in child Mandarin

Thank you!

Many thanks to Ethan Poole, Laurel Perkins, Canaan Breiss, Carson Schütze, Megha Sundara, Idan Blank, and the audience at BUCLD 47 and the UCLA Psycholinguistics Seminar for their valuable input throughout the project.

Thanks especially to the children and their caretakers who participated in the study for their patience and support.

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Appendix A: more on this experiment

Why passives appear easy in our experiment

We only used actional verbs

- Passives with actional verbs are acquired early (e.g., Maratsos et al. 1985, Gordon & Chafetz 1990, Hirsch & Wexler 2006b, Volpato, Verin, & Cardinaletti, 2016, Oliva & Wexler 2018, Agostinho 2020)

All our actional verbs were in the resultative verb compound (RVC) form

- RVCs are a highly frequent type of predicates in Mandarin that occur in child speech as early as around the age of one and a half (e.g., Yang 2006, Deng 2019).
- RVCs are also highly frequent in child passives: In our corpus study, most (73.42%) of the main verbs in children's passives were RVCs.
- Mandarin-speaking 3-to 5-year-olds understand passives with actional RVCs pretty well (ave. 75.00%) (Xu and Yang 2008)

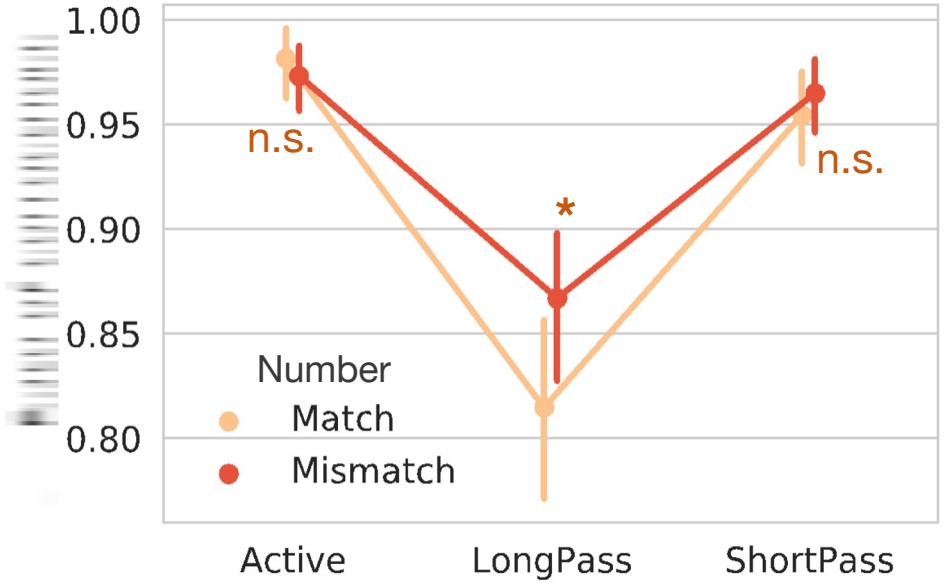
More on the plural classifier *-xie*

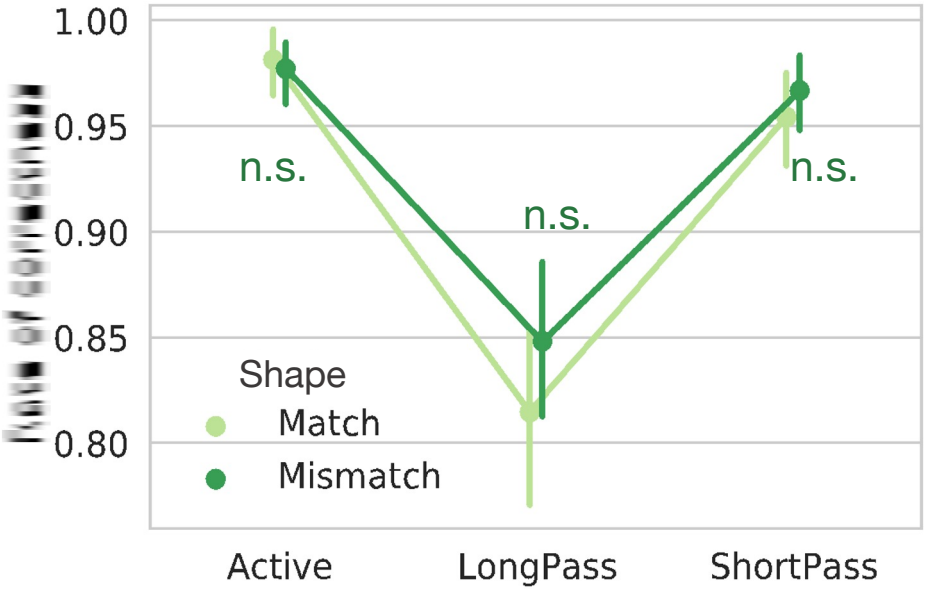
An alternative analysis of the plural classifier *-xie*:

