Childhood multilingualism

- Tuesday – acquisition of L1 and L2, focus on bilinguals
- Thursday – continuation, comparison with multilinguals

Bilingual child

- Child bilingual = child who learns two languages simultaneously in preschool years
- Child may learn both languages in the home
  - One parent, one language
- Child may learn one language in home, other at school
- L2 child = child learns one language first (L1), and then the other (L2)

Infant speech perception

- Results of a number of studies by Janet Werker (UBC) and others show that infants < 8 months are able to discriminate between sounds of the world’s languages even if the sounds are not found in the infants' ‘environment’ language

→ Young infants are ‘universal listeners’

Effects of language environment


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<thead>
<tr>
<th></th>
<th>English</th>
<th>Hindi</th>
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<tbody>
<tr>
<td></td>
<td>/t/</td>
<td>/ʈ/</td>
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<tr>
<td></td>
<td>/t/ vs. /ʈ/</td>
<td>(alveolar)</td>
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<td></td>
<td>/tʰa/ vs. /ʈʰa/</td>
<td>(dental and retroflex)</td>
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<td></td>
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<td>(voiceless and voiced aspirated)</td>
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Young infants are like Hindi adults

![Graph showing discrimination of sounds](image.png)
What about older infants?

- Werker & Tees tested English 4, 8, 12 year olds and found that all were poor, but 4 year olds were actually the worst at discrimination.
- Werker & Tees (1984) compared 6-8 month infants with 10-12 month infants.
- Tested Hindi and Nthlakampx (Salish).

### Discrimination in 1st year

Werker & Tees (1984) discrimination of
1. Hindi retroflex [t̪a] and dental [t̪a]
2. Nthlakampx (Salish) velar [ǩi] and uvular [q̌i]

### Summary

1. Infants adapt their perceptual abilities to the environment by the end of the 1st year.
2. Experience with the environment language causes some perceptual contrasts to be lost.
3. But, adults can be trained to discriminate sounds, and older children can acquire a new language with no accent -> ability shifts later, possibly correlated with word learning.

### Bilingual perception

- Catalan/Spanish bilinguals perception of [e] [ɛ] distinction (Bosch & Sebastián-Gallés)
- Distinctive in Catalan, not in Spanish.
- 4 months – all babies behave similarly on familiarization-preference procedure.

Bilingual infants at 8 months show differentiation from both Catalan and Spanish monolinguals.
By 12 months, Catalan/Spanish infants were performing like monolingual Catalan

Sound production

Children’s words have simple syllable structure: Consonant+Vowel – emerge around 1 year

The first consonants are typically stops (t k p b d g), nasals (n m), glides (j w)

Substitution patterns occur:

[tu] ‘shoe’  [ja] ‘light’
[pa] ‘frog’  [wi] ‘read’

First words

At the one-syllable stage, children typically produce the stressed syllable:

[win] “window”  [de] “potato”

Two syllable stage:

[dedo] “potato”

First words – consonant cluster reduction

Consonant sequences are reduced:

[koz] “clothes”  [bap] “bump”
[piz] “please”

In s-k, s-t, s-p sequences, s is not pronounced; in s-n or s-l sequences, s may be pronounced:

[gay] “sky”  [so] “snow”
[bun] “spoon”  [sip] “sleep”

Perception and production

Production lags behind perception:

Adult: Is this your school bus?
Child: Yes, my goose bus.
Adult: Your goose bus?
Child: No, my ‘goose bus’! (Rejects repeated imitations.)
Adult: I see, it’s your school bus.
Child: Yes, my goose bus.

Production

Child’s productions are a window into developmental stages of language learning

At the same time, they may be constrained by articulatory difficulties, which may mask the depth of their knowledge
**Bilingual production**

- Early differentiation of production of segments (individual sounds)
- But production difficulties that are connected to motor control show up for both languages
- Brulard & Carr (2003) report that Tom avoided initial [f s ʃ] in French/English but used different strategies
- Substitution patterns can differ - /r/ Æ [w] in English but [l] in Spanish

**Bilingual Lexicon**

- Are there two lexicons?
- Children sometimes assign different meanings to synonyms in both languages:
  - bitte (German) – familiar contexts
  - please – formal contexts
- But also translate same denotations: Imedadze (1967) Georgian/Russian child – word for ‘ball’ was ‘toy, radish, stone’ in both languages

**Lexicon**

- Children may go through an early stage where the lexicon is mixed, and then separation occurs
- Bilingual children generally have smaller lexicons in both languages compared to monolinguals (division of time exposure?)

**Bilingual children**

- Show greater metalinguistic awareness
- Separate word from referent (arbitrary nature of sound-meaning) earlier
- More adaptive problem-solving strategies

**L2 Children - sounds**

- L1 influences L2 phonology, even if learned at a young age (5-8 years old)
- However, after 1st year of exposure, children’s phonological acquisition outstrips adult learners – less foreign accent

**Is there a critical period?**

- The “classic” study says yes.
- Johnson & Newport (1989) compared English proficiency of Korean and Chinese immigrants to U.S.
  - Age of arrival ranged from 3 to 39
  - Length of residence in U.S. at least 3 years
  - Subjects tested on variety of English structures
Results:

- Clear and strong advantage for early arrivals over late arrivals
- Age of arrival before puberty
  - Performance linearly related to age
- Age of arrival after puberty
  - Performance low but highly variable
  - Performance unrelated to age

Features of critical period

- "Temporal features"
  - Heightened sensitivity through early childhood
  - Sensitivity bottoms out when full neurocognitive maturity is reached
  - Continued low sensitivity throughout adulthood

But…

- Reanalysis of Johnson & Newport suggests that cutoff point is 20, not puberty
- Birdsong & Molis (2001) got different results:

Phonology

- Flege, Munro & MacKay (1995) study of English pronunciation of vowels by 240 Italians in English-speaking Canada
- Suggests a gradual decline rather than a critical period followed by cut off