Acquisition of Chinese passives by deaf learners: Off-line and On-line performance

Qun Li & Gladys Tang
The Chinese University of Hong Kong

Acquisition issues of deaf learners

- Spoken language is not fully accessible!
  - Rely on limited visual compensation & residual hearing;
  - Acquisition process cannot be facilitated by just sound amplification;

- 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;

→Deaf children's early language input is impoverished!

Linguistics outcomes of deaf individuals

- Vocabulary development:
  - lower rate of acquisition of words
  - lexical categories > functional categories;

- Morpho-syntactic development:
  - Avoid the complex sentences;
  - Experience difficulties in functional elements;
  - Even after long exposure to ‘oral’ language, deaf adolescents still have problems with syntactic rules and structures;

(Quigley et al., 1978; Wilbur et al., 1983; Berent, 1988; 1996; Lillo-Martin, 1992; de Villiers et al., 1994; Ledeberg, 2003; Friedmann & Szterman, 2008; Volpato & Vernice, 2014)

Deaf acquisition ---- language deficit view

- Orally-trained HI children (Hebrew & Arabic)
  - Relative clause
  - OVS topicalization
  - Wh-questions
- Findings:
  - ➢ Cannot perform at the controls' level;
  - ➢ Perform poorly on object relative clause, object questions and OVS topicalization;
  - ➢ Perform well on embedded sentences that do not involve movement;
- ➢ Have a deficit in the sentences that are derived by syntactic movement!

(Friedmann & Sztermann, 2005; 2011; Friedmann & Haddad, 2014)

A general problem in syntactic movement?

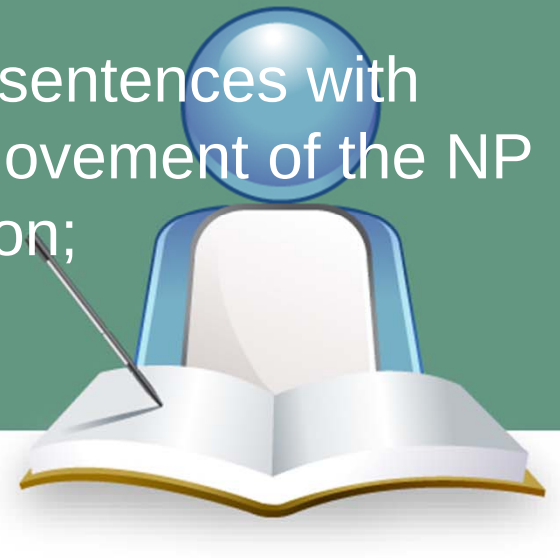
- Only wh-movement is impaired following lack of input in the critical period for syntax acquisition that results from HL!

- Deaf children perform well on simple SVO and simple VSO sentences, which involve the movement of the verb to I.

➢ No problem in verb movement!

- Deaf children have no difficulty in the SV sentences with unaccusative verbs, which involves the movement of the NP from post-verbal position to subject position;

➢ No problem in A-movement!



(Friedmann & Haddad, 2014)

Acquisition of passives by deaf individuals

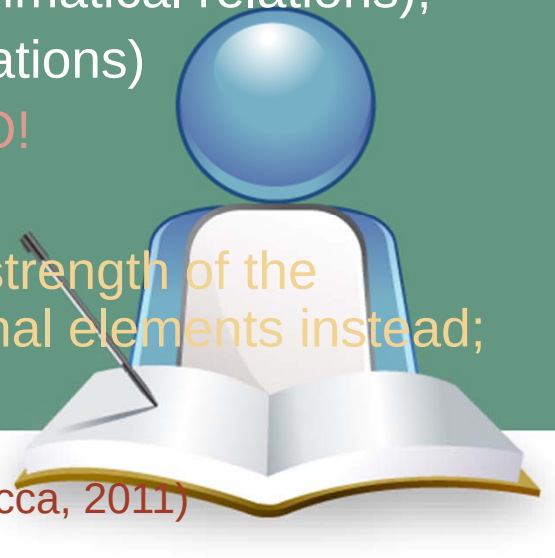
- General findings:
  - NOT master passives until 14-year-old;
  - Even by 17-year-old:
    - 65% correctly comprehend nonreversible passives
    - 60% understand reversible passives
    - Only 35% understand short passives.

➢ Use canonical word order strategy (SVO grammatical relations);

E.g. Mary is hit by John. (OVS grammatical relations)

[N V N] → misinterpret it as SVO!

➢ Deaf learners interpret the sentences on the strength of the knowledge of the world and disregard functional elements instead;



(Schmitt, 1968; Power & Quigley, 1973; Bertone & Volpato, 2009; Vacca, 2011)

Research Questions

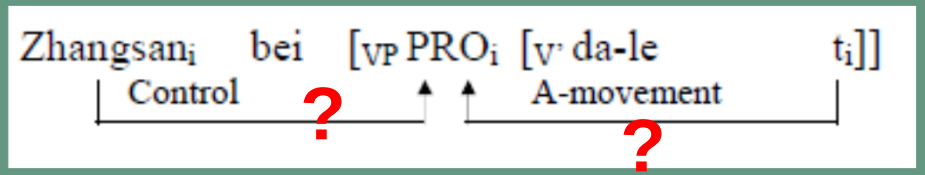
- Aim of this study:
  - To investigate Ultimate Attainment in deaf individuals' acquisition of Chinese passives:
    - Can they reach native-like language ability in terms of grammatical knowledge and grammatical processing?
    - Incomplete acquisition: to what extent? in what respect?

    (E.g. word order? Or other problems with acquisition of passives?)

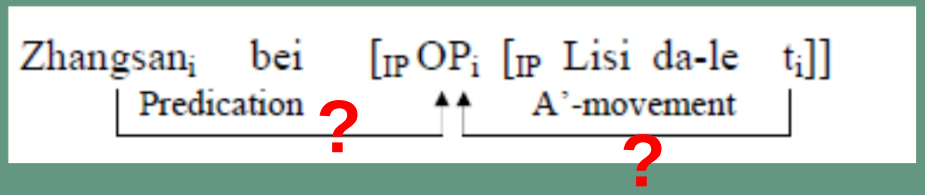
- Deficit or Delayed?
  - Studies in literature mostly investigated orally-trained deaf children who are younger than 13 years old;
  - It is not convincing enough to consider deaf children's poor performance at this stage as language deficit in outcomes;

Research Questions (cont')

- Chinese Short Passive:
  E.g. 张三被打了。



- Chinese Long Passive:
  E.g. 张三被李四打了。



- To investigate:
  - Deficit in syntactic movement ???
  - have problems with other syntactic rules ???

(Huang et al., 2009)

RESEARCH METHOD
&
RESULTS

Participants

- Deaf subjects:
  - Prelingually deaf;
  - Degree of hearing loss: severe to profound;
  - Impoverished (spoken & sign) input before entering deaf school;
  - Be grouped as three levels according to an independent Chinese test;

Groups	Age at testing		Language Score		Exposure to WL	
	Mean	SD	Mean (accuracy)	SD	Mean	SD
Deaf: Level 1 (n=11)	16.88	2.87	18.45 (37%)	4.01	9.43	2.24
Deaf: Level 2 (n=9)	18.46	1.46	28.56 (57%)	1.94	11.69	2.07
Deaf: Level 3 (n=15)	20.17	2.61	42.73 (86%)	4.04	13.10	2.24
Hearing Native (n=34)	20.23	1.06	--	--	--	--

On-line Picture Selection Task (PS)

- Target test materials:

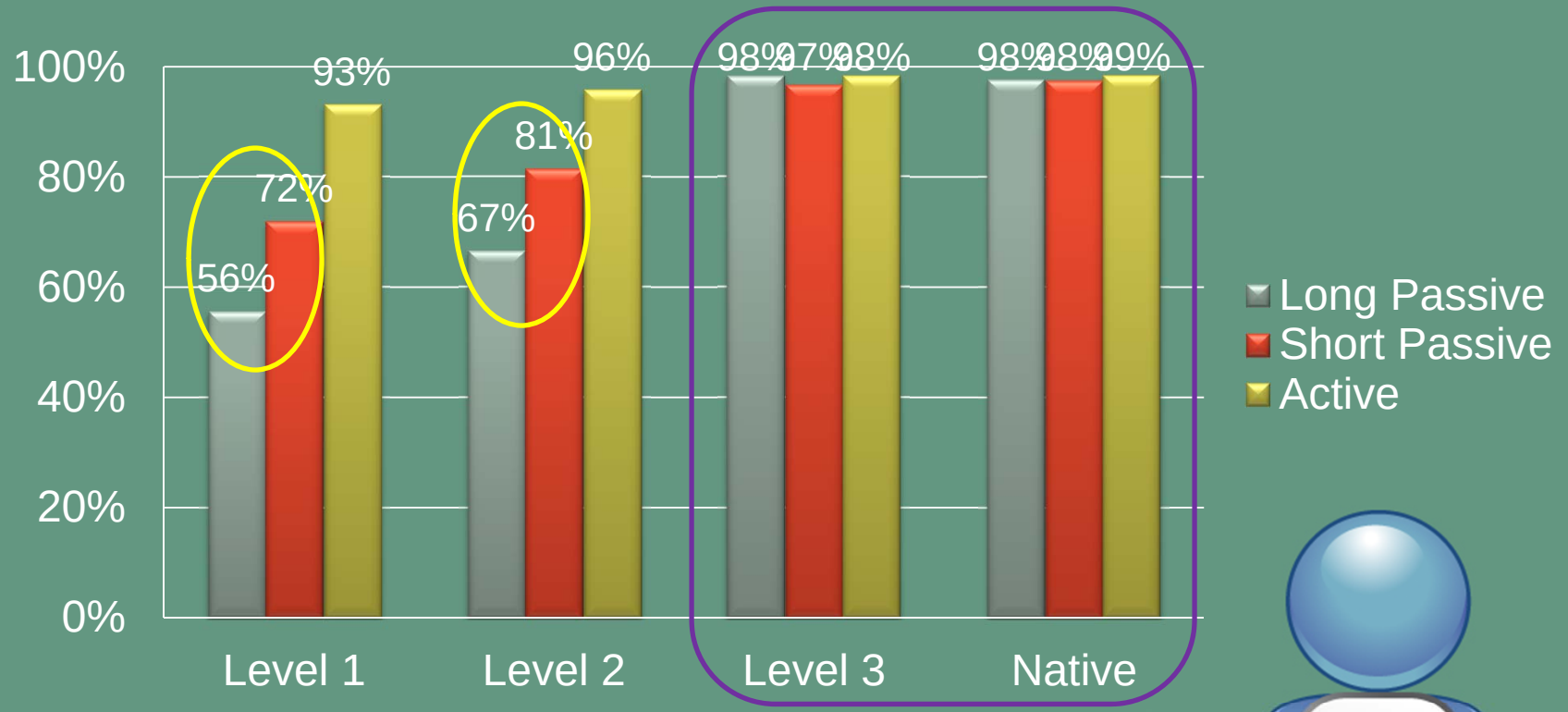
Sentence types	Actional verbs	Non-acitonal verbs (subject experience)	Non-actional verbs (object experience)
Active	小猫绑住了小狗.	小狗看见了小熊。	男孩吓晕了女孩。
Short passives	小猫被绑住了.	小狗被看见了。	男孩被吓坏了。
Long passives	小猫被小狗绑住了.	小狗被小熊看见了。	男孩被女孩吓坏了。

- All sentences are reversible;
- The two pictures provided either matched the event of the sentence or showed the event with the agent and patient reversed.