→ *yi-xie* as a quantifier, *yixie* 'some, several'

- *yixie* can modify mass nouns: *yixie shui* 'some water'
- its reduplication form conveys different meaning than a reduplicated classifier
  - *yi-xie-xie* 'a little (diminutive)' vs. *yi-ge-ge* 'every (universal)'
- In some Chinese dialects, *yixie* can be followed by the general classifier: *yixie-ge*
- *-xie* is not compatible with other numerals

Number vs. Shape





Featural inclusion vs. inverse inclusion

PassiveGeGe	PassiveGeTiao	PassiveTiaoGe	PassiveGeXie	PassiveXieGe
0.814	0.875	0.820	0.9	0.833

Ge...Ge = [A] [A] <[A]> -> "identity"
Ge...Xie and Ge...Tiao = [A] [AB] <[A]> -> "inverse inclusion"
Xie...Ge and Tiao...Ge = [AB] [A] <[AB]> -> "inclusion"

	X	**Z**	**<Y>**	Adult	Child
Identity	[+A]	[+A]	<[+A]>	*	***
Inverse inclusion	[+A]	[+A, +B]	<[+A]>	OK	**
Inclusion	[+A, +B]	[+B]	<[+A, +B]>	OK	*
Intersection	[+A, +B]	[+B, +C]	<[+A, +B]>	OK	OK
Disjunction	[+A]	[+B]	<[+A]>	OK	OK

Passive in Mandarin child and child-directed speech (Liu 2022)

Data: Mandarin corpora on CHILDES (*N* = 1,182; aged 2 to 6)

Children's spontaneous speech:

- Passives: 0.185% of all utterances
- long passives (61.2%) > short passives

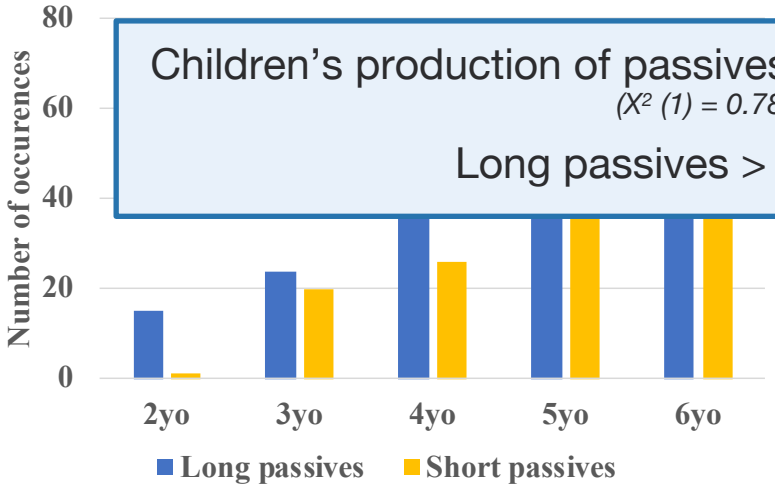
Child-directed speech:

