Acquisition of Chinese passives by Deaf learners

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Outline

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  - Grammaticality Judgment (GJ)
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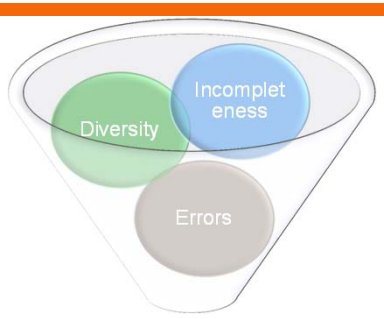
Deaf Written Language Ability



WHY?
To what extent?
In what regards?

Acquisition issues of Deaf learners

- Spoken language is not fully accessible!
  - Rely on limited visual compensation & residual hearing;
- NOT all deaf children have access to sign language in the first few years of life!
  - More than 90% are born to two hearing parents;
    - Not know sign language
    - Be told not to use sign language
    - Not want their deaf children to learn sign language
  - Receive 'speech-exclusive approach';

Characteristics of L1, adult L2 acquisition & deaf WL acquisition

Factors		L1 acquisition	Adult L2 acquisition	deaf WL acquisition ???
previous linguistic knowledge		none	L1 knowledge (fully developed)	L1 knowledge (spoken or sign) not fully developed
Input	a. timing	early exposure (birth)	late exposure (after puberty)	late exposure (after entering school)
	b. setting	naturalistic	naturalistic and instructed	instructed & limited naturalistic
	c. mode	aural	aural and written	Written & restricted aural
	d. amount	abundant & frequent	varying (in amount and frequency)	varying (in amount and frequency)
	e. Quality	linguistically varied and rich, contextually appropriate	contextually restricted, less variety of structures/vocabulary input from other non-native speakers	contextually restricted
	f. Literacy	more complex structures and vocabulary continue to be acquired and reinforced after age 5 when metalinguistic skills develop	literate in the L1 and L2	From simple structures and vocabularies ?
personality and affective factors		irrelevant	relevant	Relevant!!! Diversity

(Montrul, 2008)

Deaf language acquisition

- Show similar developmental process as hearing children, BUT lag behind and develop at a slower rate!
  - Easier structures: negation, conjunction;
  - Difficult structures: verb system, relativization, passives
- Prefer to adopt a canonical word order strategy
  - E.g. the interpretation of relative clauses and passives
- Explicitness seems serving as a guiding principle
  - E.g. PRO in control and trace in relative clause are absent from the interlanguage systems
  - Overextend the MDP: '*We promised Mary [PRO to fix the car]*'.
- Hamper syntactic abilities
  - Have difficulty in understanding and producing sentences that are derived by syntactic movement, especially wh-movement involved in relative clauses, wh-questions and topicalization sentences.

(Quigley and his colleagues in 1970s; Berent 1988; Friedmann & Szterman 2006, 2008, 2011, 2012; Friedmann et al. 2010)

Acquisition issues of Deaf learners

- Deaf children: It seems that linguistic deprivation & restricted input in the first few years of life cause the incapability to reach a native-like proficiency in language development!
- Critical Period
  - LA may be linked to brain maturation and the capacity of first language acquisition was lost if it was not activated or exercised during the critical period, before the loss of neural plasticity (Lenneberg 1967).

Acquisition issues of Deaf learners

→What is the ultimate attainment of deaf learners' written language if language input is insufficient or limited before critical period?

- Ultimate Attainment
  - Refer to the outcome or end point of L2 acquisition, irrespective of degree of approximation to the native (Birdsong 2004).
  - It can tell us what kind of steady state can be reached in non-primary language acquisition, whether such a state is quantitatively or qualitatively different from the monolingual steady state, and whether it obeys universal constraints (Sorace 2005).

Literature Review

Acquisition of passives by TD children

- Many studies on typically developing children found that passives are acquired late. The most representative findings are:
  - (1) Passive sentences with actional verbs are comprehended earlier than passives with non-actional (psychological/ experiential) verbs;
  - (2) long passives are acquired later compared to short passives;
  - (3) Irreversible passives are acquired before reversible passives.

