Sign language

Ling 001 - Fall 2014

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Sign languages

- Visual-spatial languages used by communities of Deaf people
- Ethnologue lists 130 Deaf sign languages throughout the world
- No universal sign language!
How do sign languages arise?

- Spontaneous emergence
  - Home sign
  - Village sign

- Some examples
  - Nicaraguan Sign Language
  - Al-Sayyid Bedouin Sign Language
  - Martha’s Vineyard Sign Language

- Comparable to the emergence of pidgins and creoles
Iconicity and arbitrariness, 1

All human languages consist of

• Symbols (= form-meaning pairs)
• Rules for possible forms (= phonology)
• Rules for combining symbols into larger meaningful units (= morphology, syntax)
Iconicity and arbitrariness, 2

- In spoken languages, the form of symbols is mostly arbitrary (onomatopoeia is marginal).
- In sign languages, iconicity plays a bigger role.
- But even here, iconicity has its limits.
  - It underdetermines the form of signs.
  - Over time, it is lost.
TREE - Chinese Sign Language
TREE - Danish Sign Language
TREE - American Sign Language
Limits of iconicity - Synchronic

- All three signs invoke the physical shape of the tree (= iconic).
- But the shape is invoked in different ways (= arbitrary), and the sign is fixed for each language (= conventional).
- The signer cannot decide to use a different sign – no matter how iconic.
- In other words, conventionality (and to some extent, arbitrariness) trump iconicity.
Limits of iconicity - Diachronic

- Iconicity is lost over time.
  - HOME was a compound of EAT + BED.
  - In the current citation form, the handshape of BED has assimilated to that of EAT.
  - Current vernacular forms exhibit further articulatory reduction, making them even less iconic.
- Comparable processes are found in spoken language.
  - cup + board $\rightarrow$ cupboard (cubberd)
  - some + thing $\rightarrow$ somethin’ $\rightarrow$ sumpm
Sign language and the brain, 1

- Brain studies provide incontrovertible evidence that sign languages are not pantomime.
- Visual and spatial functions are processed by the right hemisphere of the brain.
- But sign languages are processed by the left hemisphere, just like spoken languages.
Sign language and the brain, 2

fMRI study (Sakai et al. 2005:1411) shows activation in the left hemisphere for hearing and Deaf subjects
Sign language and the brain, 3

- Damage to right hemisphere results in visual-spatial deficits.
  - Inability to create or even copy recognizable drawings
  - Failure to notice objects in the left part of the visual field (hemispatial neglect)
- But production and understanding of sign language is unaffected.
Sign language and the brain, 4

- Damage to the front part of left hemisphere results in Broca’s aphasia.
- Production is labored, broken, and simplified.
- But comprehension remains intact.
- No general motor control deficit (e.g., no difficulty drawing an elephant)
Sign language and the brain, 5

- Deaf Broca’s aphasics produce partial errors resulting in nonsense words.
- Correct location and movement for FINE, but wrong handshape
Damage to back part of left hemisphere results in Wernicke’s aphasia.
- Fluent but nonsensical production
- Comprehension difficulties
- Same symptoms for hearing and Deaf
American Sign Language, 1

- Not English expressed in signs!
- Used in U.S. and anglophone Canada
- Historically unrelated to British Sign Language, and completely distinct (no shared history)
American Sign Language, 2

- Historically related to French Sign Language (used in France, francophone Canada, and much of continental Europe)
- Brought to the U.S. in the 1800s by a French teacher of the Deaf
- Influenced by Martha's Vineyard Sign Language and possibly other village sign systems
- Also reflects contact with English (diglossia)
Linguistic levels

Signed languages exhibit the same patterning and level of complexity as other languages of the world.

- Phonology
- Morphology
- Syntax
- Sociolinguistics
Phonology - Components of signs

- Handshape
- Location
- Movement
- Palm orientation
- Non-manual features
Unmarked handshapes, 1
Unmarked handshapes, 2

- Perceptually most distinct and salient
- Universal across sign languages
- Used most frequently in each sign language
- Acquired earliest
- Phonologically less restricted
Marked handshapes

- 20+ in ASL
- Articulatorily and perceptually more complex
- Less common in and across sign languages
- Acquired later
- Phonologically more restricted
Handshape - Crosslinguistic variation

- Each sign language uses a limited number of possible handshapes.
- Handshapes may be grammatical in one sign language, but ungrammatical in another.
- Taiwan Sign Language signs for BROTHER and SISTER are ungrammatical handshapes in ASL.
Handshape - Contrasts

- Minimal pairs show that handshape is part of a morpheme’s lexical entry (i.e., it must be memorized).
- Contrastive role in CANDY / APPLE
Location

- Place of articulation relative to face, torso, or non-dominant hand or arm
- Again, minimal pairs show that location is part of a morpheme’s lexical entry
- Contrastive role in SUMMER / UGLY / DRY
Movement

- Primary movements
  - Straight vs. arc vs. hook ("7")
  - Vertical vs. horizontal
  - Towards vs. away from the body
  - Unidirectional vs. bidirectional

- Secondary movements
  - Wiggling or hooking fingers

- Contrastive role in CHAIR / TRAIN
Orientation

- Different parts of the hand can be oriented differently
  - Palm
    - up or down
    - in or out
    - ipsilateral (facing right for right hand, or left for left) or contralateral (facing left for right hand, or right for left)
  - Fingertips
    - Cf. U vs. H
- Contrastive role in SOCK / STAR
Non-manual gestures involve the head, eyebrows, mouth, position of body, etc.

- Independent of expression of affect!
- Contrastive role in LATE / NOT-YET
Non-manuals, 2

- Adverbial modification
  - Headshake ‘negation’
  - MM ‘as usual, with enjoyment’
  - TH ‘carelessly, sloppily’

- Discourse function markers
  - Marked vs. unmarked clauses
  - Question (vs. statement)
Morphology, 1

- Like all spoken languages, ASL has two types of morphology.
  - