

# The interpretation of disjunction in Verb Phrase Ellipsis in Mandarin Chinese

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# A Baking Analogy



Mark Baker (2001) uses a cooking analogy to explain the child's task, assuming the biological view.

Every cake starts out with the same basic ingredients - flour, eggs, butter, sugar etc., just as every child starts with the same ingredients, his or her biological endowment.

The cook then has to make some choices about ingredients, depending on what kind of cake is in progress:

- baking soda or baking powder?
- nuts or raisins?
- chocolate chips or caramel pieces?
- cinnamon or nutmeg?

Similarly, the child makes choices in order to “cook up” the language they are acquiring.

This is termed “**setting**” parameters”.

- verbs before objects, or objects before verbs?
- drop subjects or full subjects?
- question words like ‘what’ in initial position or not?

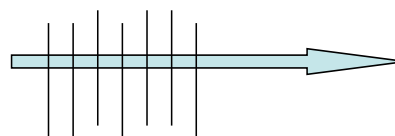
Different combinations result in different languages.

# Setting Parameters

INPUT



LAD



P1, P2, P3, P4, P5, ...

Mental  
Grammar

Principles  
are always  
in place

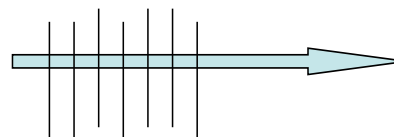
The child encounters  
parameters one by one  
on the way to achieving  
the adult grammar --  
Experience matters.....

# Setting Parameters

INPUT



LAD

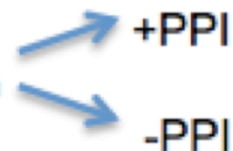


P1, P2, P3, P4, P5, ...

Mental  
Grammar



**Disjunction**



+PPI

-PPI

# Verb Phrase Ellipsis

(1) John didn't buy a bunch of flowers, but Bill did.

(2) John bought a bunch of flowers, but Bill didn't.

VP ellipsis constructions are subject to **a structural parallelism condition**. The elided constituent and its antecedent must share the same syntactic structure (e.g. Sag & Hankamer 1984)

# Problems for structural parallelism



Ungrammatical:

(3) Ted didn't order any sushi, but Max did ~~<order \*any sushi>~~

What is required:

Ted didn't order any sushi, but Max did ~~< order **some** sushi>~~

Wrong meaning:

(4) Ted ordered some sushi, but Max didn't ~~<order **some** sushi>~~

PPI

What is required:

Ted ordered some sushi but Max didn't ~~< order **any** sushi>~~

# Klima's (1964) Solution

**some** and **any** are allomorphs of  $\exists$

Step 1: *Ted ordered  $\exists$  sushi but Max didn't order  $\exists$  sushi*

Step 2: *Ted ordered  $\exists$  sushi but Max didn't < ~~order  $\exists$  sushi~~ >*

Step 3: *Ted ordered some sushi but Max didn't < ~~order  $\exists$  sushi~~ >*

# English *some* & Mandarin *huozhe* 'or'

	English <i>some</i>	Mandarin <i>huozhe</i> 'or'
<b>Negative Sentences</b>	Julia didn't eat <u>some of the sushi</u>	Julia didn't eat <u>sushi or pasta</u> .

(5) Julia didn't eat some of the sushi.



(6) Zhuliye mei chi shousi huozhe yimian.



Julia not eat sushi or pasta  
'It's sushi or pasta that Julia didn't eat.'





# The Disjunction Parameter

**Mandarin** disjunction is a Positive Polarity Item (PPI). By definition, PPIs take scope over negation at Logical Form:

Surface syntax: NOT > *huozhe*

Logical Form: *huozhe* > NOT

**English** disjunction is NOT a Positive Polarity Item:

Surface syntax: NOT > *or*

Logical Form: NOT > *or*

# The interpretation of disjunction in negative sentences

Context: the character performed just one action

	Test sentences	Acceptance rate	
		adults	children
English (Crain et al., 2002)	The girl who stayed up late will not get a jewel or a shell.	0	0
Japanese (Goro, 2007)	The pig didn't eat a carrot or a pepper	100%	17%
Chinese (Jing, 2006)	The worker didn't fix the bike or the skateboard.	100%	6%

# The Semantic Subset Principle (Crain, 1992; Musolino, 2006)

- Across languages, disjunction words are subject to parametric variation.
- Consideration of learnability (in the absence of negative evidence) leads us to predict that children will initially favor parameter values that make sentences true in the narrowest range of circumstances, initially adopting the ‘subset value’ ensures that children will encounter positive evidence if the local language favors the ‘superset’ parameter value.
- Mandarin/Japanese speaking children initially choose the subset value [-PPI] setting of the Disjunction Parameter, i.e. with disjunction generating a conjunctive interpretation.