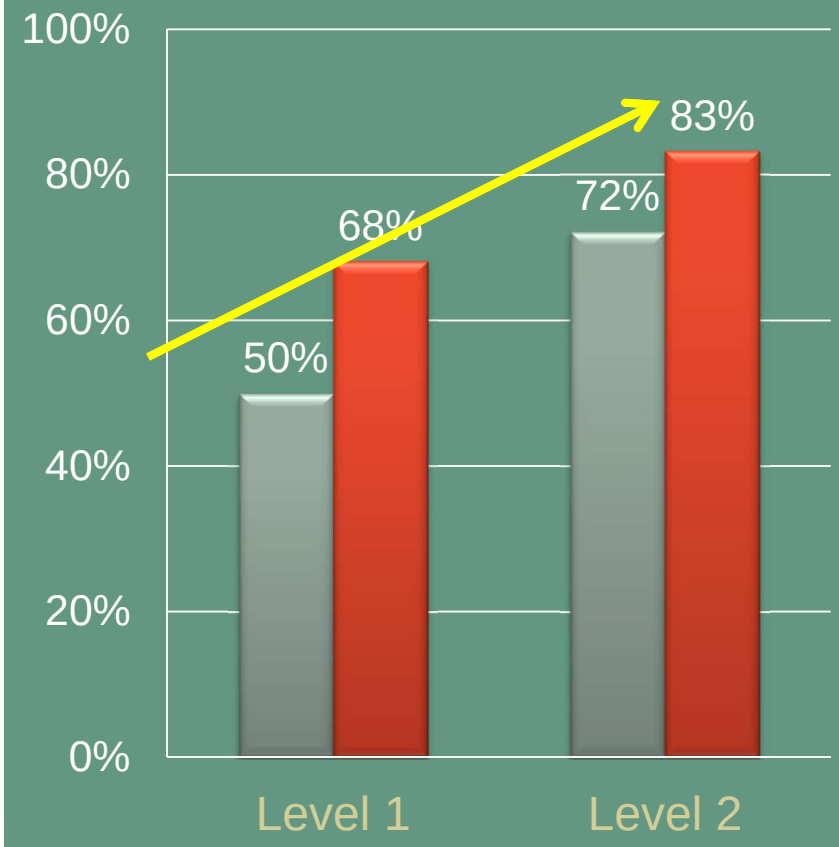
On-line Picture Selection Task (PS)

- Procedures
- Accuracy and RTs were recorded by E-prime

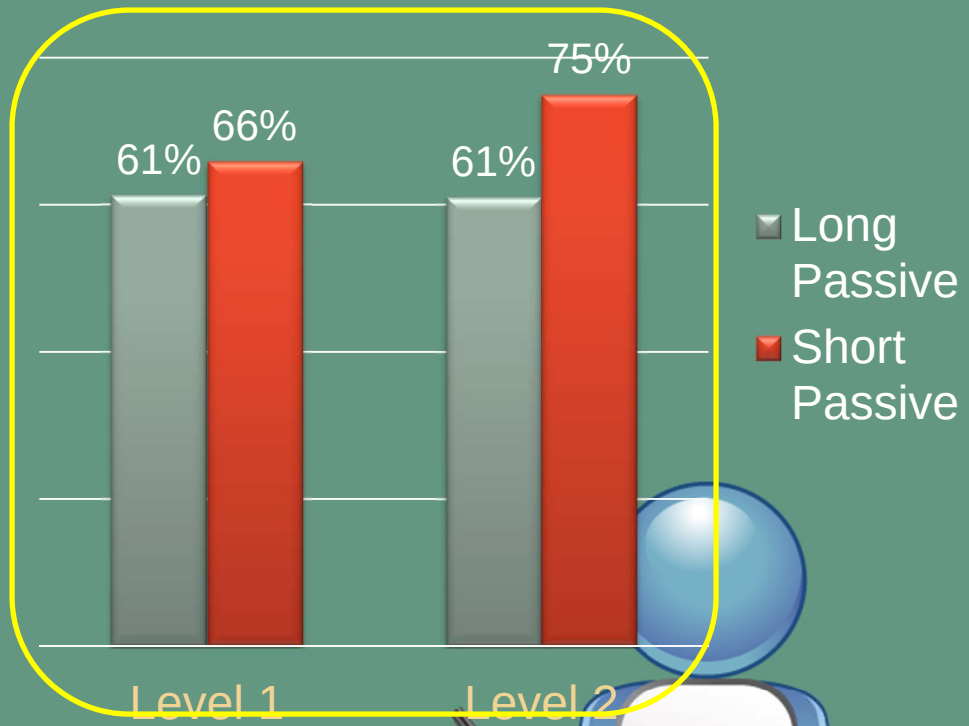
Results of PS task (accuracy)

