Are signed languages real languages?

Language Myths and Realities

July 18

Signed 'languages'?

- Can a signed 'language' (manual articulation, visual transmission) possibly have the same sort of complexity, systematicity, and expressive power as a spoken one (vocal tract articulation, auditory transmission)?

- Does such a system have features or capabilities that are not observed in spoken languages?

American Sign Language

- Signed language used in the United States, Canada (excluding Quebec and Nova Scotia), and parts of Mexico.
  - Not all deaf individuals use ASL
  - ASL is not used exclusively by the deaf
- Strongly associated with Deaf ethnic identity and cultural heritage.

Deaf ethnicity

- Ethnicity as defined by National Council of Social Studies:
    - Origins that precede or are external to the state (e.g., indigenous or immigrant groups)
    - Group membership that is involuntary
    - Ancestral tradition rooted in shared sense of peoplehood
    - Distinctive value orientations and behavioral patterns
    - Influence of the group on the lives of its members
    - Group membership influenced by how members define themselves and how they are defined by others.
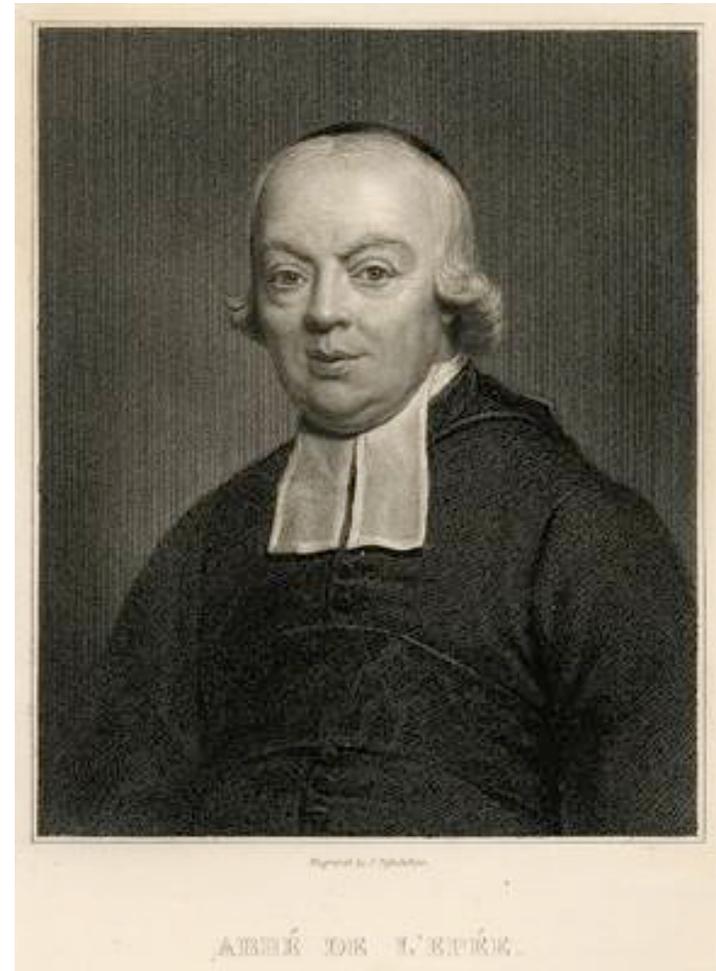
American Sign Language

- ASL plays an extremely significant role in the identification of an individual as a member of (American) Deaf culture:
  - The cochlear implant debate
  - Gallaudet University protests (1988, 2006)

History

- Before 18th Century:
  - Deaf people in general unable to learn language
  - Viewed as 'dumb' and not recognized as persons under the law
  - Limited to most menial work
- Things changed in mid-18th Century France….

History

- Abbé de l'Epeé: discovered that a community of deaf people in Paris had developed a language.

- Formed school in 1755 to teach French and FSL to deaf.

ABBÉ DE L'EPÉE.