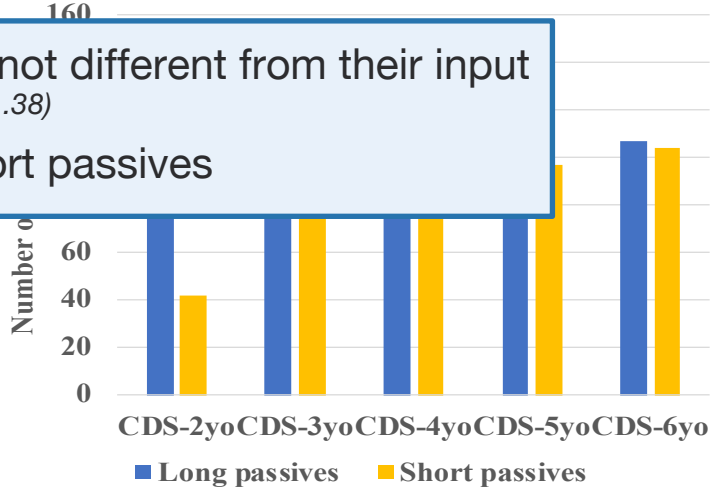
- Passives: 0.296% of all utterances
- long passives (58.5%) > short passives

Children's production of passives is not different from their input

(X^2 (1) = 0.78, p = .38)

