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A short introduction to signed languages: features, common misconceptions, and current research

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2 July 2019

Some basic facts:

#### Basic facts

#### Myths

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#### Some basic facts:

- ▶ Most deaf children (90-95%) are born to hearing parents
  - Hearing parents typically have no access to or experience with signed languages
- Only deaf children born into deaf families (around 5%) experience 'normal' language acquisition akin to hearing children

#### Basic facts

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## **Deafness**

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Language acquisition for all children depends on early exposure to language

▶ This is not always available for deaf children...

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# The deaf experience

...is extremely varied. Every situation is different!

### **Deafness**

## The deaf experience

...is extremely varied. Every situation is different!

- ▶ Differences in degree of hearing loss
  - mild, moderate, severe, profound
- Differences in language exposure as children
  - early exposure to signed languages, late exposure, no exposure
- Different onsets for deafness
  - ▶ from birth, later acquired hearing loss

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## **Deafness**



- ▶ Different degrees of support
  - early childhood interventions, speech and language therapists, community groups, schools, etc.
- ▶ Differences in group identity
  - hearing culture, Deaf culture, or some of both?

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Because most parents of deaf children are not deaf, many choose to integrate their children into the hearing world.



This may involve:

- Assistive technologies (hearing aids, cochlear implants)
- Specialised educational programs (these vary in degree of 'oral' focus)

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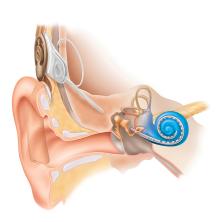
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# Learing the environmental language

### Cochlear implants:

- Strip of electrodes implanted into cochlea itself
- Turns sounds into electrical pulses that stimulate auditory nerve
- Processor attached magnetically to outside of skull
- Examples of CI filtered speech



(Wikimedia, Seslami)

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Cochlear implants are highly controversial, and not always effective.

- ▶ Benefits:
  - If implanted early, may vastly increase spoken language abilities
  - ► About 30% of kids implanted early show age-appropriate language skills
  - ► Could allow integration into main hearing culture

#### Basic facts

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Cochlear implants are highly controversial, and not always effective.

### Benefits:

- If implanted early, may vastly increase spoken language abilities
- ► About 30% of kids implanted early show age-appropriate language skills
- Could allow integration into main hearing culture

### Drawbacks:

- ► Major brain surgery on infants (3+ months)
- Possible risk of complications
- May not provide major benefits
- Less motivation to learn a signed language, participate in Deaf culture

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Signed languages are universal.



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# Signed languages

Signs vary across languages, just like words do:



'TREE'



Danish SL



Chinese S

Examples of different sign language pairs: http://www.spreadthesign.com/

# **Origins**

Where do signed languages come from?



In some cases, they generate spontaneously:

- ► A community has a large population of deaf individuals
- ► They all need a way to communicate
- ► A sign language is invented by the community, naturally
- As it is passed along to other users, it changes and grows into a fully functioning language

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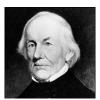
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In other cases, a language is imported after contact with a community of users

- American Sign Language (ASL) is historically related to French Sign Language (LSF)
- New Zealand Sign Language and Australian Sign Language (Auslan) both evolved from British Sign Language (BSL)



Laurent Clerc (1785 – 1869)

Once adopted, these languages change and grow just like any natural language!

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British Sign Language is just gestured English, or pantomime. It's not a 'real' language.



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Signs can be broken down into smaller parts, just like words:

- Words are composed of linear string of sounds
  - ► Types of sounds: vowels, consonants, etc.
  - Grouped into syllables
  - ► Order of sounds and syllables matter!

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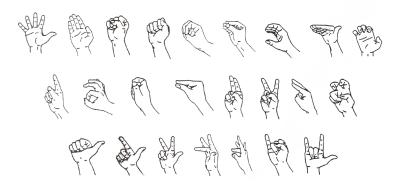
- Words are composed of linear string of sounds
  - Types of sounds: vowels, consonants, etc.
  - Grouped into syllables
  - Order of sounds and syllables matter!
- Signs are composed of simultaneously articulated features:
  - Handshape
  - Location in space
  - A path of movement
  - ▶ Palm orientation (in some cases)

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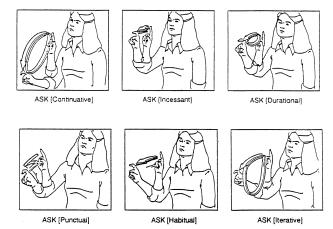
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# **Properties**

### Movement contrasts can be grammatically relevant:



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(Emmorey et al., 1995)



# **Properties**

Spatial relationships in signed languages are quite unique!