History

- The Abbé died at the beginning of the French Revolution, but 2 years later the new National Assembly recognized him as a 'Benefactor of Humanity' and declared that the deaf have rights according to the Declaration of the Rights of Man and the Citizen.
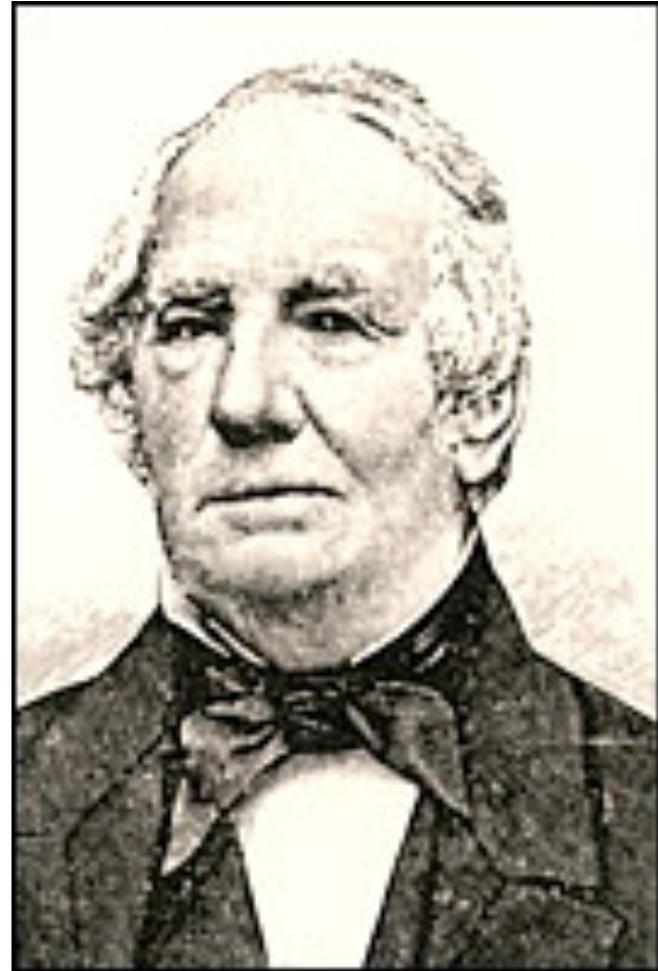
History

- In the early 19th Century, Thomas Gallaudet went to England and France to find a way to teach a deaf child.

- England was oralist: deaf required to learn English; signing suppressed.

- France was manualist: deaf trained in French and FSL, using FSL as first language.

History

- Gallaudet persuaded Laurent Clerc, a Deaf man, to return to the United States.

- In 1817, they established the Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons (now American School for the Deaf, Hartford CT).
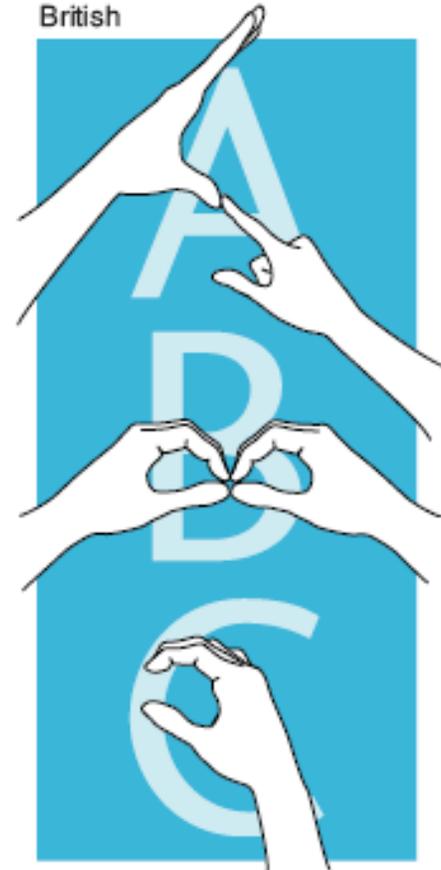
History

- ASL is therefore a member of the 'French Sign Language Family'; others include Irish SL and Québecois SL (LSQ).

- Other sign languages have developed that are <u>not</u> mutually intelligible:

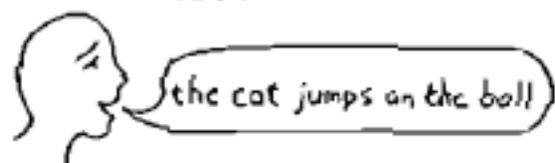 – Israeli SL, Taiwanese SL, British SL

SL diversity

Signed vs. spoken language
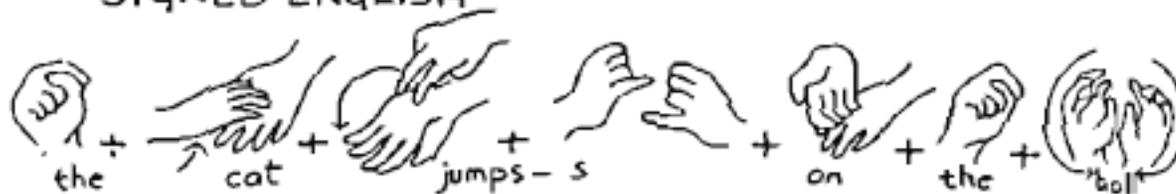
- Neither ASL nor BSL is a form of 'signed English', though such systems do exist.