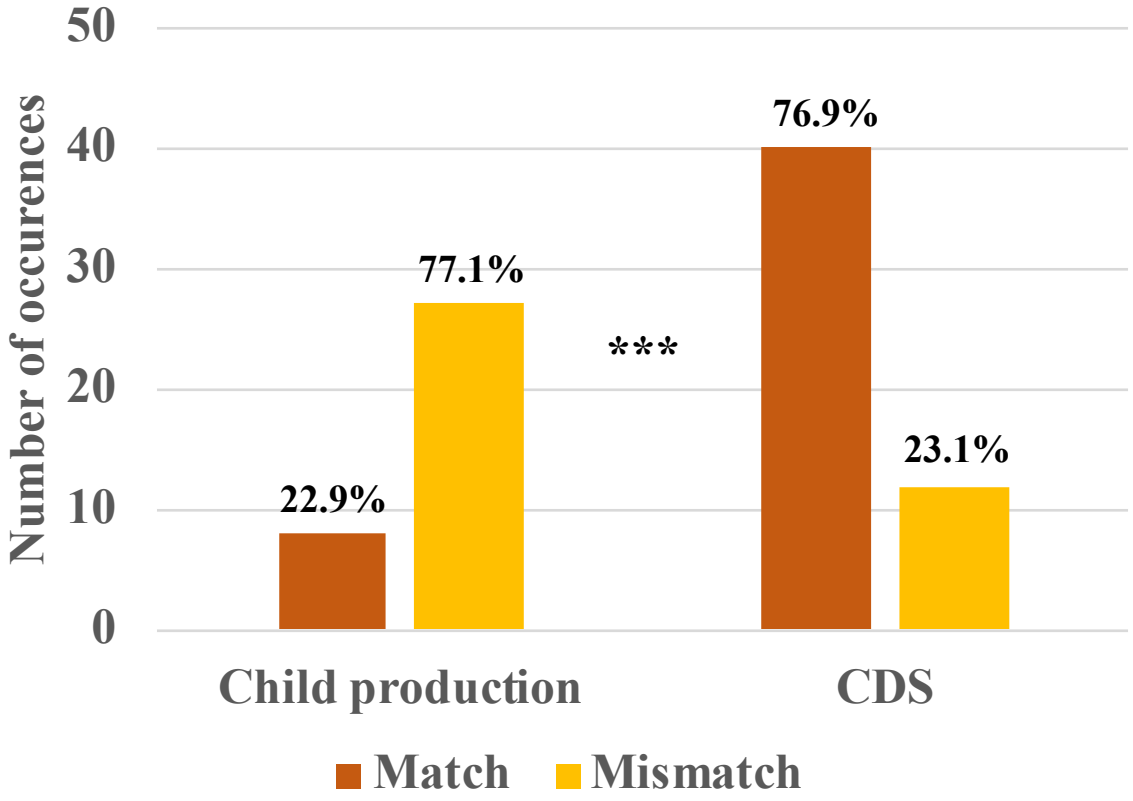
Long passives > Short passives





Appendix B: Experiment on Animacy

Animacy in Mandarin passive production



Three features in Mandarin

	In other languages		In Mandarin morphosyntax
	Being a phi-feature	**Modulating Intervention in child performance**	
Animacy	Possibly	Yes (e.g., French, Bentea et al. 2016; English, Mateu & Hyams 2021)	Having morphological consequences on nouns
Number	Yes	Yes (e.g., Italian, Adani et al. 2010; English, Adani et al. 2014; Spanish, Mateu 2022)	Encoded on classifiers
Shape	No	Not tested	Encoded on classifiers

Design and materials

A two-choice sentence-picture matching task

- Manipulations:
  - Sentence type: **Actives, Long Passives, Short Passives**
  - Featural condition: **Animacy Match, Animacy Mismatch**

    Match: Both the EA (Agent) and the IA (Patient) are animate.
    Mismatch: The EA is animate but the IA is inanimate.
- 36 trials, six per condition crossing four actional verbs:
  - *zhuang-dao* ‘bump into’, *lan-zhu* ‘block (the way of)’, *ya-dao* ‘pin down’, and *la-zhu* ‘pull’
- A semi-random order
  - Trials of the same sentence types nor verb items were never adjacent

Design and materials

(3) Actives

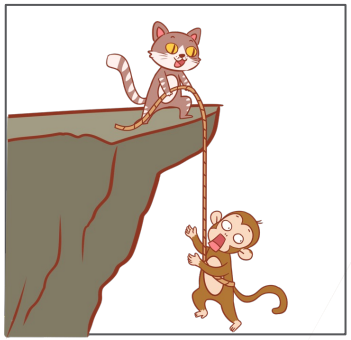
a. Animacy Match

猴子拉住了小猫

houzi	lazhu-le	xiaomao
monkey	pull-PERF	cat

'The monkey pulled the cat.'

[EA [V IA]
[+ani] [+ani]



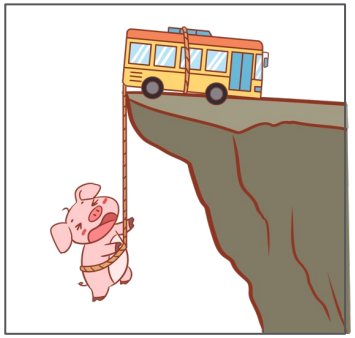
b. Animacy Mismatch

小猪拉住了公交车

xiaozhu	lazhu-le	gongjiache
pig	pull-PERF	bus

'The pig pulled the bus.'

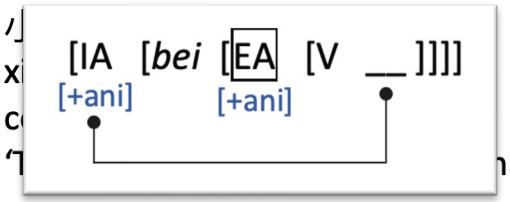
[EA [V IA]
[+ani] [−ani]



Design and materials

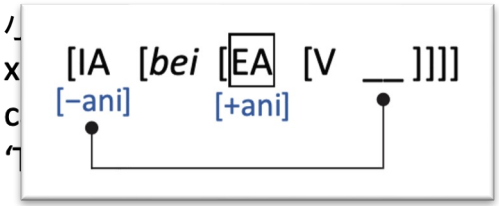
(4) Long passives

a. Animacy Match



lazhu-le
pull-PERF
…nant.'

