LIGN177: Multilingualism

November 19, 2009

Language attrition

Language attrition

- **Language attrition** refers to the loss in proficiency of a language, usually an L1, due to the acquisition of another language
- Exposure to L1 can be reduced in childhood → *incomplete acquisition* of L1
- Use of L1 can be reduced in adulthood → memory loss of L1

Heritage language speakers

- Valdés (2000) – ***heritage language*** speakers are individuals raised in homes where a language other than the dominant society language is spoken and who are to some degree bilingual in the dominant language and the heritage language
- Heritage language is L1
- Acquisition was interrupted due to L2

Heritage speakers

- Often learn a non-standard dialect in the home; do not learn written variety
- Learn reduced *register* ranges:
  - ex. Korean has 6 registers, but heritage speakers usually only learn the *intimate* register (-e/-a register) and the *familiar* register (-ney), but not the more formal registers

Question:

- When you use a language in early childhood but not later, what happens to your knowledge of this language?
- Do you lose memory of the language, or just ability to retrieve it?

Syntax

- Heritage speakers show more rigid word order
- Korean has SOV word order but also allows OSV order in some constructions – Heritage Korean has only SOV
- Spanish allows some VS order (*Sufren los niños ' the children are suffering')*, but heritage Spanish show far less frequent use of variable word order

Syntax

- German allows for *one* verb following the subject – the main verb goes at the end:

  Du *sollst* eine Matraze kaufen
  You should one mattress buy

- In subordinate clauses, both verbs appear sentence-finally in order main-auxiliary
  …..daß du eine Matraze kaufen *sollst*
  that you one mattress buy should

- Heritage German keeps auxiliary verb in position of main clauses:

- ….daß du *sollst* eine Matraze kaufen
  that you should one mattress buy

Morphosyntax

- Heritage speakers show collapsing of categories
- Russian heritage speakers collapse 3 gender system to 2 gender
- Case system gets simplified - single plural case -ax

	Heritage	**Standard Russian**
'without sleeves'	bez rukav-ax	bez rukav-ov (genitive)
'behind the benches'	za skamejk-ax	za skamejk-ami (instrumental)
'for children'	dlja detj-ax	dlja det-ej (dative)

Phonetics

- Pronunciation of L1 shifts due to acquisition of L2
- Heritage Armenian vowels are different than standard Armenian or English
- Mandarin speakers' /u/ and /o/ vowels are further ***back*** in both languages than Heritage Mandarin speakers or English learners – Heritage speakers show larger differentiation of Mandarin /u/ and English /u/

Two studies on Korean

- Oh, Jun, Knightley, Au (**2003**). "Holding on to childhood language memory," *Cognition* **86**
  - childhood Korean speakers who switched to English → 'heritage speakers'
- Ventureyra, Pallier, Yoo (2004) The loss of first language phonetic perception in adopted Koreans. *Journal of Neurolinguistics* **17**
  - Adoptees who were cut off from exposure to Korean, learned French

Oh, Jun, Knightley, Au

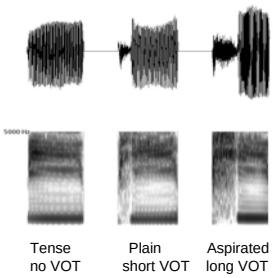
- Study investigated perception of contrast in Korean 'stop' consonants
- Korean has a three-way contrast in stops (three kinds of 'p' 't' 'k')
  - Unaspirated stops (like French in 'pain')
  - Aspirated stops (like English in 'pan')
  - Tense or fortis stops

Stimuli used

Korean (Seoul dialect)

Unaspirated	Fortis	Aspirated
pul 'fire'	p*ul 'horn'	pʰul 'grass'
tal 'moon'	t*al 'daughter'	tʰal 'mask'
kɨn 'weight of measure'	k*ɨn 'rope'	kʰɨn 'large'
t͡ʃa 'ruler'	t͡ʃ*a 'salty'	t͡ʃʰa 'tea'
sal 'flesh, fat'	s*al 'uncooked rice'	

Spectrograms showing Voice Onset Time (VOT) differences



4 groups – all UCLA students

- Novice learners (no childhood exposure)
- Childhood hearers (regular hearing, but minimal speaking)
- Childhood speakers (sharp drop in speaking after age 7)
- Native speakers (regular speaking throughout life)

Phoneme perception task

- How well can they hear these contrasts?
- Subjects hear word, choose which word it is.

How did they do?