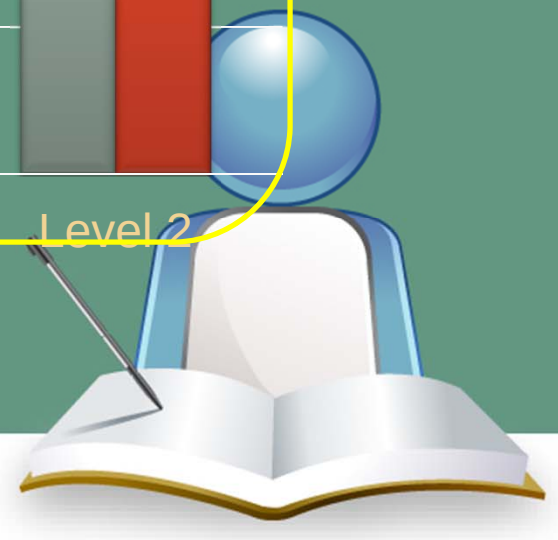


Passives with actional verbs

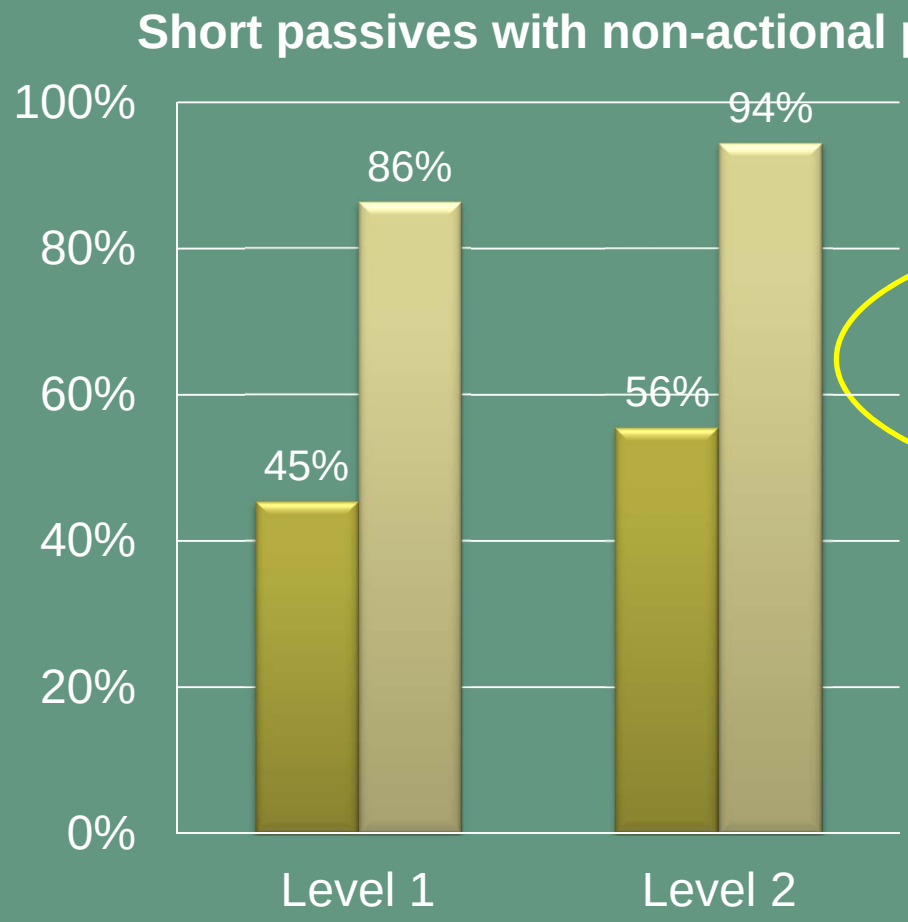


Passive with non-actional verbs



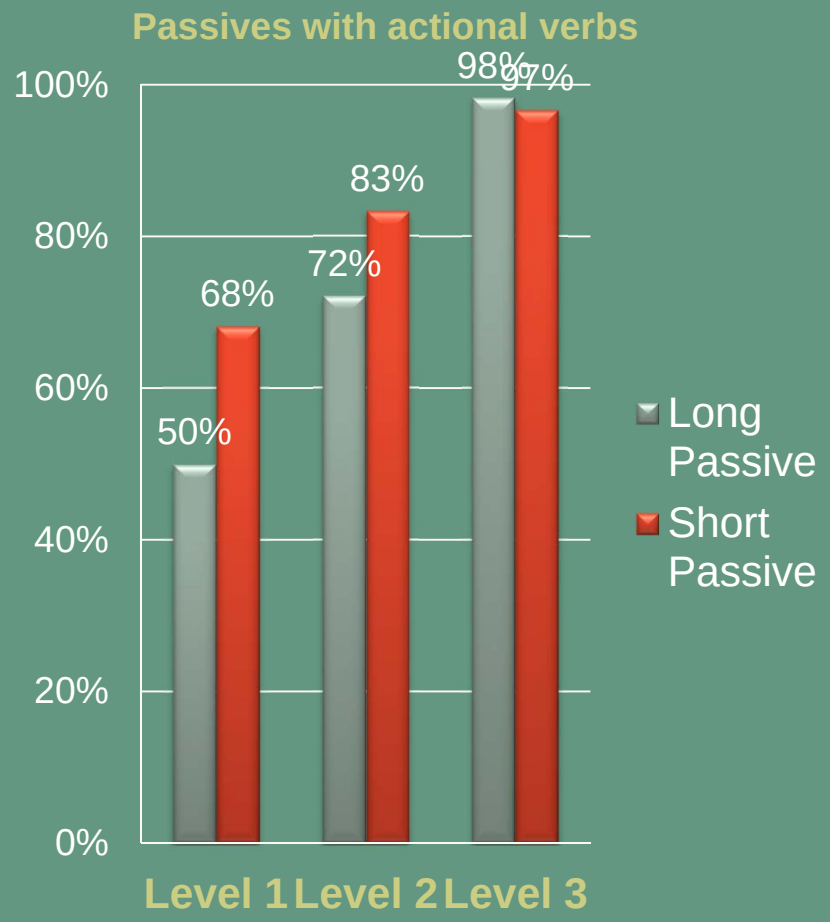


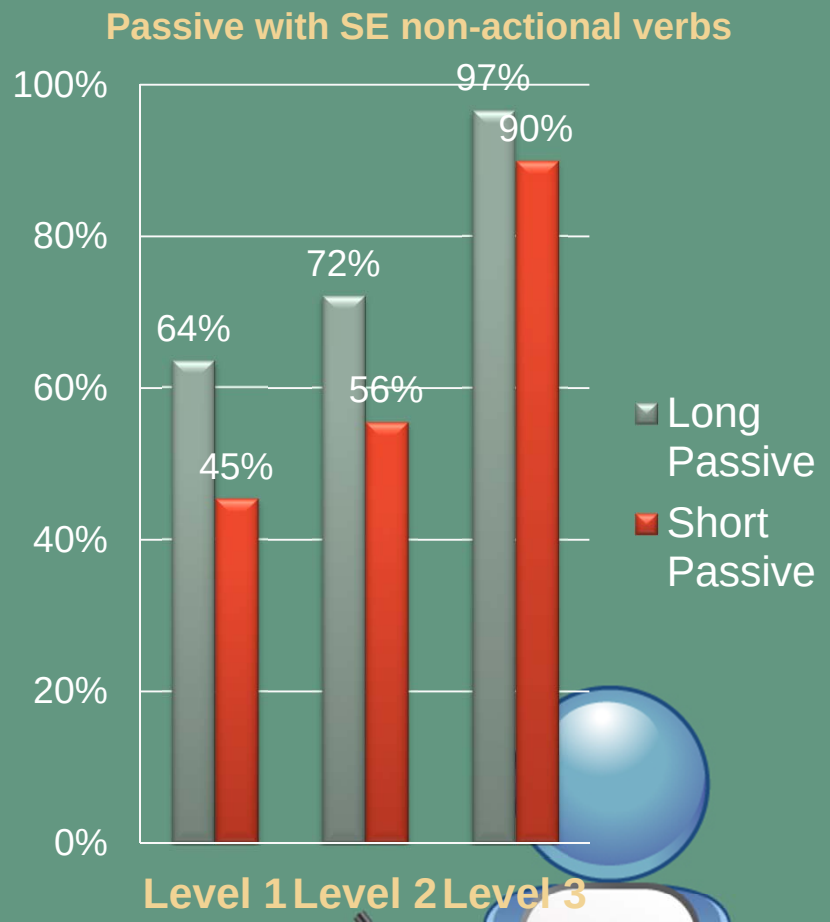
Imbalance performance on short passives

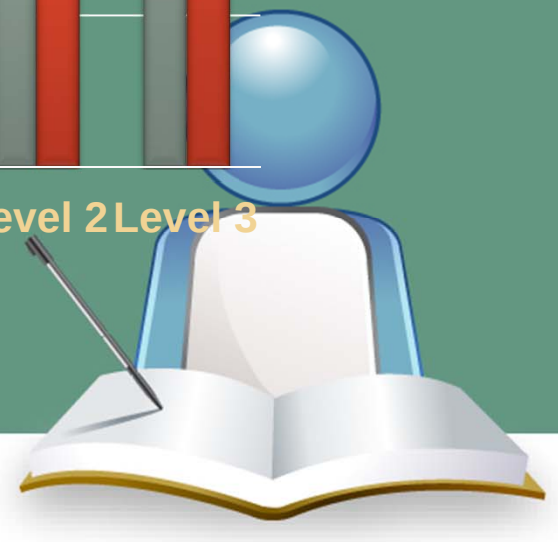


- Subject-experience – 小熊被看见了。
- Object-experience – 男孩被吓坏了。

- Semantic transitivity?
- Consider it as pseudo-passive? →男孩吓坏了.


Passives with actional verbs
100%
80%
60%
40%
20%
0%
50%
68%
72%
83%
98%
97%
Level 1
Level 2
Level 3
Long Passive
Short Passive


Passive with SE non-actional verbs
100%
80%
60%
40%
20%
0%
64%
45%
72%
56%
97%
90%
Level 1
Level 2
Level 3
Long Passive
Short Passive