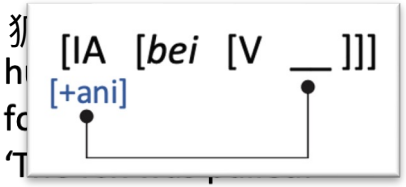
b. Animacy Mismatch



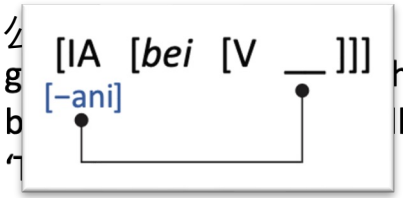
lazhu-le
pull-PERF

(5) Short passives

a. "Animacy Match"



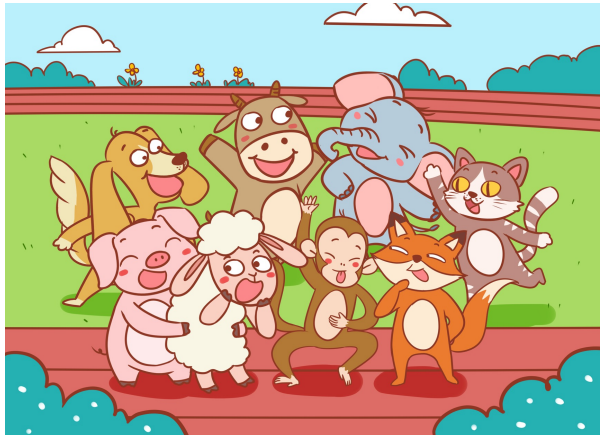
b. "Animacy Mismatch"



hu-le
l-PERF

Procedure

- Online experiment with the assistance of parents/teachers/care-takers
- Training session to familiarize children with the task and the nouns used in the experiment



Subjects

- 9 children were excluded for chance or below-chance performance with control trials (i.e., <9/12 in Actives)
- 78 monolingual Mandarin-speaking children aged 3;01-6;08 (*M* = 4;11), recruited from Changsha, Hunan, China
    - 3yos (3;01-3;11, *M* = 3;08, *N* = 18)
    - 4yos (4;01-4;11, *M* = 4;05, *N* = 23)
    - 5yos (5;00-5;11, *M* = 5;05, *N* = 18)
    - 6yos (6;00-6;08, *M* = 6;04, *N* = 19)

Results

- Mixed-effects logistic regression
- Full model:

  Correct Response ~ Sentence Type × Featural Condition × Age (in months)
  + (1 | Child) + (1 | Verb)

- Stepwise model comparison:
  - **Age** (in months) is not a significant predictor *($X^2(6) = 12.08, p = 0.06$)*

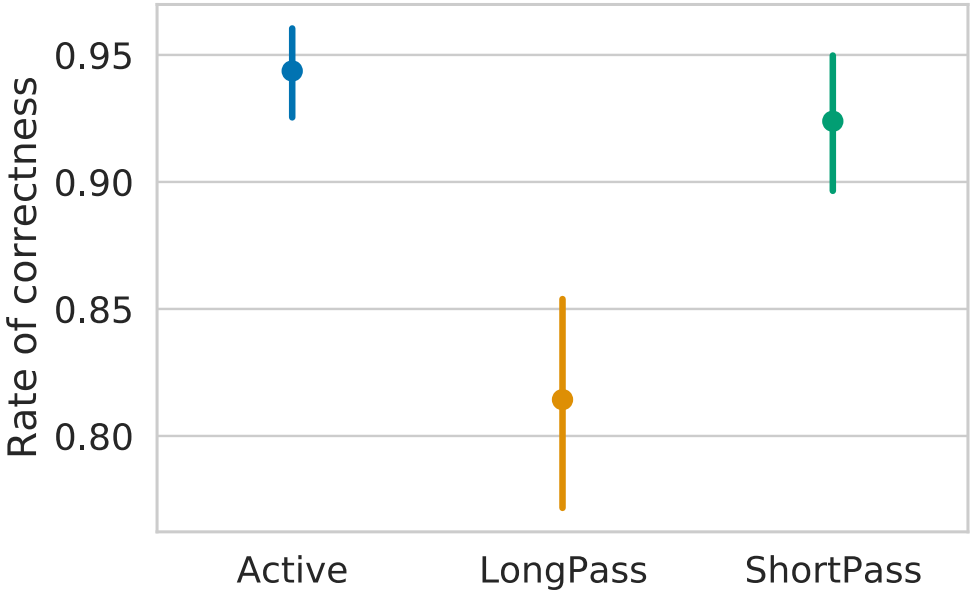
Results

The effect of **Sentence Type** is significant *($X^2(8) = 71.113, p < 0.001$ ***)*