(Maratsos et al. 1985; Sudhalter & Braine 1985; Borer & Wexler 1987; Gorden & Chafetz 1990; Fox & Grodzinsky 1998; Hirsch & Wexler 2006; Xu & Yang 2008)

Acquisition of passive by Deaf learners

- Early studies:
  - Schmitt (1968) and Power & Quigley (1973) revealed that deaf learners almost didn't grasp passives until 14-year-old and that even by 17-year-old, only 65% of the deaf subjects tested correctly comprehended nonreversible passives, 60% understood reversible passives, and only 35% understood short passives.
- Recent studies:
  - Bertone & Volpato (2009) found that reversible passive sentences are the most problematic structures for the hearing impaired subjects;
  - BUT no significant differences are found in long and short passives' performance (Vacca 2011) .
  - Participants seem to interpret the sentences on the strength of the knowledge of the world and disregarding functional elements instead.

Interim Summary

- Experimental studies on acquisition of passives limited to:
  - Long passive & Short passive
  - Actional passive & Non-actional passive
  - Reversible passive & Irreversible passive
- Little is known about other properties in passives!
- Difficult to see ultimate attainment of non-native speakers!

Chinese *bei* passives (syntax level)

- Long Passive:
  - E.g. 张三被李四打了。

  Zhangsan$_i$ bei [$_{IP}$ OP$_i$ [$_{IP}$ Lisi da-le t$_i$]]
  Predication; A'-movement

  (The Long Passive is analyzed as involving a semi- lexical verb *bei* complemented by a null operator construction predicated on the subject.)
- Short Passive:
  - E.g. 张三被打了。

  Zhangsan$_i$ bei [$_{VP}$ PRO$_i$ [$_{V'}$ da-le t$_i$]]
  Control; A-movement

  (In Short Passive, the semi-lexical verb *bei* takes a VP complement with an A-moved PRO controlled by the matrix subject.)
- Transitivity:
  - bei-VP cannot occur with intransitives, because as a passive verb, *bei* takes a transitive clause whose object is subject to movement, as null operator or as PRO.

    E.g. *小狗被病了。
    *小鸟被飞了。

(Huang 1999, 2013; Tang 2008; Huang et al. 2009;)

Other properties of Chinese passive (LF interface level)

- Tense Anchoring:
  - 'It has to do with native speakers' feeling of 'incompleteness' toward a cluster of sentences which are inflected for aspectual construal on the surface, but still lack the ability to stand alone' (Tsai 2008).

  E.g. %阿Q拿书。 阿Q没有拿书。 阿Q拿过书。

  →The 'incompleteness' effect can be cancelled by employing negative operator, aspectual marker, and other means.
- Generalized Anchoring Principle (Tang & Lee 2000):
  - Every sentence must be either tensed or focused at the LF interface level.
- 'Incompleteness' in Chinese *bei*-passives:
  - %张三被李四打。(incompleteness)
  - 张三常常被李四打。
  - 张三被李四打了。

Aim of this study

- Through studying deaf learner's acquisition of Chinese *bei*-passives:
  - Long passive & short passive;
  - Passive with actional verbs & passive with non-acitonal verbs;
  - transitive requirement of bei-VP;
  - elimination of incompleteness by tense anchoring in passives;
- →to investigate
  - what kind of ultimate attainment can be reached in deaf written language? Specifically, to what extent and in what regards they do;
  - whether the end state is quantitatively / qualitatively different from the hearing natives in terms of grammatical knowledge and grammatical processing?

Research Method

Subjects

- Deaf subjects:
  - Prelingually deaf: be congenital deaf or age at hearing impairment diagnosis should be younger than 3-year-old;
  - Degree of hearing loss: severe to profound;
  - At least 10 years' exposure to written Chinese;
  - Low Level (LL) & High Level (HL)
- Native Control:
  - Grow up in Beijing, Chinese is their native language which they used socially at home and school;
  - without developmental difficulties or socio-emotional behavior problems;

Type of participants	No. of subject	Language Score			Age at testing			Length of exposure to Written Chinese (years)		
		Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
Low Level Deaf	n=29	11-39	28.17	7.705	15-24	20	2.4784	10-19	13	2.195
High Level Deaf	n=24	40-49	44.38	2.683	16-23	20	2.1034	10-16	13	1.513
Native Control	n=35	NA	NA	NA	19-24	20	1.1142	13-18	14	1.114