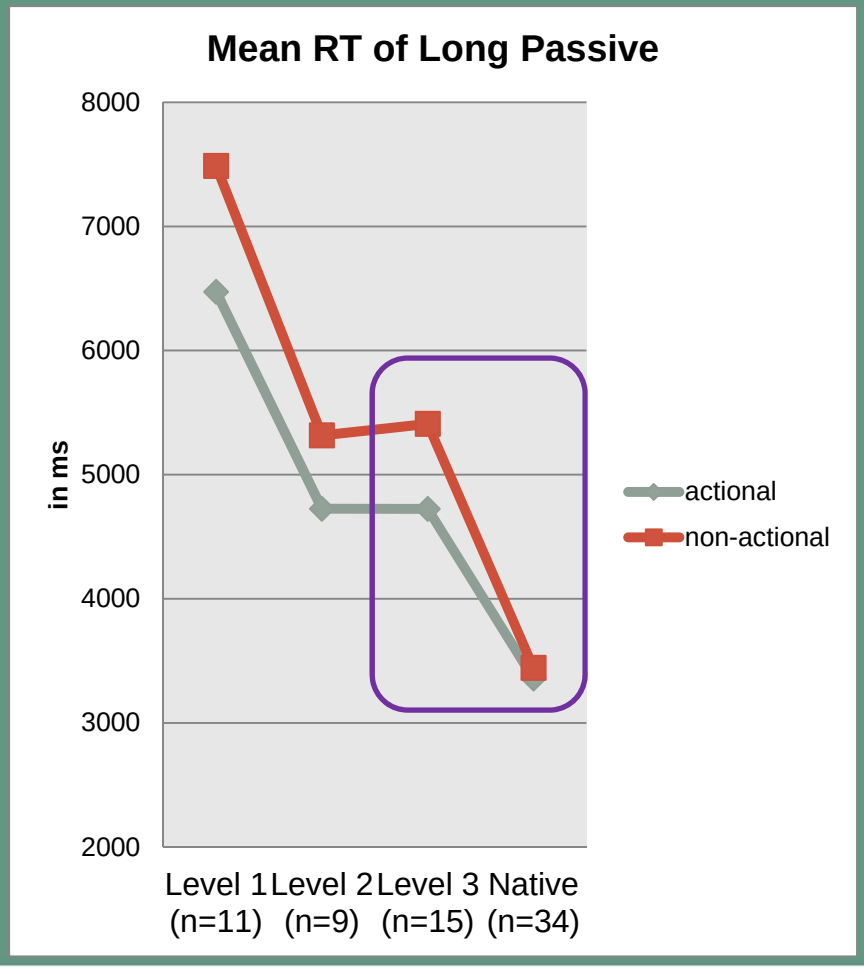
Analysis of RT in PS task

- Items from inaccurate responses were eliminated prior to further analysis.
- Data were screened for extreme values and outliers to decrease the amount of noise in the data.

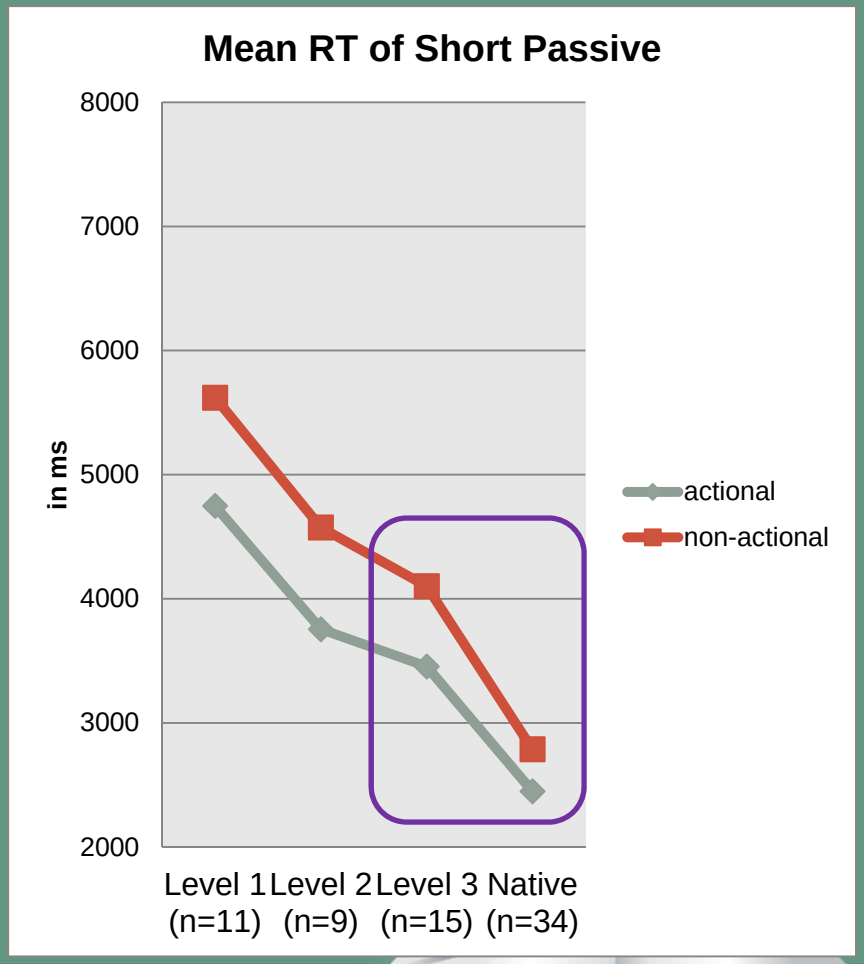
(Marinis 2010; Contemori & Marinis 2013)

Results of PS task (RT)

Long passive: 小猫被小狗绑住了.



Short passive: 小猫被绑住了.



Interim Summary (PS task)

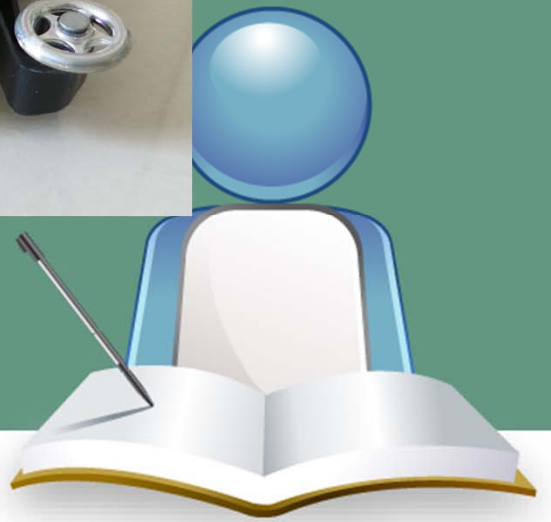
- No problem in actives!
- Deaf learners in level 1 & level 2 performed poorly on long passives and short passives;
- Advanced deaf learners (level 3) perform perfectly in comprehension of passives, BUT they process passives significantly more slowly than hearing natives;
- The processing difference between actional passives and non-actional passives reflected that the Semantic Effect might play a role in deaf learners' language processing, but not in hearing natives;

Off-line Elicited Production task

- Target test materials:

Complement types (V2)	Situation of video A	Situation of video B	Elicited Questions	Target answer (describe video B)
Completive	A boy is drinking a bottle of tea.	A boy is drinking a bottle of tea and the tea was drunk up finally.	What happened to the tea?	hongcha bei (nansheng) **he-guang** le.
Result-state	A van knocked into a sports car.	A van knocked into a sports car, and the sports car was knocked know.	What happened to the sports car?	paoche bei (huoche) **zhuang-fan** le.
Locative or Directional	A man is pushing a girl who is sitting on a swivel chair.	A man is pushing a girl who is sitting on a swivel chair, and the girl was pushed into a lift.	What happened to the girl?	nvsheng bei (nansheng) **tui dao dianti li**. Nvsheng bei (nansheng) **tui-zou** le.