Short passives = Actives
(z-value = -0.2717, p = 0.383)

Long passives < Actives
*(z-value = -1.567, p < 0.001 ***)*

Long passives < Short passives
*(z-value = -1.295, p < 0.001 ***)*

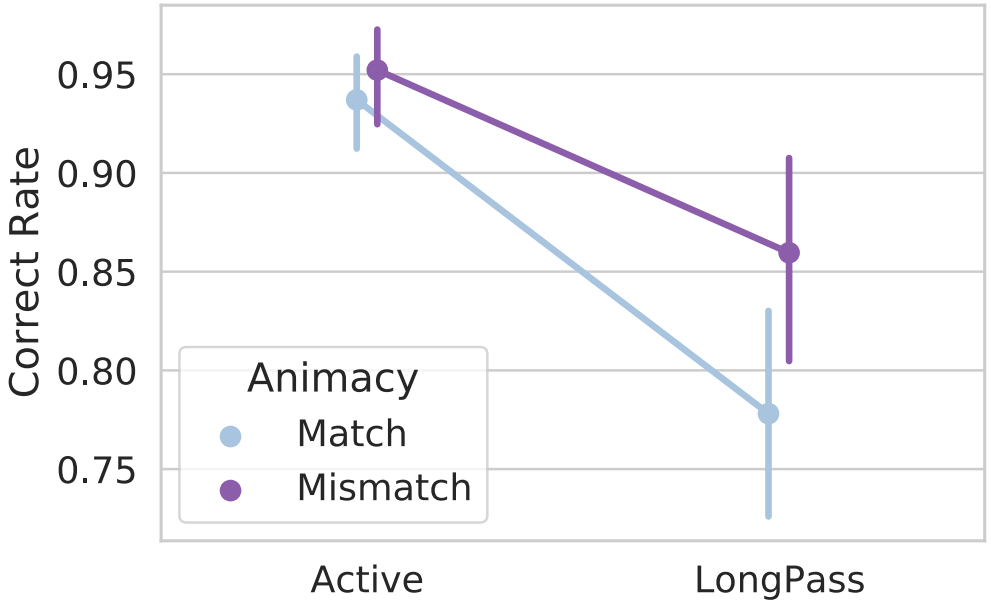


Results

Featural Condition is also a significant predictor *($X^2(6) = 15.134$, $p = 0.019$ *)*

In long passives, Animacy Mismatch > Match
*(z-value = 0.556, p = 0.019 *)*

In actives, Animacy Mismatch = Match
(z-value = 0.297, p = 0.369)



Appendix C: Syntax of Mandarin passives

A-bar properties of long passives

Long *bei*-passives show A-bar properties while short *bei*-passives do not.

- Only long passives allow long-distance dependency

(15) a. Lisi pai jingcha daibu le Zhangsan
Lisi send police arrest PRF Zhangsan
'Lisi sent the police to arrest Zhangsan.'

b. Zhangsan$_i$ bei *(Lisi) pai jingcha daibu le ___$_i$
Zhangsan BEI Lisi send police arrest PRF
'Zhangsan was "sent-police-to-arrest" by Lisi.'

- Only long passives allow resumptive pronouns

(16) a. Zhangsan$_i$ bei da le (*ta$_i$) san-xia
Zhangsan BEI hit PRF 3SG three-time
'Zhangsan was hit three times.'

b. Zhangsan$_i$ bei Lisi da le (ta$_i$) san-xia
Zhangsan BEI Lisi hit PRF 3SG three-time
'Zhangsan was hit by Lisi three times.'

A-bar properties of long passives

Long *bei*-passives show A-bar properties while short *bei*-passives do not.