ENGLISH

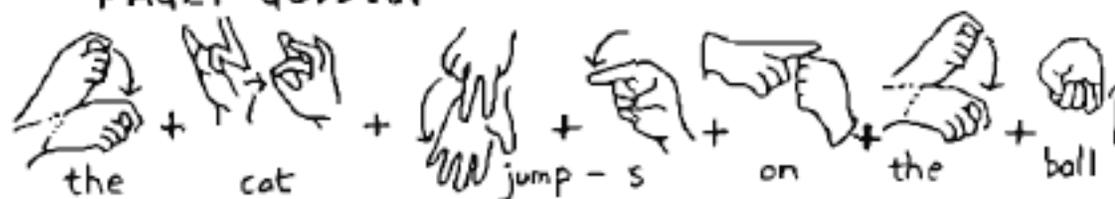the cat jumps on the ball

SIGNED ENGLISH

the + cat + jumps – s + on + the + ball

PAGET-GORMAN

the cat jump – s on the ball

BRITISH SIGN LANGUAGE

ball cat jump

Figure 13.5   Sign systems (Kyle and Woll 1985: 248)

Signed vs. spoken language

- Neither ASL nor BSL is a form of 'signed English', though such systems do exist.

- Instead, ASL (and other signed languages) is a distinct linguistic system.

- But does it have the same 'universal design features' that have been posited on the basis of years of study of spoken languages?
  - Arbitrariness
  - Systematicity
  - Compositionality
  - Discreteness/combinatoric patterning

Iconicity

- Does the perceptible form of a sign match up with the object or action being represented?
  - ASL is more iconic than spoken language, but its iconicity is limited.
  - Moreover, when we take a close look at ASL signs, we can see that they have building blocks that are formally comparable to the building blocks of the corresponding units in spoken languages: words and morphemes.

English phonology

- In a spoken language, phonemes combine to create meaning differences:

z   i   p

s   i   p

t   i   p

English phonology

- Phonemes are bundles of 'distinctive features', which regulate various aspects of articulation:
  - Place of articulation: ALVEOLAR, VELAR, LABIAL
  - Manner of articulation: STOP, FRICATIVE, VOWEL
  - Voicing: VOICED, VOICELESS

z i p

Place of articulation   **Alveolar**

Manner of articulation   **Fricative**

Voicing   **Voiced**

s i p

Place of articulation   **Alveolar**

Manner of articulation   **Fricative**

Voicing   **Voiceless**

s i p

Place of articulation | **Alveolar**

Manner of articulation | **Fricative**

Voicing | **Voiceless**

t i p

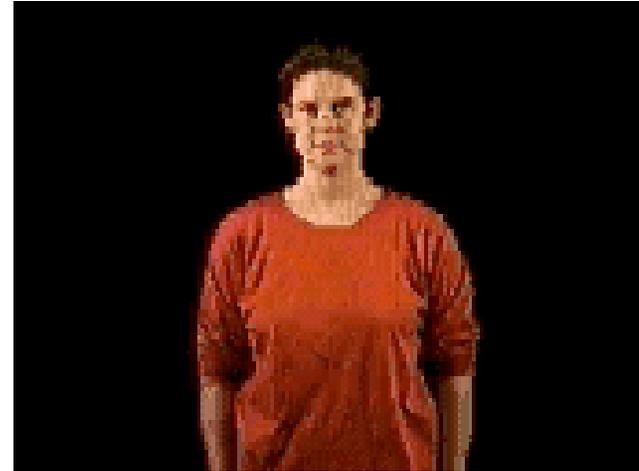Place of articulation | **Alveolar**

Manner of articulation | **Stop**
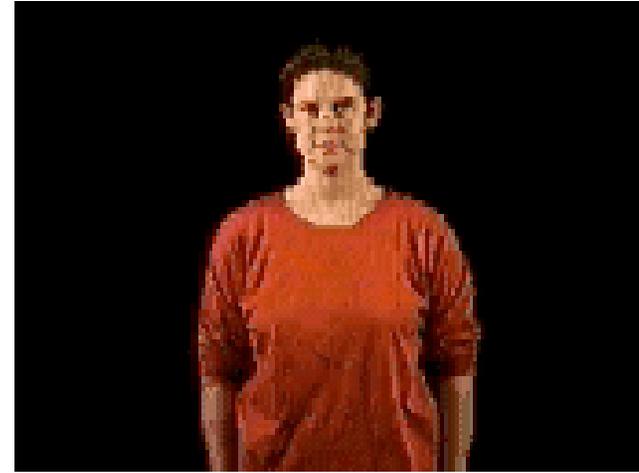
Voicing | **Voiceless**