Grammatical marking of subject / object relationships:







TEACH (you)

(Hou & Meier, 2018)

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# The degree to which a word or sign represents some real-world semantic or physical property.





(Vinson, Thompson, Skinner & Vigliocco, 2015)

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Salient



Non-salient



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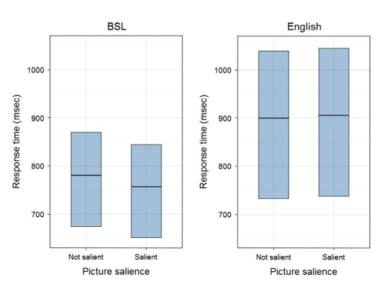
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# **Properties**

Experiment: Does the sign match the picture?



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# Myth #3

Deaf children need to choose between sign or speech; they can't do both. (Or: they need to focus only on speech, signing is a distraction.)



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- Delaying first language access has life long consequences
- Kids exposed to a signed language early learn it just like hearing children learn any spoken language
- Learning two languages simultaneously isn't unusual it's called bilingualism

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# Language acquisition

### Reflexive crying (from birth):

 Primarily instinctual sounds of discomfort



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## Reflexive crying (from birth):

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### Cooing and laughter (1 - 5 months):

- Triggered by social interaction
- Mostly vowel sounds



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### Reflexive crying (from birth):

 Primarily instinctual sounds of discomfort

# Cooing and laughter (1 - 5 months):

- ► Triggered by social interaction
- Mostly vowel sounds

# Vocal play (4 - 6 months):

▶ Back consonants first ([k], [g]) then front consonants ([m], [n], [b], etc.)



# Language acquisition



Babbling (6 - 10 months):

- At first with repeated *syllables* ([nununu], [dadada])
- Then wider range of sounds in combinations ([dabuga], [babaga])

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# Language acquisition



Babbling (6 - 10 months):

- At first with repeated *syllables* ([nununu], [dadada])
- Then wider range of sounds in combinations ([dabuga], [babaga])

First words (12 - 18 months)!

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# Acquiring signed languages

#### Deaf children:

- Do engage in vocal play, cooing and laughter
- Do not babble (in a spoken language)
  - Failure to babble in spoken language is a sign of hearing loss
  - Some parents may not find out until this point that their child is deaf

 Deaf babies exposed to a signed language do babble (in sign!)



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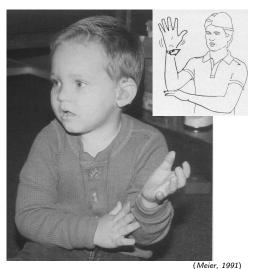
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# Acquiring signed languages

### First signs:

- Appear around12 months
- Show phonological errors, just as with speech (e.g., 'tee' for 'tree')



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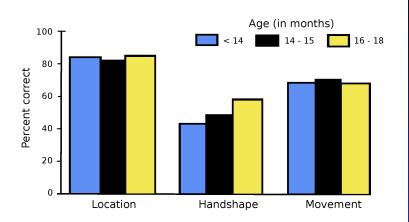
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# Acquiring signed languages

Certain parameters are easier than others to learn:



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(Siedlecki & Beonvilian, 1993)



When a signer first starts learning a signed language has lifelong effects on sign abilities!

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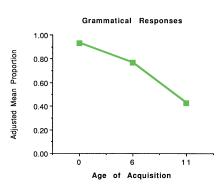
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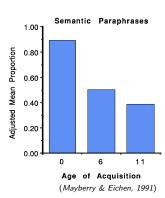
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# Age of acquisition

When a signer first starts learning a signed language has lifelong effects on sign abilities!

We see behavioural differences in sign language abilities as adults:





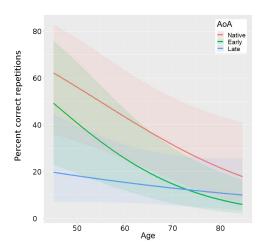
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We also see this in sentence repetition abilities in older signers:



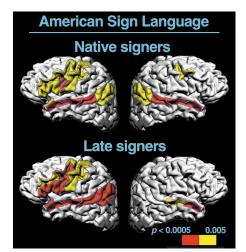
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(Corina et al., submitted)



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### Accessible language is critical

Without early access to an accessible language, *any* language acquisition is endangered. There are lifelong consequences to delaying first language acquisition.

# Accessible language is critical

Without early access to an accessible language, *any* language acquisition is endangered. There are lifelong consequences to delaying first language acquisition.

# Sign languages are natural languages

They develop in the same way as spoken languages, are acquired in the same way by native speakers, and serve all same needs for a signer as a spoken language would.

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Thank you!