跑车



Q6:跑车怎么了？

A

B

Results of EP task

- Productions under *patient-oriented* questions

Groups	Active sentences	ba-construction sentences	Passive sentences	Other productions	Total tokens	Grammatical productions
Level 1 (n=11)	50 (38%)	11 (8%)	61 (46%)	10 (8%)	132	69%
Level 2 (n=9)	34 (31%)	6 (6%)	66 (61%)	2 (2%)	108	77%
Level 3 (n=15)	9 (5%)	9 (5%)	160 (89%)	2 (2%)	180	95%
Native (n=34)	2 (0%)	0	406 (100%)	0	408	100%

Productions of types of passives

Groups	Conditions	long passive	short passive	pseudo passive	Total tokens of passives
Level 1	irreversible	12 (43%)	6 (21%)	10	28
	reversible	24 (73%)	7 (21%)	2	33
Level 2	irreversible	21 (62%)	5 (15%)	8	34
	reversible	23 (72%)	8 (25%)	1	32
Level 3	irreversible	34	38	9	81
	reversible	44	35	0	79
Native	irreversible	50 (25%)	152 (75%)	2	204
	reversible	110	92	0	202

- Long passive:
凳子被男生踢倒了。
- Short passive:
凳子被踢倒了。
- Pseudo passive:
凳子踢倒了。

VP types in produced grammatical passives

Groups	VP types in passives			Total tokens
	RVC	V+L	V	
Level 1	22 (17%)	6 (5%)	16 (12%)	132
Level 2	33 (31%)	10 (33%)	3 (3%)	108
Level 3	104 (58%)	36 (20%)	7 (4%)	180
Native	270 (66%)	116 (28%)	1 (0%)	408

Target passives:
Answer patient-oriented questions and describe video B.

Non-target passives:
Answer patient-oriented questions, but describe video A.

- Examples of different VP types in passives.
- RVC: 跑车被（货车）撞翻了。 / 钥匙被（女生）找到了。
- V+L: 跑车被（货车）拉到门外。
- V: 跑车被（货车）撞了。

Error analysis (deaf learners in level 1 & level 2)

- Type I: wrong VPs in passives

  E.g. *凳子被倒了。

  *盒子被破了。

  *女生被男生晕了。

  *女生被男生晕倒，躺下。

  *箱子被男生拿到放在桌子上。

  *男生被女孩追跑抓到了。

  *跑车被大巴车拉去到门里。

Use of intransitive verbs

Use of serial verbs ?

Error analysis (deaf learners in level 1 & level 2)

- Type II: S-V-O-Vresult (non-passives)
  - *男生抱着小熊放下沙发。
  - *男生抱娃娃放在沙发上。
  - *男生拿着箱子放在桌子上。
  - *脚撞凳子摔了。
  - *男生踢凳子摔倒了。
  - *男生推女生坐着椅子去进电梯。
  - *男生推她坐去电梯。

Interim summary (EP task)

- Regardless of conditions (reversible & non-reversible), advanced deaf learners' productions of passives are near-native, as well as the use of VP types in passives;

- Deaf learners with low Chinese proficiency
  - produce much less passives, especially target passives;
  - Prefer to use long passives;
  - Make a lot of errors in passives and non-passives;

DISCUSSION

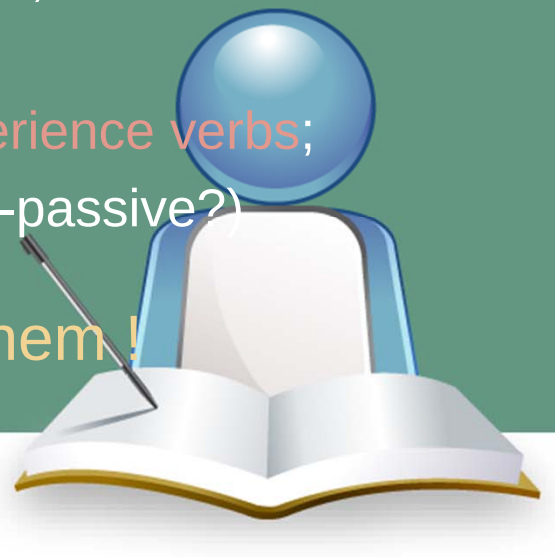
Language impairment?

- Of the 20 deaf learners in level 1 and level 2:
  - 5 deaf learners who fail in comprehending passives (LP&SP) produce no passives;
  - 2 deaf learners who fail in comprehending long passives produce no passives;
  - 3 deaf learners who fail in comprehending short passives produce no short passives;

→ But they produce some pseudo passives instead;
e.g. 红茶喝光了。　钥匙找到了。

→ Perform well on short passives with object-experience verbs;
e.g. 男生被吓坏了。→男生吓坏了。(as pseudo-passive?)