ASL minimal pairs

ASL minimal pairs

APPLE

CANDY

- **Handshape**

ASL minimal pairs

ASL minimal pairs

LIKE

WHILE

- **Handshape**
- One vs. two hands

ASL minimal pairs

ASL minimal pairs

THING   CHILDREN

- **Palm orientation**

ASL minimal pairs

ASL minimal pairs

LUNCH
L + EAT

LESBIAN
L + (female)

- **Location**
- **Palm orientation**

ASL minimal pairs

ASL minimal pairs

SOCK

STAR

- **Location**

ASL minimal pairs

ASL minimal pairs
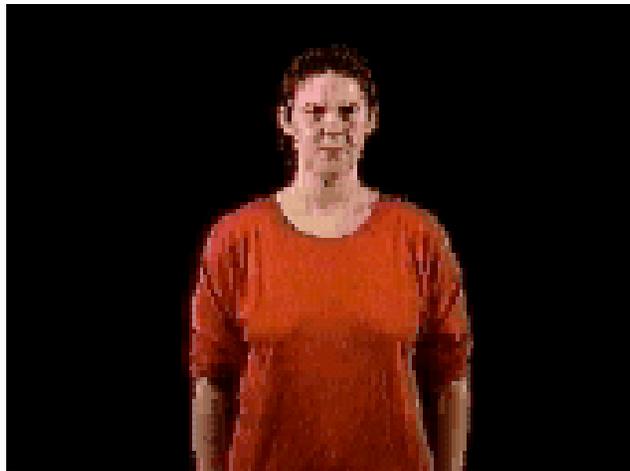

MOTHER

FATHER

- **Location**
- **Movement type**

ASL minimal pairs

ASL minimal pairs

WAIT   FIVE

- **Location**
- One vs. two hands

ASL minimal pairs

ASL minimal pairs

| PAPER | CHEESE | SCHOOL |

- **Movement type**

Distinctive features in ASL

- Signs in ASL can similarly be broken down into four basic components:
  - Handshape
  - Location
  - Movement type
  - Palm orientation
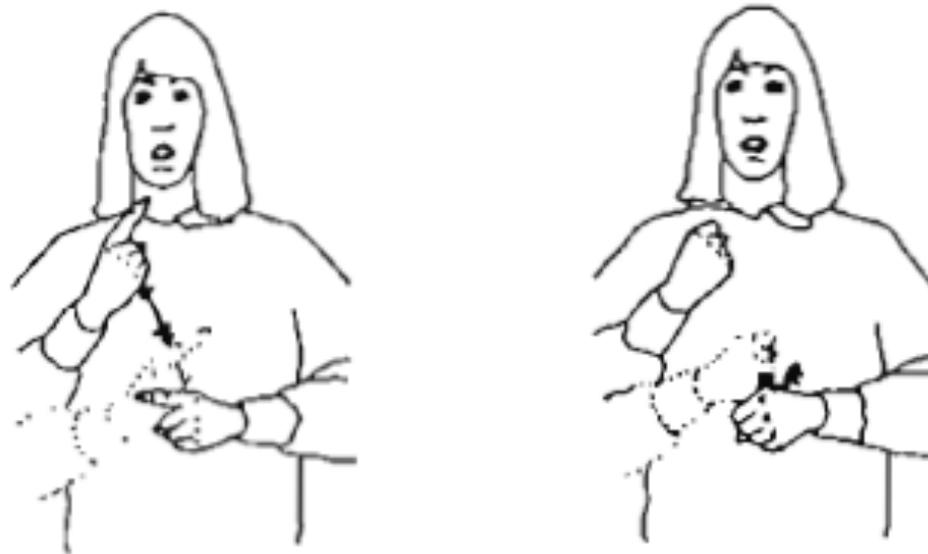
A BSL minimal pair

Figure 13.1   BSL signs for TALK/MAKE. Both signs are made in front of the chest (location) with the same movement (right hand taps left hand) and orientation (palm facing signer); only the handshape used to make the signs is different (index finger extended from a closed fist vs closed fist) (Kyle and Woll 1985: 91)

Syntax

- But what about syntax? Do sentences of ASL have structure? Are they organized in the same way as sentences of spoken languages?