On-line Picture Selection Task (PS)

To investigate whether Deaf learners have the basic grammatical knowledge of Chinese *bei*-passives;

- Short passive & Long passive
- Passive with actional verbs & with non-actional verbs (e.g. 吓坏)

(both accuracy and reaction times (RTs) were recorded by E-prime)

On-line Grammaticality Judgment Task (GJ)

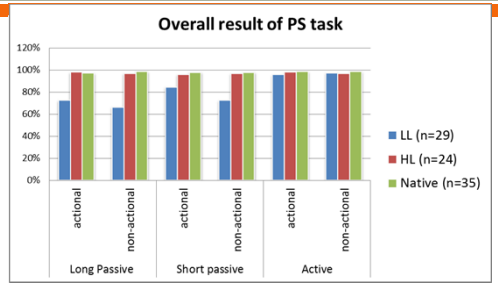
To investigate whether deaf learners acquire other properties of *bei*- passives;

Grammaticality	Properties of bei-VP tested	Examples
Ungrammatical	Incompleteness	*宿舍被警察搜查。
	With intransitive verb	*小树被汽车倒了。
Grammatical	Incompleteness is cancelled	男孩常常被妈妈打。 宿舍被警察搜查过。
	With transitive verb	小狗被男孩踢了。

(both accuracy and reaction times (RTs) were recorded by E-prime)

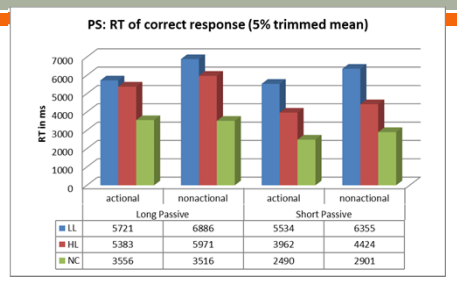
Results: accuracy & RT

PS results: accuracy



- HL Deaf learners:
  - perform well on all types of Chinese passives;
- LL Deaf learners
  - short passive > long passive (not significant)
  - actional passive > non-actional passive (only significant in their performance of comprehending short passives, *t(28)=3.136, p= .004;*)

PS results: reaction time (in ms)



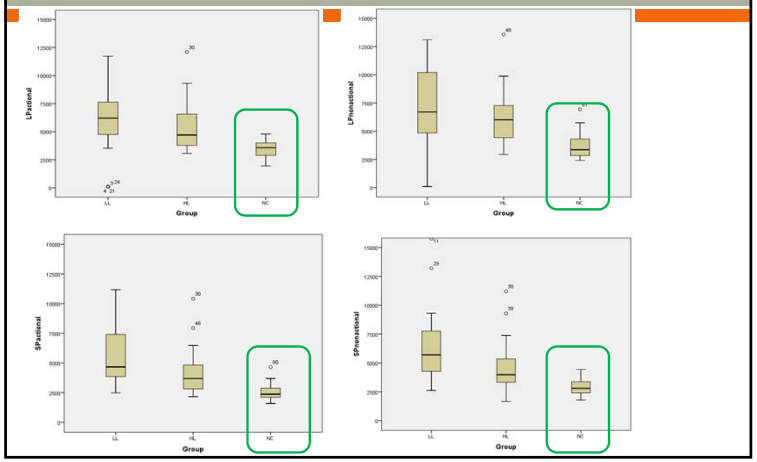
	Long Passive		Short Passive	
	actional	nonactional	actional	nonactional
LL	5721	6886	5534	6355
HL	5383	5971	3962	4424
NC	3556	3516	2490	2901

Long Passive:
LL vs. HL (p=.389)
HL vs. NC (**p=.000)
Short Passive:
LL vs. HL (*p=.020)
HL vs. NC (**p=.001)

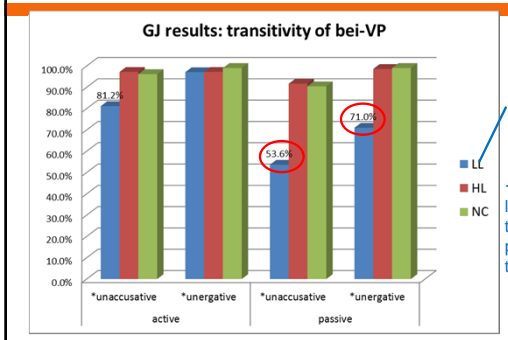
- Long Passive:
  - Deaf learners (LL & HL) significantly spend more time than NC on processing passives; BUT no difference was found between LL and HL deaf learners.
- Short Passive:
  - HL response significantly faster than LL and slower than NC;

→Although HL comprehend passives as well as NC in grammatical knowledge, they show significant difference with NC in grammatical processing.

PS results: reaction time (RT)



GJ results: transitivity (accuracy)

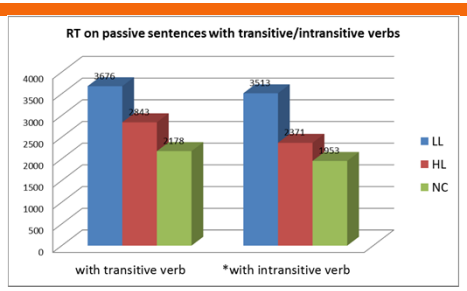


Exclude those fail in PS task

→There are some LL Deaf learners who correctly interpret the syntactic structure of Chinese passives, BUT do not master transitivity requirement in bei-VP.

- Active: *unaccusative e.g. *汽车倒了小树。
  *unergative e.g. *女孩飞了小鸟。
- Passive: *unaccusative e.g. *小树被汽车倒了。
  *unergative e.g. *小鸟被女孩飞了。

GJ results: transitivity (RT)

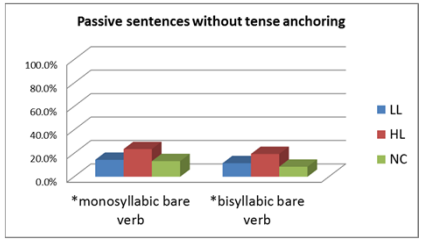


- In general, NC group response faster than deaf learners in judging passive sentences with transitive or intransitive verbs;

→Indicate processing difficulty for deaf learners!

- For each group, no difference was found between processing passive sentences with transitive and passive sentences with intransitive verbs.

GJ results: incompleteness effects (accuracy)

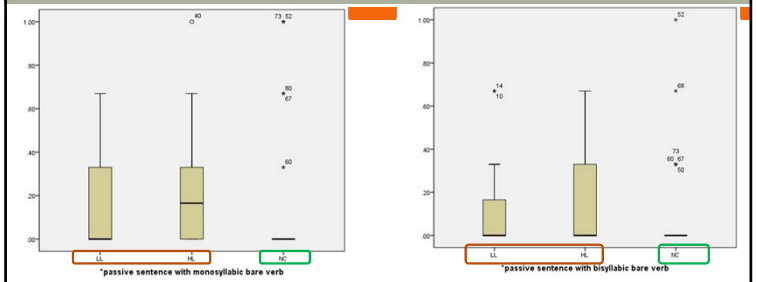


→Nearly all subjects in the three groups accept 'incompleteness' sentences !

- Passive sentence with monosyllabic bare verb
  - E.g. *男孩被妈妈打。
- Passives sentence with bisyllabic bare verb
  - E.g. *宿舍被警察搜查。

Note： LL subjects exclude those fail in PS task.

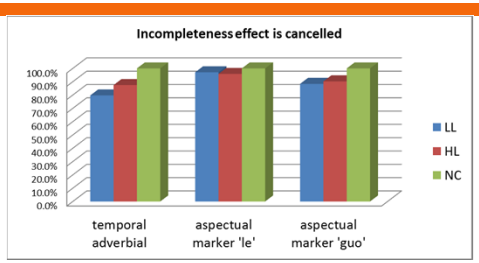
GJ results: incompleteness effects (accuracy)



- Passive sentence with monosyllabic bare verb
  - E.g. *男孩被妈妈打。
- Passives sentence with bisyllabic bare verb
  - E.g. *宿舍被警察搜查。

Boxplot shows that the judgment of Deaf learners is not as consistent as Natives !

GJ results: incompleteness effects (accuracy)

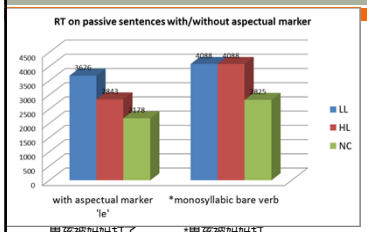


→Nearly all subjects in the three groups accept sentences that 'incompleteness' effect is cancelled!

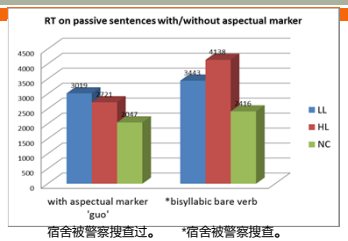
- Incompleteness effect is cancelled by employing:
  - Temporal adverbial, e.g. 男孩常常被妈妈打。
  - Aspectual marker 'le', e.g. 小狗被男孩踢了。
  - Aspectual marker 'guo', e.g. 宿舍被警察搜查过。

Note： LL subjects exclude those fail in PS task.

GJ results: incompleteness effects (RT)



男孩被妈妈打了。 *男孩被妈妈打。



宿舍被警察搜查过。 *宿舍被警察搜查。

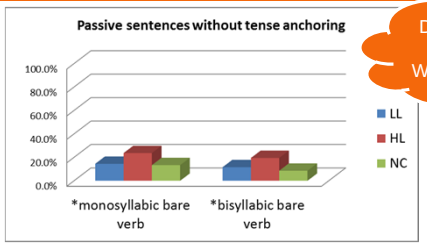
- NC group response significantly faster than deaf learners;

→Indicate processing difficulty for Deaf learners!

- Both HL and NC group spend significantly more time on processing sentences without aspectual marker than those with aspectual marker, although they accept both kinds of passive sentences (as shown in accuracy);

→THUS, the longer reaction time may indicate HL and NC subjects' feeling of 'incompleteness' toward sentences that are inflected for aspectual construal on the surface (Tsai 2008).

Go back
GJ results: incompleteness effects (accuracy)



Due to instruction of the task ?
Wrong vs. Incomplete

- Passive sentence with monosyllabic bare verb
  - E.g. *男孩被妈妈打。
- Passives sentence with bisyllabic bare verb
  - E.g. *宿舍被警察搜查。

Note： LL subjects exclude those fail in PS task.

Discussion

Discussion (grammatical knowledge)

- With restricted linguistic input in first few years of life, deaf learners' developmental process of Chinese passives looks like:
  - Short passive > Long passive (not significant in this study)
  - In short passives: Actional passive > Nonactional passive
  - Word order > transitivity requirement of bei-VP
- Ultimate Attainment → reach different stages
  - Stage I: No passive
    - →As revealed in literature, Deaf learners prefer to adopt a canonical word order strategy!
  - Stage II: Have the syntactic structure only, but not master other properties;
  - Stage III: native-like; (Perform similarly to hearing natives with respect to grammatical knowledge.)
- Do deaf advanced learners achieve native-like proficiency?
  - Though they master the syntactic knowledge of Chinese passives, they are not sensitive to 'incompleteness' passive sentence!

→Reflect: Complete acquisition at syntax level (e.g. word order, verb selection)!
Incomplete acquisition at LF interface level (e.g. tense anchoring) ???

Discussion (grammatical processing)

- Compared with hearing natives, deaf learners' longer reaction time may indicate a processing difficulty!
- →Insufficient language input before critical period plays a role!
- With regard to Ultimate Attainment again
  (grammatical knowledge vs. grammatical processing)

L1 vs. L2	Representation same	Representation different
Processing same		Interpretability Hypothesis (Tsimpli & Dimitrakopoulou, 2007)
Processing different	Continuity Hypothesis (Hopp, 2009, 2010)	Shallow Structure Hypothesis (Clahsen & Felser, 2006)

Be supported by advanced deaf learners' acquisition of WL???

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