# Research proposal



- The Mandarin disjunction word *huozhe* ‘or’ will be interpreted *in situ* in elided VPs
- Polarity sensitivity is cancelled in VP ellipsis (and when disjunction or negation are entailed)
- Polarity sensitivity requires logical words (negation, disjunction) to be overt

# PPI in full VP

*VP Full*

*(7) Tony ate some of the sushi,  
but Julia didn't eat some of the sushi.*

some of the sushi   Julia didn't eat   ~~some of the sushi~~



# PPI in full VP

*VP Full*

*(8) Tony ate sushi or pasta,  
but Julia didn't eat sushi or pasta.*

sushi or pasta Julia didn't eat ~~sushi or pasta~~



# PPI-hood is cancelled in VP ellipsis

## VP Ellipsis

(9) Tony ate some of the kangaroo,  
but Julia didn't < ~~eat any of the kangaroo~~ >

Julia didn't eat **any** of the kangaroo



# PPI-hood is cancelled in VP ellipsis

## VP Ellipsis

(10) Tony ate sushi or pasta,  
but Julia didn't < ~~eat sushi or pasta~~ >

Julia didn't eat *sushi or pasta*





# Experimental Details



## Materials

Condition 1: Without Ellipsis (full VP)

Condition 2: With Ellipsis (elided VP)

## Procedures

- A booklet version of Truth Value Judgment Task (Crain & Thornton 1998, Goro 2007)
- Six stories, each incorporating rewards (each trial consists of a filler sentence, a control sentence and a test sentence)
- Kermit produces the target sentences after all the stories are concluded

## Participants

60 Mandarin-speaking children (age range 4;02 to 5;01, mean = 4;07), and 40 adult controls.

# Experimental Sentences: 2 Conditions



- **Condition 1 (VP Full)**

(11) Tubaba neng zhuadao mifeng huozhe xiaoshe,  
danshi tubaobao bu neng zhuadao mifeng huozhe xiaoshe.

‘Papa rabbit can catch a bee or a snake,  
but baby rabbit can’t catch a bee or a snake.’

- **Condition 2 (VP Ellipsis)**

(12) Tubaba neng zhuadao mifeng huozhe xiaoshe,  
danshi tubaobao bu neng.

‘Papa rabbit can catch a bee or a snake,  
but baby rabbit can’t < catch a bee or a snake >



**Gold Star condition**

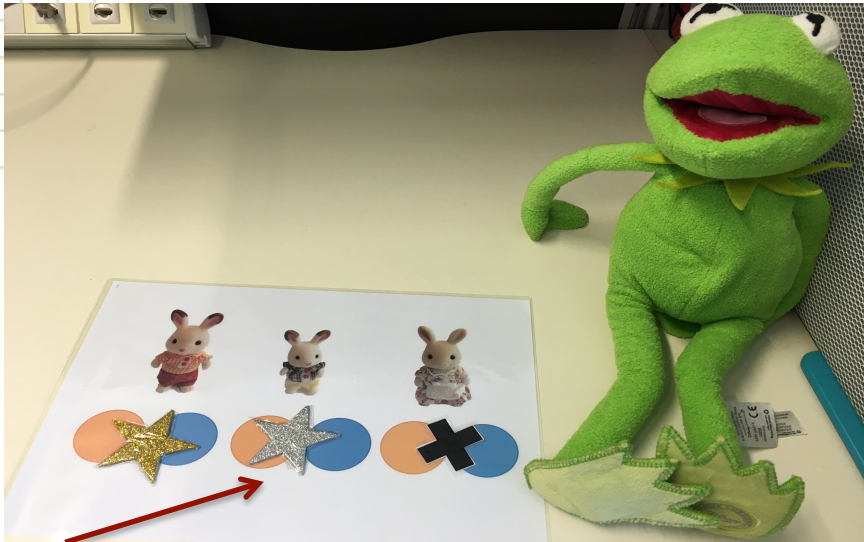
## **Control Experiment to establish the meaning of First Conjunct**

- (13) Tubaba neng zhuadao mifeng huozhe xiaoshe.  
'Papa rabbit can catch a bee or a snake.'