- Can they be <u>ungrammatical</u>?
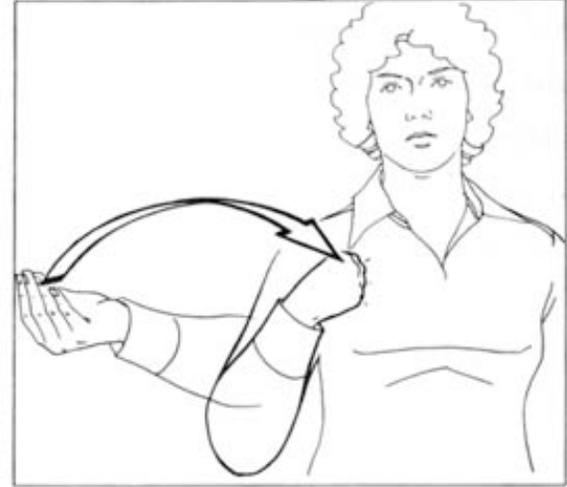
Pronouns and verb morphology

- At first glance, the pronominal system appears to indicate some fundamental differences between signed and spoken languages.
  - Multidimensionality
  - Use of spatial orientation to convey meaning (iconically and noncompositionally?)
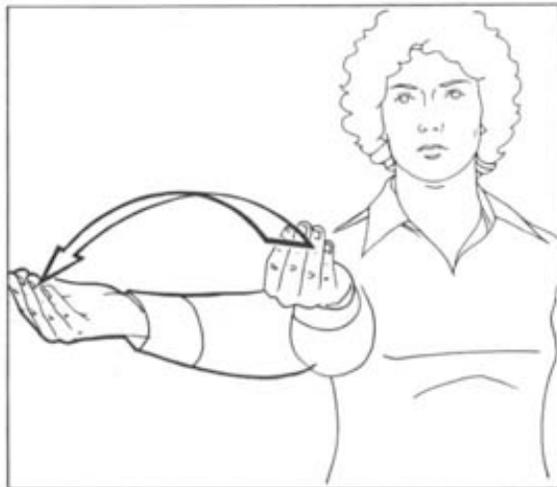
me-**GIVE-TO**-*you*

me-**GIVE-TO**-*him/her*

s/he-**GIVE-TO**-*me*

you-**GIVE-TO**-*me*

you-**GIVE-TO**-*him/her*

s/he-**GIVE-TO**-*you*

Multidimensionality

- The manual mode facilitates multidimensionality, but this is also a property of spoken languages:
  - Prosodic information (tone, intonation, focus)
  - Templatic morphology (Arabic, Hebrew…)

(1) a. kataba 'he wrote'
    b. kattaba 'he caused to write'
    c. kaataba 'he corresponded'
    d. takaatabuu 'they kept up a correspondence'
    e. ktataba 'he wrote, copied'
    f. kitaabun 'book (nom.)'
    g. kuttaabun 'Koran school (nom.)'
    h. kitaabatun 'act of writing (nom.)'
    i. maktabun 'office (nom.)'

The spatial dimension

- Pronominal reference involves the assignment of spatial coordinates to discourse entities.

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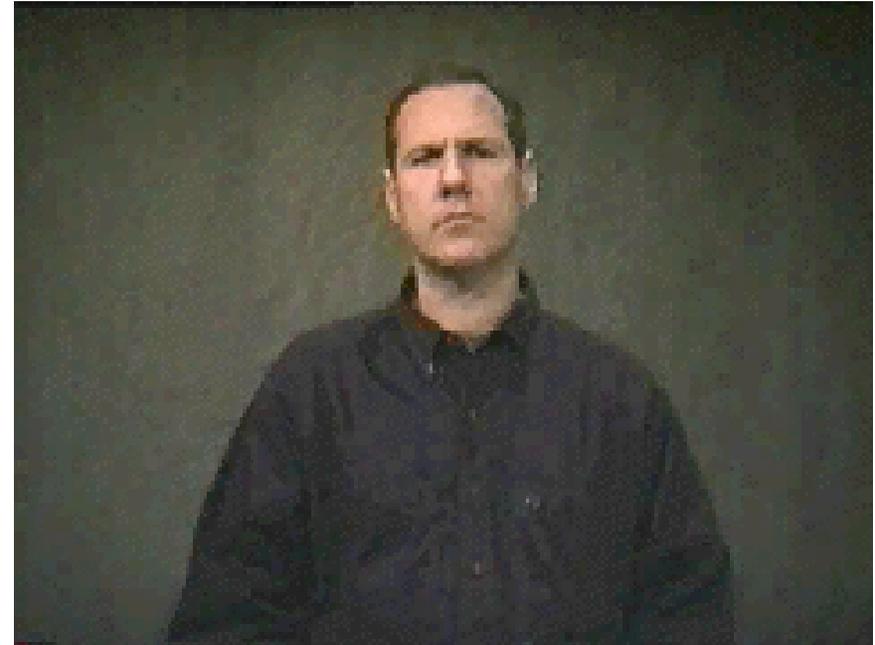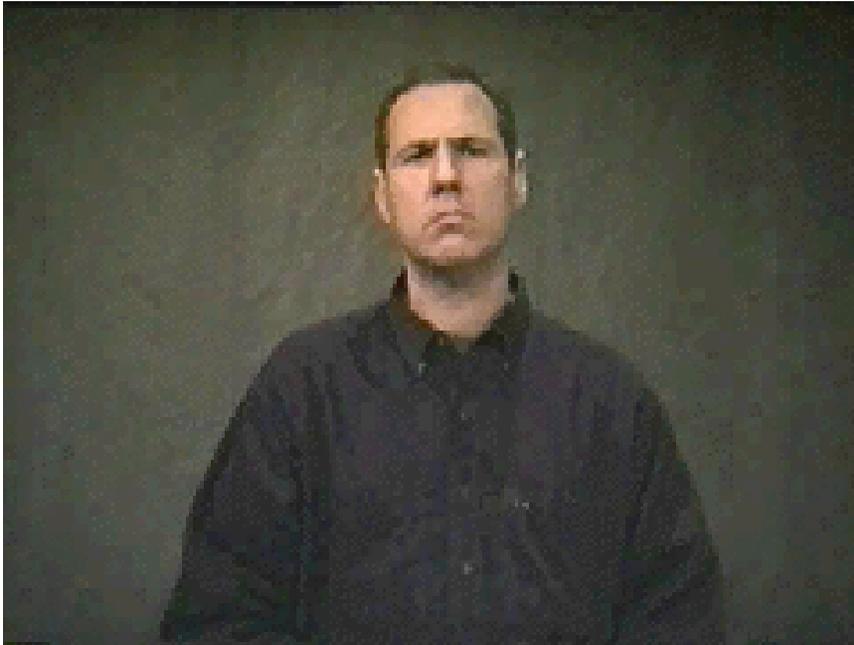1   104086
49351