Table 3

Phoneme perception task: percent correct responses (with standard errors) by group

Novice learner	61.3 (3.4)[a]
Childhood hearer	88.3 (4.4)[b]
Childhood speaker	89.4 (2.9)[b]
Native speaker	98.6 (3.1)[b]

Overall results: Perception

Childhood hearers
Childhood speakers
Native speakers

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Novice learners

Phoneme production task

- How well can they pronounce these contrasts?
- Subjects read words aloud.

How did they do?

Table 4
Phoneme production task: mean VOT (with standard errors) in milliseconds by group

	Aspirated	Plain	Tense
Novice learner	68 (8)	57 (9)	47 (9)
Childhood hearer	64 (17)	36 (9)	33 (19)
Childhood speaker	109 (5)	75 (9)	29 (8)
Native speaker	97 (5)	78 (5)	11 (1)

How reliably could they make the contrasts?

Table 5
Phoneme production task: pair-wise *t*-statistics for VOT contrasts by group

	Consonant pair		
	Aspirated–plain	Aspirated–tense	Plain–tense
Novice learner	0.90	1.77	1.76
Childhood hearer	1.96	1.68	0.14
Childhood speaker	5.33*[a]	10.18*	4.14*
Native speaker	4.73*	17.72*	12.01*

* $P < 0.01$.

Overall results: Production

Native speakers
Childhood speakers

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Childhood hearers
Novice learners

Did they sound like native speakers?

- Eight native speakers listen and judge.

1 = definitely non-native

5 = definitely native

Did they sound like native speakers?

Table 6
Phoneme production task: mean accent ratings (with standard errors) by group

Novice learner	1.90 (0.16)[a]
Childhood hearer	2.56 (0.28)[a]
Childhood speaker	3.30 (0.17)[b]
Native speaker	4.59 (0.13)[c]

Overall results: Accent judgment

Native speakers

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Childhood speakers

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Novice learners, Childhood hearers

Ventureyra, Pallier, Yoo

- All previous studies involved speakers who had some minimal input throughout childhood and early adulthood, not complete cut-off
- Adoptees receive no additional 1st language input after adoption
- Does this make a difference?

Adoptees?

- Previous research suggests no recognition of Korean words, sentences for this group
- No brain activation with fMRI for listening to Korean as opposed to other unknown languages – performed like native French speakers
- What about phonology?
- Is there any sensitivity to Korean left?

Subjects

- 18 Korean adoptees raised in French-speaking environment
- Age of adoption – between 3 and 9 years
- Age at testing – 22-36 years old
- Reexposure to Korean –
  - 9 – nothing
  - 9 – some vacation time in Korean
- Control group: 12 native Korean speakers, 12 native French speakers

Materials

- Pseudowords
  - kima, k'ima, t^hama, suma, etc..
- Pairs of words
  1. Words were same (P)
  2. Words had different first vowel (DV)
  3. Initial consonant plain vs. tense (DC1)
  4. Initial consonant plain vs. aspirated (DC2)
  5. Initial consonant tense vs. aspirated (DC3)

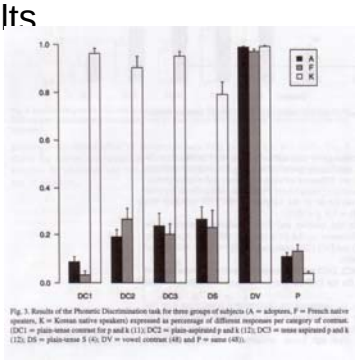
Procedure

- Phoneme discrimination

AX task - Are the two words same or different?

Sound 1	Sound 2
Sound 1	Sound 2

Results



Results

- Native Koreans performed significantly better than French speakers and Adoptees
- ***No difference between native French and Adoptees***, except for slight advantage for DC1 category (plain vs. tense) - this was the category that was the most difficult for both French and Adoptees
- Reexposure was only advantageous for DC3 (tense vs. aspirated) – the small vs. large VOT

Overall conclusion

- Adoptees perform like native French speakers rather than like native Koreans
- Almost no advantage from earlier exposure to Korean
- Is this due to cut-off?

Discussion

- *Social situation* – continued exposure in the Oh et al study versus this one
- *Reexposure and formal instruction* – in the other studies subjects had received formal instruction in Korean or Spanish – in this study they had only had short trips to Korea
- Subject with the best perfomance was the only one to have had a Korean language class
- Extensive reexposure appears to be essential in recovery of phonetic discriminatory ability

Critical period?

- Age of adoptees ranged up to 9 years old
- Suggests plasticity in the language processing system
- If L1 disappears completely, neural plasticity is reset to L2