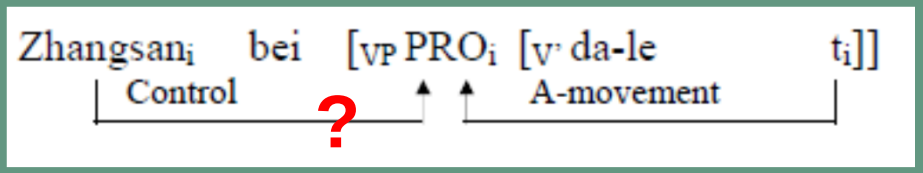
➢ A-movement may not be a problem to them !



Language impairment? (cont')

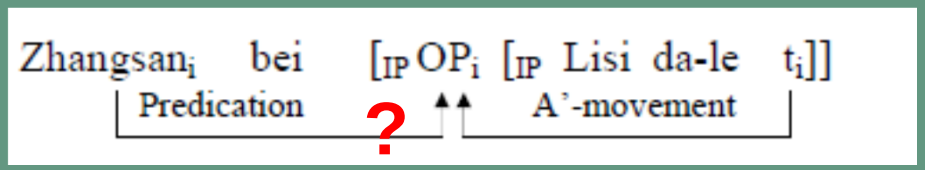
Chinese Short Passive:

E.g. 张三被打了。



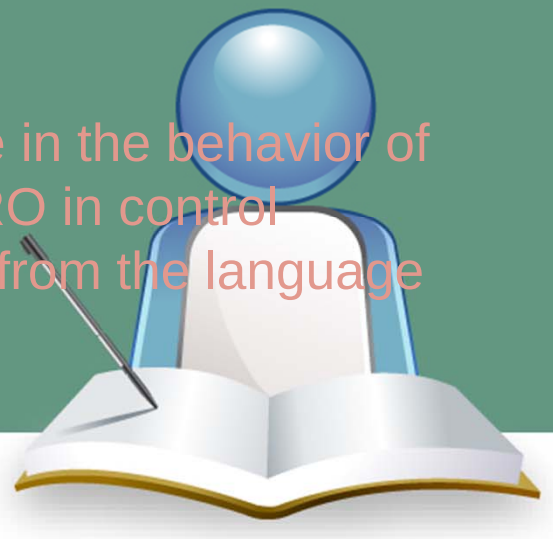
Chinese Long Passive:

E.g. 张三被李四打了。



- Deficit in its (PRO or OP) relation with the base-generated subjects???

"Explicitness seems serving as a guiding principle in the behavior of deaf learners so that 'invisible' categories, like PRO in control structures and trace in relative clause are absent from the language systems of many deaf learners." (Berent, 1988)

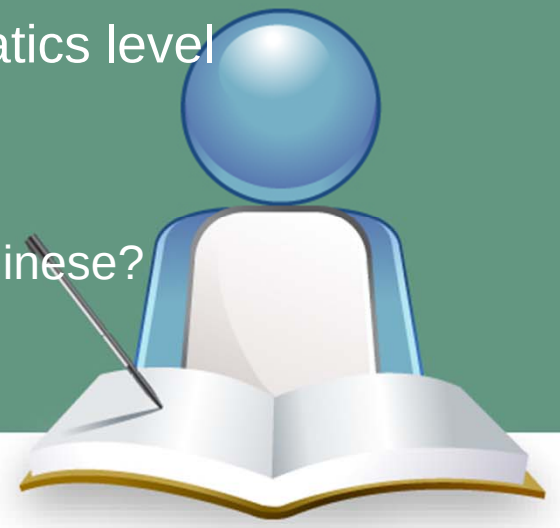


Ultimate Attainment in deaf language acquisition

With limited language input in critical period:

- Even after 10 years' exposure, some deaf learners (with low Chinese abilities) still have problems with comprehension and production of passives →suffer language impairment?

- Advanced deaf learners can achieve native-like competence in comprehension and production of passives at syntax level,
  - BUT still show different performance at pragmatics level
  - Have processing difficulties
    - Low literacy skills or word recognition abilities?
    - Activation of sign language when processing Chinese?



Selected References

- Berent, G. P. (1988). An assessment of syntactic capabilities. In M. Strong (Eds.), *Language learning and deafness*, (pp. 133-161). Cambridge, UK: Cambridge University Press.
- Berent, G. P. (1996). The acquisition of English syntax by deaf learners.Handbook of second language acquisition, 469-506.
- de Villiers, J., de Villiers, P., & Hoban, E. (1994). The central problem of functional categories in the English syntax of oral deaf children. Constraints on language acquisition: Studies of atypical children, 9-47.
- Friedmann, N., & Szterman, R. (2006). Syntactic movement in orally trained children with hearing impairment. Journal of Deaf Studies and Deaf Education,11(1), 56-75.
- Friedmann, N., & Szterman, R. (2011). The comprehension and production of Wh-questions in deaf and hard-of-hearing children. Journal of deaf studies and deaf education, 16(2), 212-235.
- Huang, C.-T., Li,Y.-H., and Li,Y. F. (2009). *The syntax of Chinese*. Cambridge, UK; New York: Cambridge University Press
- Montrul, S. A. (2008). *Incomplete acquisition in bilingualism: Re-examining the age factor* (Vol. 39). John Benjamins Publishing.
- Power, D. J., & Quigley, S. P. (1973). Deaf children's acquisition of the passive voice. Journal of Speech, Language and Hearing Research, 16(1), 5.
- Quigley, S., Steinkamp, M., & Jones, B. (1978). The assessment and development of language in hearing impairment individuals. Journal of the Academy of Rehabilitative Audiology, 11(1), 24-41.
- Wilbur, R., Goodhart, W., & Montandon, E. (1983). Comprehension of nine syntactic structures by hearing-impaired students. The Volta Review.
- Volpato, F., & Adani, F. (2009). The subject/object relative clause asymmetry in Italian hearing-impaired children: evidence from a comprehension task. Studies in Linguistics, 269.