JOHN LIKES HER HIM HER

Pronouns

- But even pronouns have compositional (and arbitrary) structure:

  - Extended index: NOMINATIVE/ACCUSATIVE

  - Flat hand: POSSESSIVE

  - Simple point: SINGULAR

  - Arc movement: PLURAL

Wh-questions

- Wh-questions in ASL have two interesting features:

    - Wh-words appear on the right-periphery instead of the left-periphery

    - They require 'wh-intonation', realized through nonmanual syntactic markings (furrowed brow, slight headshake), which can target just the wh-phrase or spread across the <u>sentence</u> to which it is adjoined.

WH-questions

TEACHER EXPECT Ø PASS TEST <u>WHO</u> <u>TEACHER EXPECT Ø PASS TEST WHO</u>

*TEACHER EXPECT <u>Ø PASS TEST WHO</u>

Wh-questions

[$_{S1}$ TEACHER EXPECT [$_{S2}$ Ø PASS TEST $_{S2}$] $_{S1}$] <u>WHO</u>

Wh-questions

[$_{S1}$ TEACHER EXPECT [$_{S2}$ Ø PASS TEST $_{S2}$] $_{S1}$] <u>WHO</u>

[$_{S1}$ <u>TEACHER EXPECT</u> [$_{S2}$ <u>Ø PASS TEST</u> $_{S2}$] $_{S1}$] <u>WHO</u>

Wh-questions

[$_{S1}$ TEACHER EXPECT [$_{S2}$ Ø PASS TEST $_{S2}$] $_{S1}$] <u>WHO</u>

[$_{S1}$ <u>TEACHER EXPECT</u> [$_{S2}$ <u>Ø PASS TEST</u> $_{S2}$] $_{S1}$] WHO

[$_{S1}$ TEACHER EXPECT [$_{S2}$ <u>Ø PASS TEST</u> $_{S2}$] $_{S1}$] <u>WHO</u>

Wh-questions

- In many languages, 'wh-words' can either appear sentence peripherally or *in situ*:
  - Ton ami partira quand?   *French*
    'When will your friend leave?'
  - Quand partira ton ami?
- The same is true in ASL, though the *in situ* structure <u>requires</u> spreading of wh-intonation across the clause that includes the wh-phrase.

WH-questions

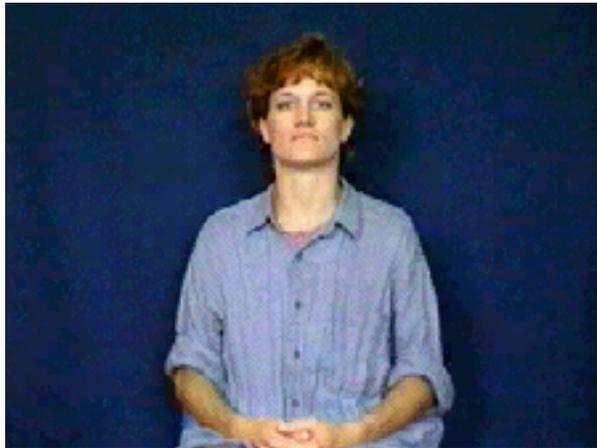HATE JOHN WHO   HATE JOHN WHO   WHO HATE JOHN

*WHO HATE JOHN
*WHO HATE JOHN

WH-questions

J SEE YESTERDAY WHO   J SEE YESTERDAY WHO   J SEE WHO YESTERDAY

*J SEE WHO YESTERDAY
*J SEE WHO YESTERDAY

SL and UG

- These are only a few simple examples, but they suffice to show that ASL has grammatical complexity and systematicity that is parallel to that of spoken languages.

- The fact that we see this <u>despite</u> the significant difference in modality suggests that there are are deep and unique properties of language at work here: could it be Universal Grammar?

- What can sign languages tell us about the UG Hypothesis?

Nicaraguan Sign Language

- Prior to 1970s, no education for deaf children in Nicaragua and little contact.

- First school for special education founded in1977.

- First groups of students developed system of signs to communicate.

Nicaraguan Sign Language

- New generations learned system from older children, but added sophistication and more complex and systematic patterns.

- 800 speakers today of fully formed (though still evolving) sign language.

- Newest generations have highest degree of competence!

Nicaraguan Sign Language

- NSL provides a unique opportunity both to observe language genesis, and to investigate questions about the principles underlying language design and acquisition.

Encoding motion

- A case study (Senghas et al): motion.
  - Manner of motion
  - Path of motion
- Spoken languages encode these concepts discretely:
  - twirl down, descend twirling, etc.
- The manual mode of NSL allows a nondiscrete, multidimensional lexicalization of such concepts.
- But it doesn't do this: in contrast to gesture-augmented Spanish, manner and motion are discrete.

Manner and motion experiment

- Subjects watched short cartoons and were then asked to describe what happened.

- Four different groups:
  - Hearing, native Spanish speakers
  - First, second and third generation NSL speakers

- Spanish and first generation NSL combined manner and motion

- Second and third generation NSL separated manner and motion

Manner and motion: Spanish
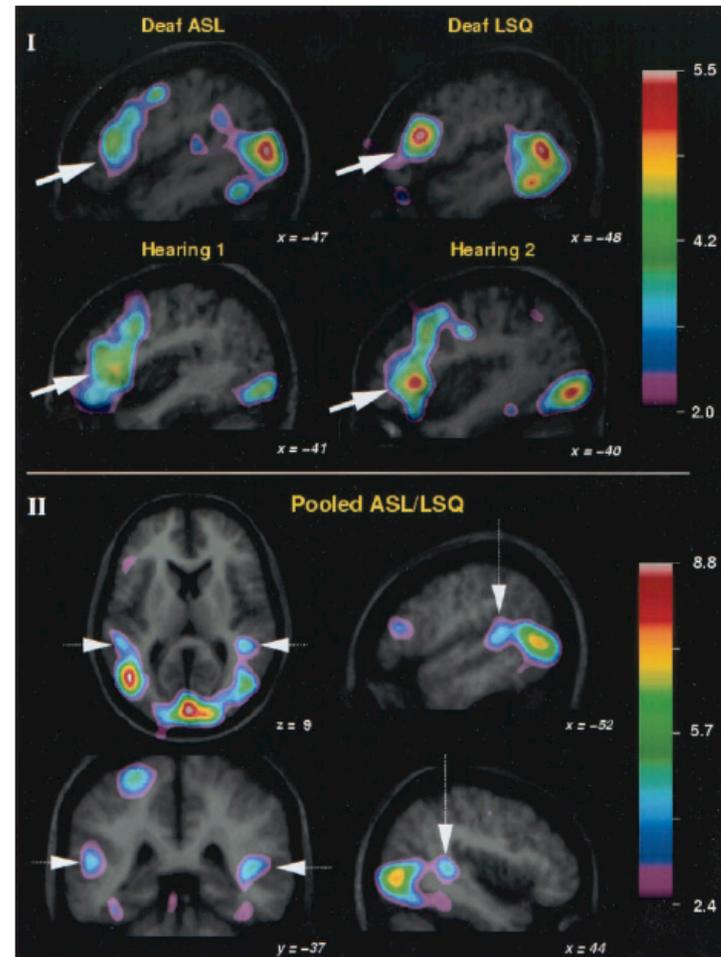
Manner and motion: NSL

Language universals?

- Senghas et al: "The elements chosen for segmentation may reveal the very primitives that children are predisposed to seek out as basic, grammatical units."

- <u>NB</u>: Other studies (by Goldin-Meadow, McNeil and colleagues) have found that non-speech gestures inevitably combine aspects of motion events (figure, manner, path) into single gestures.

Sign language and the brain

- Speakers of SLs show language deficits similar to those of spoken lgs in cases of left hemisphere trauma.

