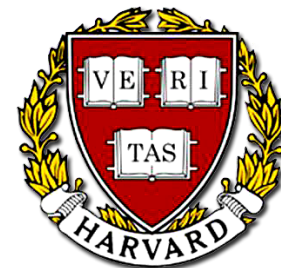


# Workshop on Bilingualism and Language Acquisition

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**EARLY BIRDS**



**HAVE WORDS**

# SETTING THE STAGE

- Obvious: Early child bilingualism is important
- What happens when child bilingualism is not given enough room to develop?
- A child bilingual develops into a *heritage speaker*

講繼承語的人

**INTRODUCING HERITAGE SPEAKERS**

## HERITAGE LANGUAGE SPEAKER (HS)

- A person who grew up hearing (and possibly speaking) a language, who can understand and perhaps speak it to some degree, but who now feels more at home in another, more dominant language

# HERITAGE SPEAKERS ARE A SIGNIFICANT PRESENCE

- About 30% undergrads in North American colleges are heritage speakers (Kagan & Dillon 2007, Carreira & Kagan 2009)
- In California, this percentage is even higher
- At Harvard, over 70% students taking Chinese are heritage speakers
- Given the demographic patterns and globalization, the phenomenon of heritage language is not going away (LoBianco 2010)

# HERITAGE LANGUAGE (HL)

- A language that an individual is exposed to during childhood, usually in the home, that s/he does not learn to “full capacity”
- Learning is interrupted by the switch to a different dominant language
- Terminological point: the language of exposure is the **baseline**,
  - **baseline is not necessarily the same as the standard** language—because heritage speakers usually have no schooling (Polinsky 2000, Polinsky & Kagan 2007)

# HL IS LIKE L1...

- Early exposure to language
- Naturalistic setting (auditory input)
- Good control of features acquired early in life (phonology, everyday lexicon, some structures)
- Developmental errors



# HL IS DIFFERENT FROM L1

	HL	L1
Abundant continuous input	<b>x</b>	✓
Successful and complete outcome of acquisition	<b>x</b>	✓
Complex grammatical & pragmatic structures (associated with schooling)	<b>x</b>	✓

# HL IS LIKE L2...

- Varying amount and scope of input
- Resulting grammar is incomplete
- Developmental errors and transfer effects
- Variable proficiency
- Fossilized errors

# HL IS DIFFERENT FROM L2

	HL	L2
Late exposure to language	x	✓
Problems with phonology (“accent”)	x	✓
Instructed setting	x	✓
Experience with literacy	x	✓

# HERITAGE ENGLISH



**Tammy  
Tamasugarn**

Okay, everybody always thought like I grown up in States, but actually no. I was born in States, and when I four I moved back to Thailand with parents and I grown up in Thailand. So I definitely Thai. Everything, the culture, everything Thai. But I also know also American culture also because part of my family also in L.A.

# SOME OBSERVATIONS

- High fluency...
- Damaged morphology
- Missing functional elements (*a, the, be*)
- Multiple redundancies and repetitions
- Short segments, no embeddings
- Word order different from the baseline

**HERITAGE SPEAKERS ARE BILINGUALS**

# HERITAGE SPEAKERS ARE BILINGUALS

As bilinguals, they have multiple advantages:

- Linguistic and meta-linguistic benefits
- General cognitive benefits
- Access to multiple cultures
- Future advantages in the job market



How strong is their linguistic advantage?

# ADVANTAGES IN RE-LEARNING

- Adult heritage speakers who have not used their heritage language for a while have a distinct advantage in re-learning it
  - Phonological advantage
  - Lexical advantage



# ADVANTAGES IN RE-LEARNING: PHONOLOGY

- Perception of contrasts in the heritage language
  - Hindi—Tees & Werker 1984
  - Korean—Oh et al. 2003
  - Spanish—Au et al. 2002, Knightly et al. 2003
- Production
  - Korean—Oh et al. 2003, Jun et al. 2006,
  - Spanish—Knightly et al. 2003

# ARE THERE ADVANTAGES IN RE-LEARNING BEYOND PHONOLOGY?

- No apparent advantages (Spanish and Korean heritage speakers, low proficiency—Au et al. 2002, 2008; Oh et al. 2003, Knightly et al. 2003; Montrul 2006; Russian—Polinsky 2008)
- Small advantages in morphosyntax (Au et al. 2008, Flege et al. 1999), for speakers with better proficiency (childhood **learners**)