Result: Both children and adults accepted the test sentences 100% of the time

Conclusion: Disjunction licenses Free Choice 'conjunctive' inferences in sentences with an epistemic modal

# Test sentences: VP Full



*Silver Star condition*

(11) Papa rabbit can catch a bee or a snake,  
but baby rabbit can't catch a bee or a snake



# Test sentences: VP Ellipsis



*Silver Star condition*

(12) Papa rabbit can catch a bee or a snake,  
but baby rabbit can't < ~~catch a bee or a snake~~ >

First, let me give you the ability to become snail-catchers.  
(... Magic spell ...) Now have a go and let's see what happens ...  
Great, you have all become masters at snail-catching.  
Let's move on to more advanced abilities.



**Fung Shui Master**

Let's see who becomes a master of animal-catching.





If you become a snake-catching master  
and a bee-catching master, then you get a gold star.





If you become a snake-catching master (but not a bee-catcher), then you get a silver star; if you can become a bee-catching master (but not a snake-catcher), then you get a silver star.



If you do not become a snake-catching master, and you do not become a bee-catching master, then you get a black cross.



Papa Rabbit became a bee-catching master.





He also became a snake-catching master.



Baby Rabbit became a bee-catching master,  
but he failed to become a snake-catching master.



Mama Rabbit failed to become a master of  
bee-catching AND snake-catching.





Rewards are presented by the Fung Shui Master







# Experimental Hypotheses: Child Responses



## VP Full Condition

First Conjunct

Second Conjunct

**True** if Papa Rabbit has a **Gold Star**

**False** if Baby Rabbit has a **Silver Star**

*Papa Rabbit can catch a bee or a snake, but Baby Rabbit can't catch a bee or a snake*

**Baby Rabbit can't catch either a bee or a snake**

## VP Ellipsis Condition

First Conjunct

Second Conjunct

**True** if Papa Rabbit has a **Gold Star**

**False** if Baby Rabbit has a **Silver Star**

*Papa Rabbit can catch a bee or a snake, but Baby Rabbit can't < ~~catch a bee or a snake~~ >*

**Baby Rabbit can't catch either a bee or a snake**

# Experimental Hypotheses: Adult Responses



## VP Full Condition

First Conjunct

Second Conjunct

**True** if Papa Rabbit has a **Gold Star**

**True** if Baby Rabbit has a **Silver Star**

*Papa Rabbit can catch a bee or a snake, but Baby Rabbit can't catch a bee or a snake*

It's either a bee or a snake that BR cannot catch

## VP Ellipsis Condition

First Conjunct

Second Conjunct

**True** if Papa Rabbit has a **Gold Star**

**False** if Baby Rabbit has a **Silver Star**

*Papa Rabbit can catch a bees or a snake, but Baby Rabbit can't <catch a bee or a snake>*