- In a brain imaging study, Pettito et al. showed that SLs activate same areas of left hemisphere as spoken languages – <u>not</u> the right hemisphere areas involved in visual cognition.
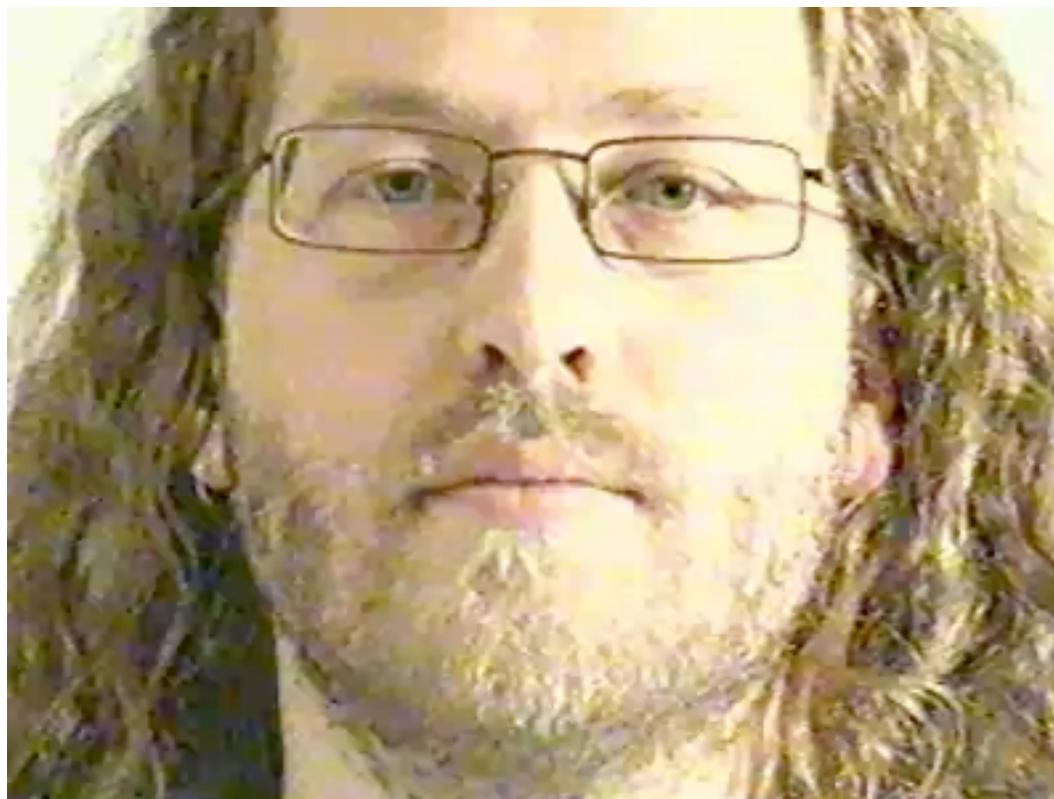
Imagine the wonderful social scene in a crowded bar under X-ray cinematography, with tongues flying in all directions as a hundred different conversations proceed. What is happening as each speaker's tongue gyrates wildly, as the lips open and close, the velum rises and falls, the pharynx expands and contracts, and the jaw moves up and down? Adjectives are placed beside the nouns they modify; subjects, verbs, and objects are aligned in the right order; question words are placed in initial position; pronouns are put in the nominative or objective case according to their function in the sentence; verbs are put in a form that expresses tense and (in the present tense) whether or not the subject is third person singular. These and many other conventions of English grammar are being followed so that meaning can pass from one mind to another. Through a complex chain of events, these grammatical conventions result in movements of the tongue and other articulators whose 'virtuosity' can be appreciated under X-ray cinematography. In exactly the same way, sign languages' grammatical conventions result in the articulations of the hands, face, and body that Sacks called 'spatial virtuosity.' In speech the articulators' 'virtuosity' occurs in the vocal tract, where it is hidden from view. In sign it is out in the open—in 'space'—where it can command the attention of those who are unaware of what goes on in speech.

Articulatory virtuosity

There is a strong parallel between the two phenomena. What seems extraordinary in sign may lead us to appreciate how extraordinary speech is. The miracle is neither sign nor speech per se. The miracle is language.

Motor theory

Motor theory

Conclusions

- Sign languages have the same kind of structural complexity, systematicity, and expressive power as spoken languages (a familiar refrain).

- They perform the same social and cultural functions as spoken languages, serving as central vehicles of group identity, pride and achievement.

- They also provide unique insight into the workings of the human linguistic system, as well as an important lesson: the vehicle is not as important as the design.

Enjoy the rest of your summer!