# INTERIM SUMMARY

- Heritage speakers are bilinguals, hence they are expected to show advantages of bilingualism
- However, they only show selective advantages in phonology and specific lexical areas

**WHY ARE THE ADVANTAGES SELECTIVE?  
OR: WHY DO HERITAGE SPEAKERS  
STRUGGLE WITH GRAMMAR?**

# POSSIBLE REASONS FOR SELECTIVITY

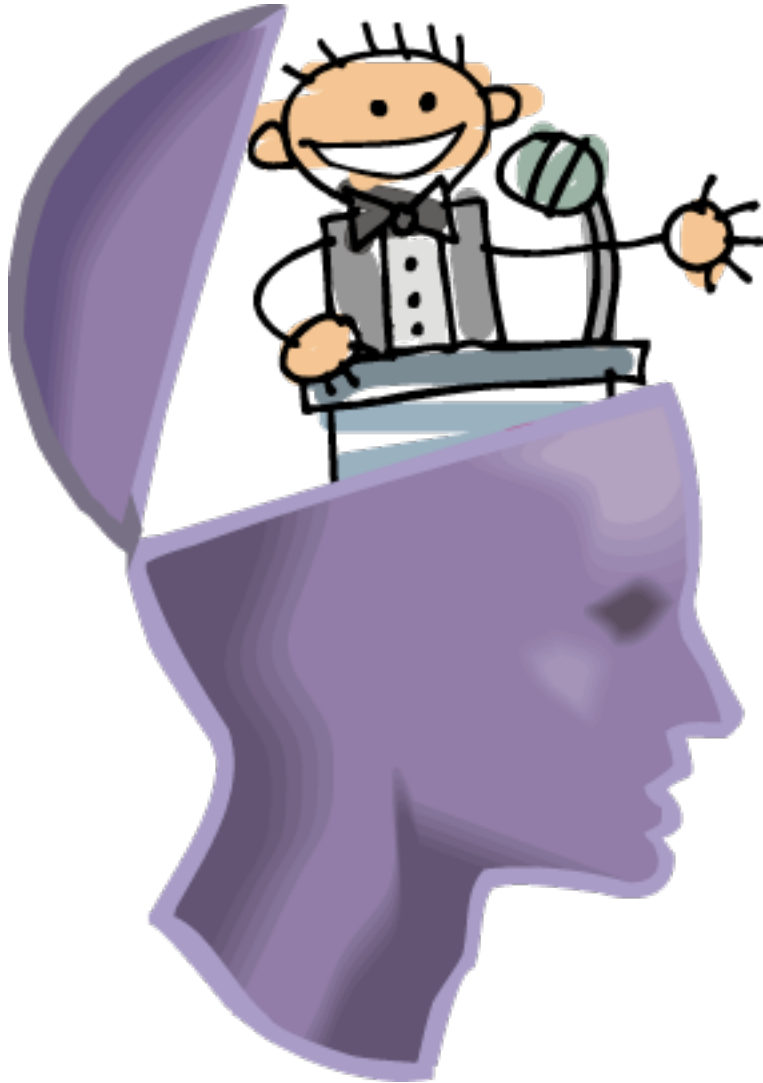
- INCOMPLETE ACQUISITION: The grammatical system has not been fully learned
- ATTRITION: The grammatical system undergoes attrition

# DISTINGUISHING INCOMPLETE ACQUISITION FROM ATTRITION

Do child learners (*future heritage speakers*) and adult heritage speakers have the same morphosyntactic deficits?

- If a child and an adult deviate from the baseline in the same way, **the feature has not been acquired**
- If a child and an adult perform differently, **the feature has been acquired but lost/reanalyzed**

# INCOMPLETE ACQUISITION: A CHILD IN THE HEAD



Adult heritage language  
= fossilized child  
language, with the level  
of fossilization roughly  
corresponding to the  
age of interruption?

# SOME EXAMPLES

- Absolute construction in Spanish (Montrul 2006)
- Long distance agreement in Hindi
- Palatal consonantal declension in Russian



# ADULT HERITAGE GRAMMAR IS DIFFERENT



adult incomplete  
grammar undergoes  
attrition and is  
different from the  
“initial state”  
represented by  
heritage child  
grammar

# RELATIVE CLAUSES

*the dog that the cat is chasing is old*



# RELATIVE CLAUSES

Universal preference for subject relatives over object relatives

The reporter

[ who ( \_\_ ) attacked the senator ]  
admitted the error.

*is preferred over*

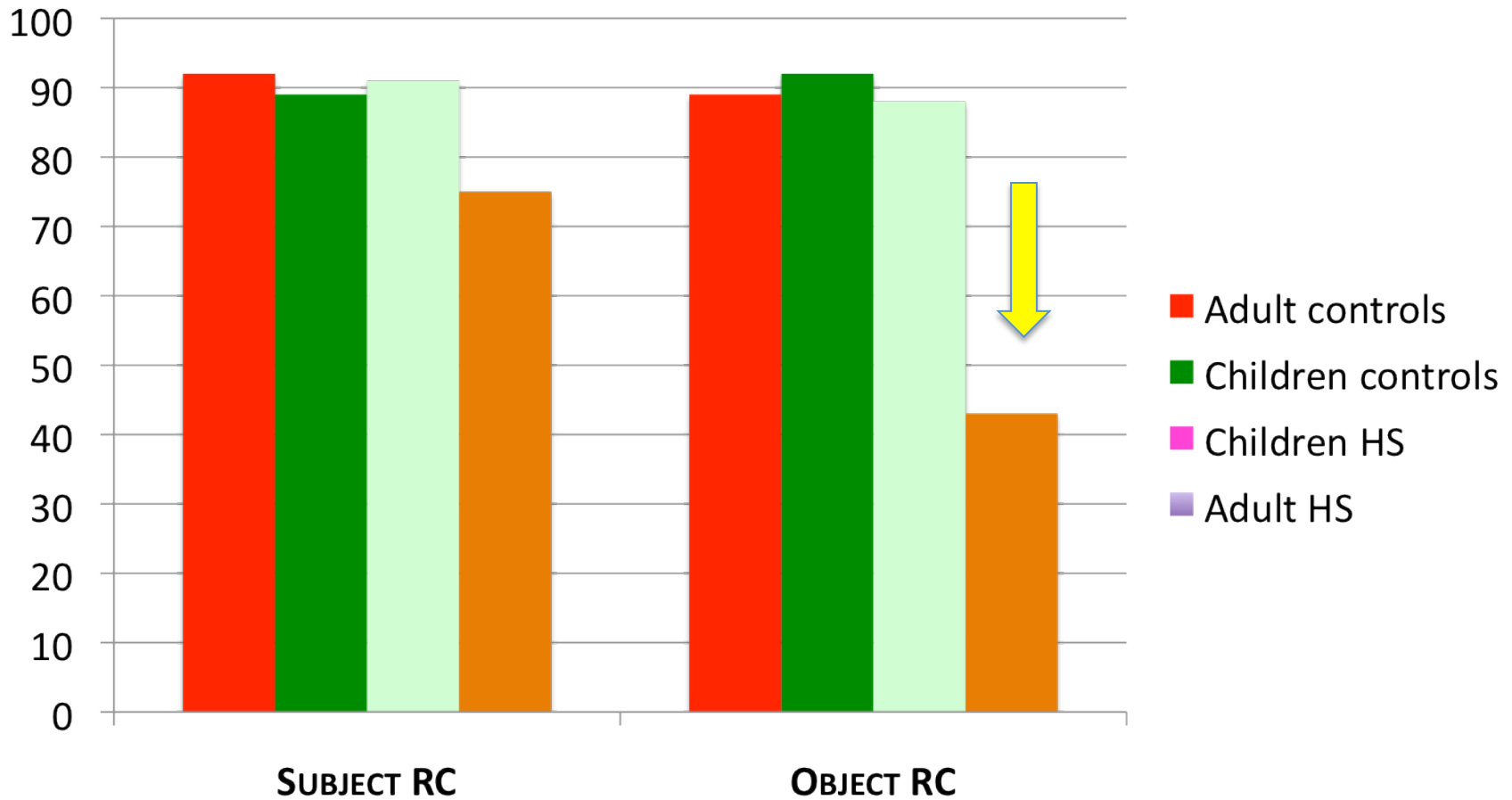
The reporter

[ who the senator attacked \_\_ ]  
admitted the error.

# RELATIVE CLAUSES IN ACQUISITION

- Acquired **early** (2;0-2;6)
- Universal preference for subject relatives
- Error rate (wrong head choice), ages 4-6:
  - English : 10%-13% (multiple studies)
  - Indonesian: 11% (Tjung 2006)
  - Mandarin Chinese: 3.9% (Hsu et al. 2006, 2009)
  - Turkish: 4% (Slobin 1985)
  - Russian: 3.7%-4.2% (Fedorova 2005, Polinsky 2008)

# OBJECT RELATIVE CLAUSE COMPREHENSION: % TOKENS CORRECT, KOREAN



Adults (C/H): 17/21, age 24; children (C/H): 6/23, age 7

*Frog, where are you?*

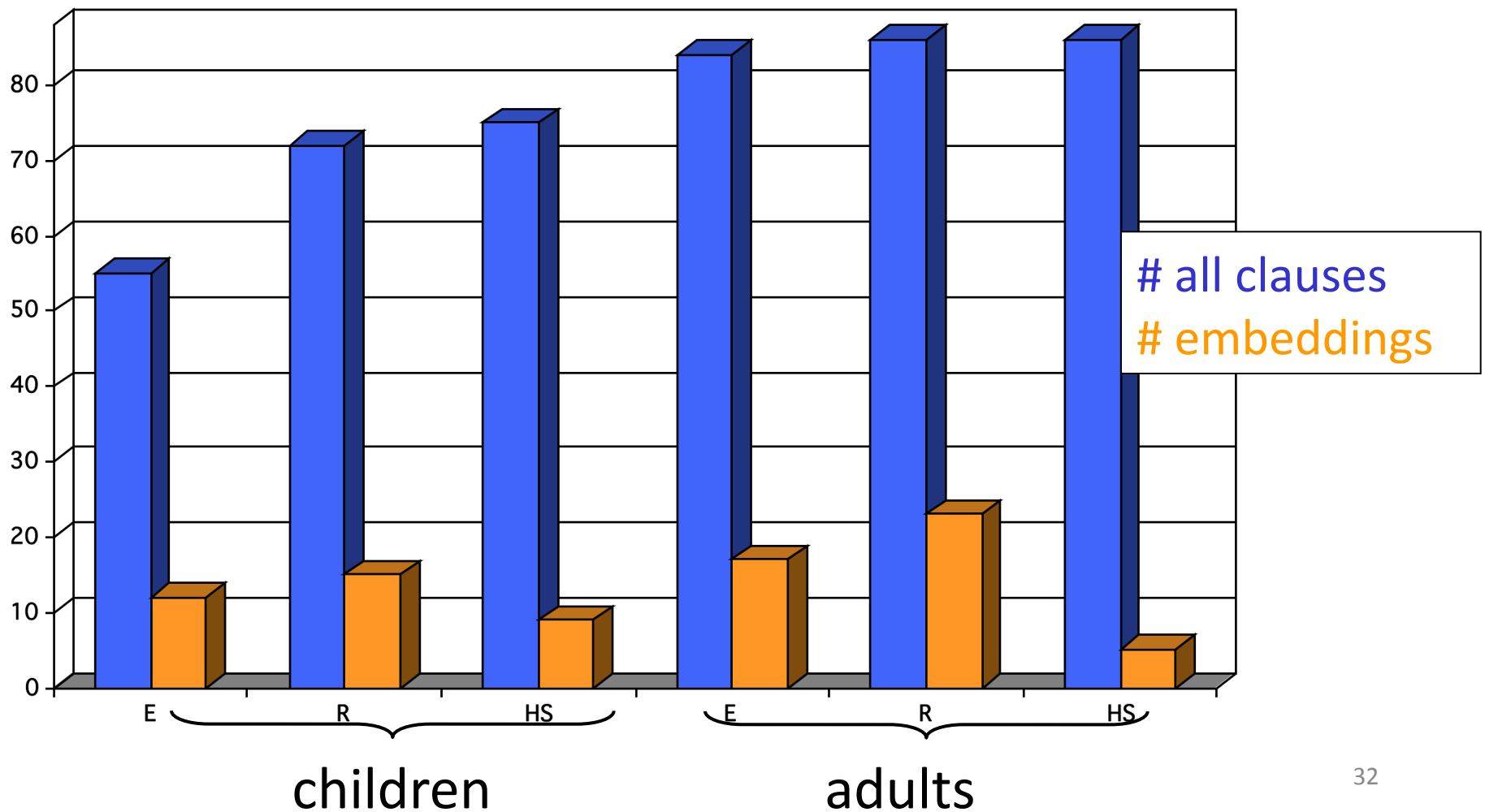


# Frog story telling

Subjects, Russian/English:

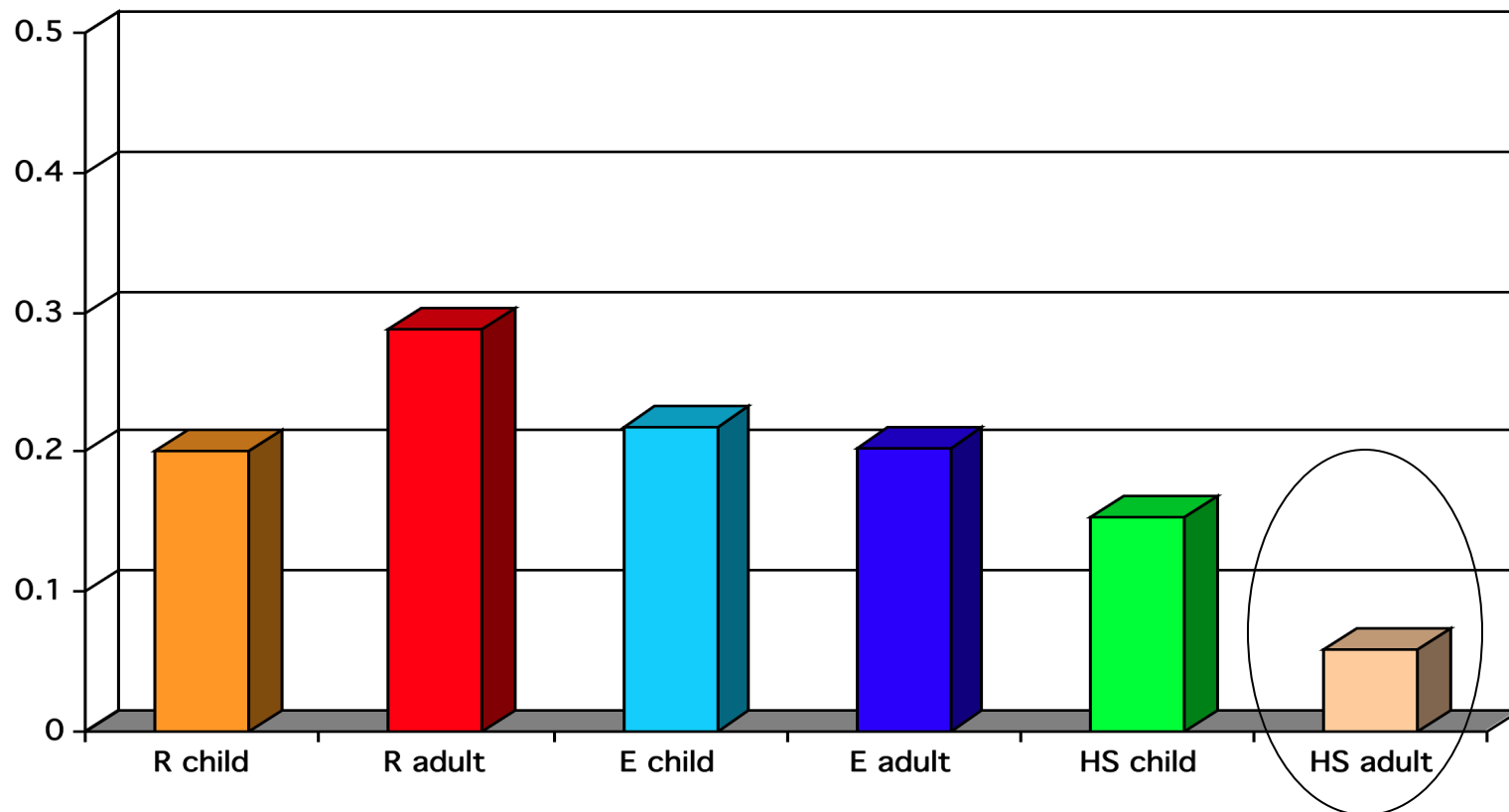
- *Baseline controls*
    - Adults
    - Children
  - *Heritage*
    - Adults (n = 15, age 27)
    - Children (n = 21, age 9;1)
- } Dan Slobin's data

# Frog story: Average number of tokens per narrative, by group





# Frog story: Ratio of embedded clauses to all clauses, by group



**HS adults:** embedded/matrix clause ratio is significantly lower than ratios in other groups ( $p < .01$ ,  $r = .71$ )

# INTERIM SUMMARY

- Production and comprehension results show a significant difference between child HS and adult HS
- Children are significantly closer to baseline than adults
- Adult HL is not simply fossilized child language



- Adult heritage grammar = fossilized child language, with the level of fossilization roughly corresponding to the age of interruption



heritage speakers  
show properties  
apparently associated  
with a divergent  
grammar (i.e.  
systematic, but  
different from that of  
native speakers)



## BACK TO WHERE WE STARTED:

... and morphosyntax  
may be  
particularly hard for  
relearning because of  
continuous reanalysis

早起者取得語言

**BUT WHY MORPHOSYNTAX?  
AND WHAT ELSE?**

## SO NOW WE KNOW:

Both incomplete acquisition and reanalysis shape adult heritage grammars

- Which grammatical features are likely to be incompletely acquired and which are acquired but reanalyzed later?
- What causes the reanalysis?

# MAPPING OUT NATURAL LANGUAGE

Which grammatical features are likely to be incompletely acquired, and which are acquired but reanalyzed later?

- An empirical problem...
- A challenge for existing theories?



# WHAT LEADS TO THE REANALYSIS?

- Hypothesis: heritage speakers ignore functional elements and light morphology (“small stuff”)

# MISSING PIECES

- Heritage speakers don't notice the small stuff
- and pay dearly for that:
  - They have relatively poor control of morphology/functional elements
  - The morphological deficits are both in **production** and **comprehension**

# DO HERITAGE SPEAKERS PRODUCE MORPHOLOGY?

- Montrul and Bowles 2008, Montrul 2008: heritage speakers of Spanish have a problem with *a* personal
- They do not seem to have a problem with heavier prepositions and particles

## DO HERITAGE SPEAKERS **HEAR** MORPHOLOGY?

- *Put the horse that's on the plate in the box*
- *Put the horse on the plate in the box*



(Sekerina 2005)

# DO HERITAGE SPEAKERS **HEAR** MORPHOLOGY?

- Heritage speakers' adversaries:
  - Inflectional endings
  - Light connectors such as *i*, *a*, etc.
  - functional elements in general

# DO HERITAGE SPEAKERS HEAR MORPHOLOGY?

- Polinsky 2007: heritage speakers of Russian do not recognize gender agreement endings in adjective and ignore word-final gender cues on nouns;
  - the sensitivity deteriorates when the endings are unstressed
  - end-stressed neuter nouns are preserved at about 70%, end-unstressed neuter nouns are reanalyzed as feminines

# KOREAN DOUBLE NOMINATIVE

- Cascading effects: Korean double nominative

민수-가      여자 친구-가      예쁘다.

Minsu-NOM      girlfriend-NOM      pretty

‘Minswu’s girlfriend is pretty.’

- The structure requires semantic (and syntactic) subordination:

*Minswu-uy chinku-ka...*

M-GEN      friend-NOM

# KOREAN DOUBLE NOMINATIVE

• Instead of interpreting the structure as subordinating, the subjects interpret it as coordinate ('Minswu and girlfriends are beautiful'), thus:

- X-ka Y-ka → X-uy Y-ka
- X-ka Y-ka → X-kwa Y



# MISSING SMALL STUFF

- Functional elements (“small stuff”) are difficult across a number of populations including heritage speakers
- Why? Two possible explanations:
  - Salience: they just don’t notice it
  - Lack of automatic access: they have no time to process it and therefore choose to ignore it

# MISSING SMALL STUFF

- In either case, heritage speakers show incomplete acquisition of functional elements, including inflectional morphology

# MISSING SMALL STUFF

Similar deficits in other populations:

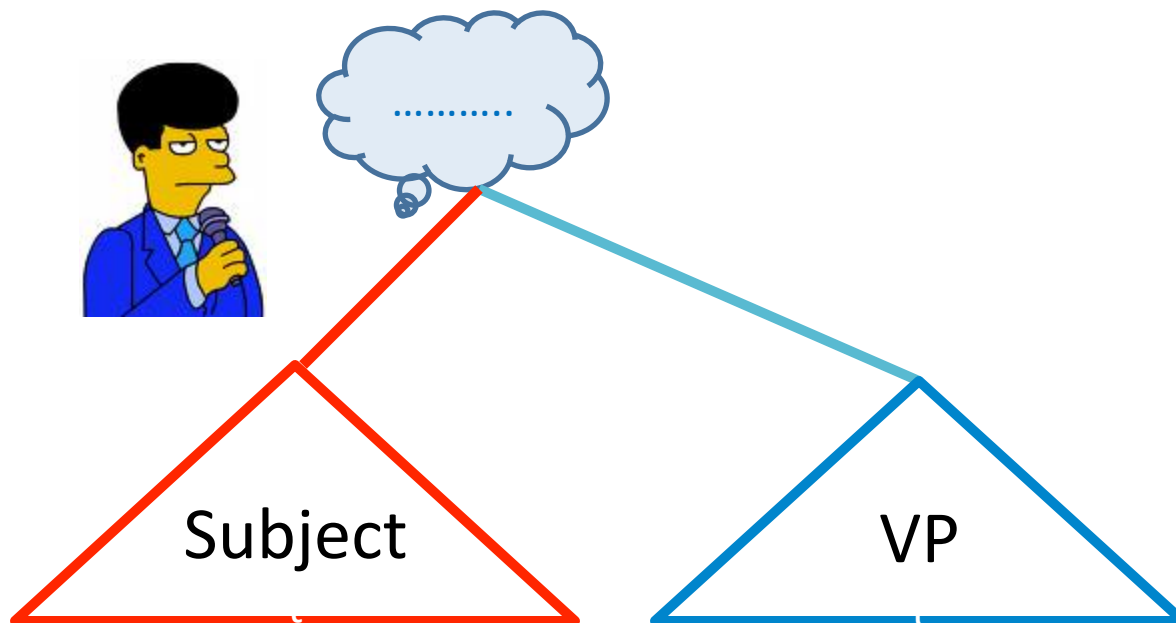
- young L1 learners
- speech impaired subjects
- aphasics

But heritage speakers are special in that they do not have the “usual suspect” deficits in their dominant grammar...

# CONSEQUENCES

- Morphological deficits force speakers into the easiest parsing available:
  - Default parsing (pragmatically plausible)
    - Usually works but breaks down under ambiguity....
  - First pass parsing (subject and predicate division without further subdivisions)

# FIRST PASS PARSING



**DONE!**

# THE NEXT BIG QUESTION

Does shallow parsing lead to

- true structural deficits
- or just to the appearance of such deficits?

# ADDRESSING THE BIG QUESTION

- optimize the conditions under which heritage speakers have to perform (e.g., give them more time, give them attentional support)
- degrade the conditions under which the controls (baseline speakers) have to perform (e.g., less time, noise, unrelated stressors)
- if there is an improvement for heritage speakers, then this is a timing problem

# BACK TO CHILDREN/ADULT HS COMPARISON

Children's performance improves under optimized conditions while heritage adults still perform poorly:

- Classifiers
- Relative clauses
- Lexical category recognition
- Reinterpretation of ambiguous case forms



## **WHAT STARTS OUT AS A TIMING PROBLEM**

- and seems to be a processing problem for heritage children
- leads to a structural reanalysis over the lifespan, hence divergent grammar in adult heritage speakers

# THEY DO END UP WITH **A** GRAMMAR



- An incomplete grammar differs from the grammar of the respective full language in a systematic, rather than random way
- Recurrent structural similarities across incompletely acquired languages

# WHAT DETERMINES THE SHAPE OF DIVERGENT GRAMMAR?

- Knowledge of lexical categorization (HS are very good at noun-verb distinctions)
- The fundamental mechanism of predication
- Transfer from the dominant language



# CONCLUSIONS

Heritage speakers show recurrent deficits in functional elements (morphology, ordering)

These deficits start appearing as heritage speakers overlook "small details" and appear to be a processing (timing) problem in child speakers

However they gradually accumulate to such an extent that they force a reanalysis which results in a coherent but divergent grammar

- Understanding the foundations of that grammar would allow us to understand the overall design of natural language better
- and will help us in theory construction

Linguist's question:

- what determines the shape of the divergent grammar in adult heritage speakers?



Educator's question:

- if we know what is different or missing, can we change or bring it back?

## FOR THE EDUCATOR:

- Heritage speakers have advantages shared with other early bilinguals
- Even passive exposure to heritage language (overhearing) is important
- Heavy exposure to heritage language is important because it can prevent the setting of the divergent grammar

**謝謝**

**Thank you very much!**