Baby Rabbit can't catch either a bee or a snake

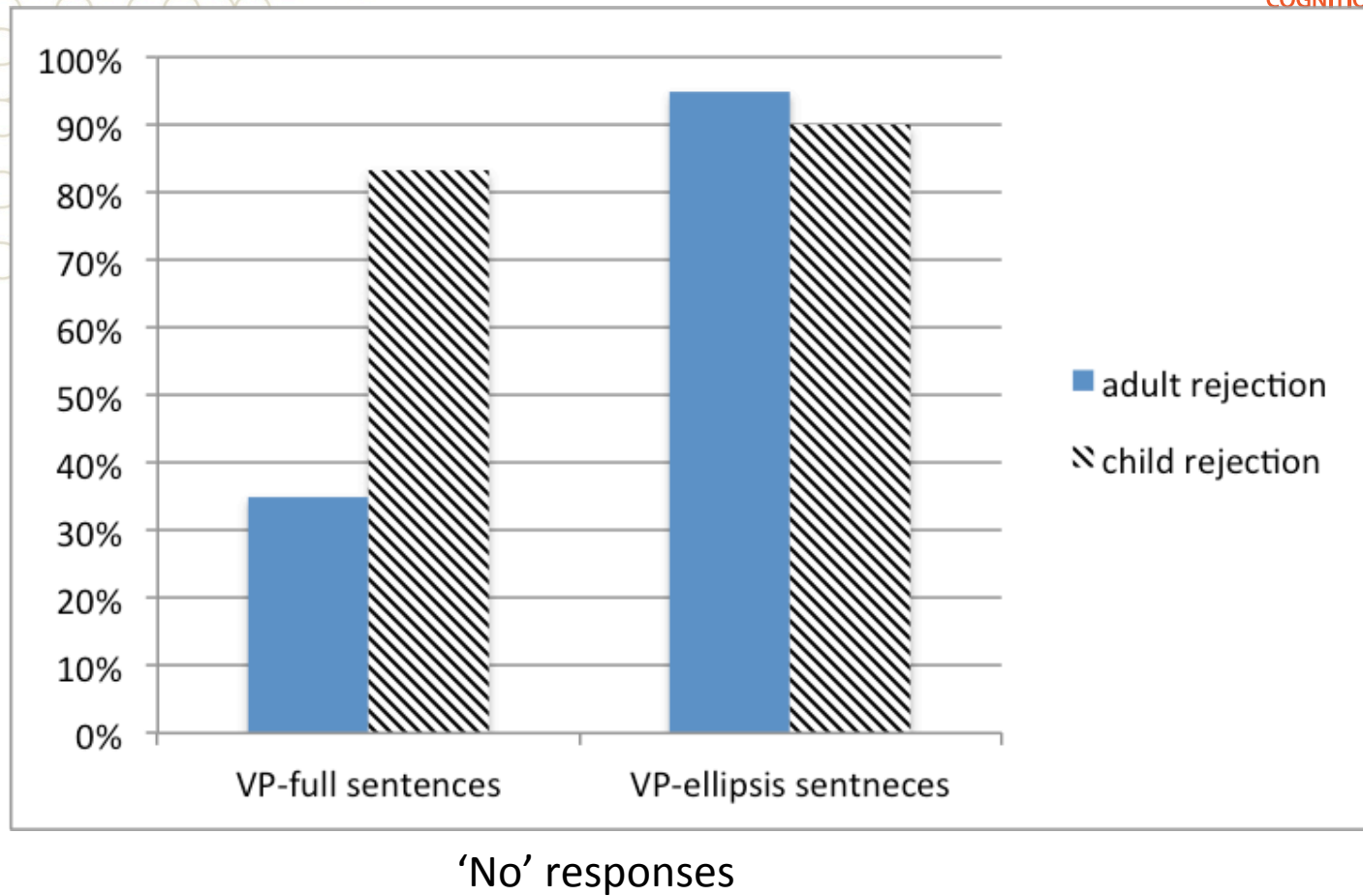
# Experimental Predictions



**Condition 1 (VP Full):** Adults are expected to accept the test sentences, whereas children should reject them

**Condition 2 (VP Ellipsis):** Both children and adults are expected to reject the test sentences

# Results: Silver Star Condition



- Distribution of individual responses  
(20 adults in Condition1)

13/20 interpreted disjunction as taking scope over  
negation in the full VP condition

7/20 disjunction generated a conjunctive entailment in the  
same situation.

# Conclusions

In sentences with a full VP in the second conjunct

- Mandarin-speaking children assigned a conjunctive interpretation
- Mandarin-speaking adults assigned disjunctive truth conditions

**Conclusion:** Disjunction as a PPI for adults, but not for children

In sentences with VP ellipsis in the second conjunct

- Mandarin-speaking children and adults assigned a conjunctive interpretation

**Conclusion:** Mandarin-speaking children and adults interpreted disjunction *in situ*. Polarity sensitivity was cancelled.

This is a putative linguistic universal!



Thank you!