- Only long passives show island effects

(19) Zhangsan$_i$ bei *(Lisi) mai le [$_{DP}$ [$_{CP}$ piping ta$_i$ de] shu]
Zhangsan BEI Lisi buy PRF criticize 3SG REL book
'Zhangsan$_i$ undergoes Lisi's buying a book that criticizes him$_i$.'

Mixed A/A-bar properties of long passives

Long *bei*-passives show mixed A/A-bar properties

A-properties
- Creates new antecedents for binding
- No weak crossover

(72) **mei-ge** **ren$_i$** dou bei **ta(-ziji)$_i$-de** mama xihuan __
every-CLF person all BEI 3SG(-self)-GEN mom like
'Everyone$_i$ is liked by his$_i$ (own) mom.'

- No reconstruction effects of Condition C

(77) a. ta$_{i/*j}$ nong-diu le Zhangsan$_j$-de wanju
3SG lost PRF Zhangsan-GEN toy
'S/he$_{i/*j}$ lost Zhangsan$_j$'s toy.'

b. Zhangsan$_j$-de wanju bei ta$_{i/j}$ nong-diu le
Zhangsan-GEN toy BEI 3SG lost PRF
'Zhangsan$_j$'s toy was lost by him/her$_{i/j}$.'

A-bar properties
- long-distance
- induces island effects

EA in long vs. short passives

The EA in long *bei*-passives is in an argument position

(9) a. Zhangsan$_i$ **bei** [**Lisi$_j$** guan zai **ziji$_{i/j}$**-de fangjian] (*bei* NP)
Zhangsan BEI Lisi lock at self-GEN room
'Zhangsan$_i$ was locked by Lisi$_j$ in his$_{i/j}$ own room.'

b. Zhangsan$_i$ [**gen Lisi$_j$**] taolun **ziji$_{i/*j}$**-de xiangfa (P NP)
Zhangsan with Lisi discuss self-GEN opinion
'Zhangsan$_i$ discussed with Lisi$_j$ his$_{i/*j}$ own opinions.'

There is no implicit EA in short *bei*-passives

- no control into adjuncts

(60) ???yifu bei zuixunxun-de xi le
clothes BEI drunk-ADV wash PRF
Intended: 'The clothes have been washed drunk.'

- no control into depictives

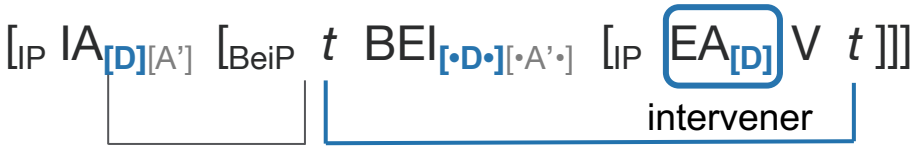
(61) yifu (*bei) [huilai zhihou] (*bei) xi
clothes BEI return after BEI wash
Intended: 'The clothes will get washed after someone/I return.'

Contribution and Implication: Syntax

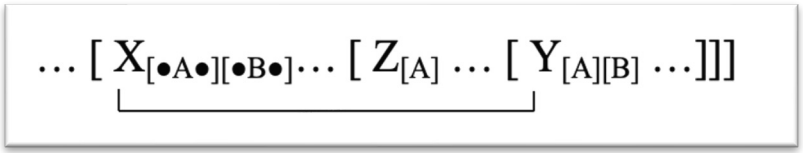
- The lack of intervention difficulty in Mandarin-speaking children's comprehension of short passives suggests that they do not represent an implicit EA in short passives
  - ➢ cf. child English (e.g., Gordon and Chafetz 1990, Hirsch and Wexler 2006a, 2006b, O'Brien et al. 2006, Orfitelli 2012)
  - ➢ Providing additional evidence supporting the structural difference between long vs. short passives in adult Mandarin (contra unifying analyses e.g., Zhang 2010, Ngui 2020)

Contribution and Implication: Syntax

Mandarin long passives (F. Chen 2022, in line with Longenbaugh's 2017 analysis for English *tough*-constructions):



Adults: OK



Children: