And what if you have a kid who signs? Starting this year, you have to think of her as an EL

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Bilingualism and language interaction effects

• How autonomous are languages of a multilingual?
• How exactly do two separate grammars interact in 2L1 vs. L2?
• In what ways do the languages influence each other during development?
• Any other factors involved, e.g. (bi-)modality, executive function, etc.?
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Bilingualism and language interaction effects

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Spanish + English

**bi**modal:

Mexican Sign Language + American Sign Language (ASL)
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**uni**modal:
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**bi**modal:
- American Sign Language + English
- Mexican Sign Language + German

- hearing children of the Deaf (Koda)
- children with cochlear implants (CI) growing up in Deaf families
What we know: CIs

- Unlike oral-only CIs (see an overview in Bouchard et al 2009, i.a.), bilingual CIs perform like Kodas on a variety of language tests, probing both vocabulary and morpho-syntax/phonology (e.g. PLS, EVT, DIBELS, etc.) (Davidson et al. 2013, Lillo-Martin et al. 2014, i.a.)
What we know: Codas

• They are *like* unimodal bilinguales:
  
  – Milestones for L1/2L1 and bilingual vocabulary development (cf. Brackenbury et al. 2006)
  
What we know: Coda and CI

Language interaction:

• in various domains in both spoken and signed languages: wh-questions, articles, noun-drop. (Lillo-Martin et al. 2011, Koulidobrova 2012, i.a.)

• in spontaneous production and experimental settings
What we know: Codas

• They are *unlike* unimodal bilinguals:
  
  – Sign and speech can co-occur simultaneously: **code blends**
  
  – Strong preference for **code blending** (90%) over code switching (<10%); majority (80%) of blends are congruent (Emmorey et al. 2008; van den Bogaerde & Baker 2005; Petitto et al. 2001, Emmorey et al. 2015, i.a)
What a teacher might notice...

- Spanish-English bilingual:

  *Sometimes I start a sentence in Spanish but termino in Español.*

- ASL-English bilingual child:

  Eng: *I never fall when I climb*
  ASL: CLIMB ME NEVER FALL CLIMB (Koulidobrova 2015)
What a teacher might notice...

- ASL-English bilingual adult:

  English: Are we talking [ten years ago]?
  ASL: LONG-TIME-AGO

  (Bishop, 2010, p. 232)
What a teacher might notice...

- Can use two languages at the same time!
- English may sound atypical, even for an EL:

  *Mister Conductor said* won't crashed
But wait!

Before/instead of sending the kid to a Speech Pathologist, consider:
Measure against English speakers and other bilinguals

• How do they compare in picture-naming in English?
  – Usually, Codas perform like unimodal bilinguals (Giezen et al. 2016)

• Do they sometimes whisper when they sign?
  – Normal (Petroj et al. 2014)
Unique

• If speech appears a bit slow at the onset
  – Is the kid also signing? Code-blends are usually syncronized with speech which can make speech appear atypical

• Are more tip-of-tongue situations observed when hands are moving?
  – Totally normal (but opposite from spoken language bilinguals)
Note

• They are using two languages simultaneously, which means …
  – it’s easier than inhibiting one
  – their performance might be different from spoken language bilinguals:
    • Pacing
    • More cross-language structures
    • Gestural system is taken up by another language
Bilingualism vital

• Code-blending speeds lexical access in both languages (Emmorey et al. 2012)
• Maybe even more than for spoken language bilinguals:
  – Languages are not competing for cognitive resources (reduced neural activity)
  – It’s ‘harder’ to use only one of the languages (more neural activity with English only)
Bilingualism vital

• Even though two *phonologies* do not overlap, they help one another:
  – When meaning related words are phonologically similar in a sign language, bimodal bilinguals read /find them in the text faster (Kubus et al. 2014, i.a.)

  *Bird* and *duck*
Figure 1. Examples of phonologically-related pairs of ASL signs from Morford et al. (2011) used in the A) semantically-related condition and B) semantically-unrelated condition.
Brain stuff

• Employ exactly the same neural tissue as unimodal spoken bilinguals (as in Denise’s talk), including regions responsible for auditory stimulus

• In addition (not surprising), occipitotemporal regions (visual stimulus)

• Sign-related neural tissue involved when using English prepositions – space talk
And culturally

• Like perhaps unimodal spoken language bilinguals, bimodal bilinguals who do not get support in developing L1 will soon lose the language

• Unlike unimodal bilinguals, this loss will also mean inability to communicate with parents at all – since Deaf parents are unlikely to be able to understand their children’s spoken L2
Stop!

- Codas are hearing
- CIs are deaf but have access to spoken language

How about deaf children without CI?

How to they learn English?
Unique difficulties for the Deaf

- 95% are born to hearing families
- ~15% of hearing families choose to learn to sign with the child

Miss crucial time in life when language is learned
Unique circumstances for the Deaf

If born into a signing family:

- Learns ASL typically
  - as a hearing child learns English or Spanish

- Learns written English as L2
  - learning literacy without being able to hear is possible!
  - by relying on signs directly (Morford et al, 2012, i.a.)
  - fingerspelling (Geer 2016, Henner et al. 2015, i.a)
  - bc phonological awareness does ≠ hearing!

- Often learns other sign or written languages
Unique circumstances for the Deaf

If the family does not sign:
- with or without CI, crucial time for language is passing by
- CI is not a perfect machine, so much of language is not being processed
- the only natural language possible is still a sign language

At any rate: English will never be L1; L2 strategies are still best, even if the child does not sign (Koulidobrova et al. 2017)

Bilingual education is definitely the best option here
Take-home message

Anyway you look at language education for signing children, it has to be via L2 strategies (see Dostal 2015 on cross-linguistic interactions in morpho-syntax),

not SpEd or Speech Pathology.

Let’s start building teacher capacity
thank you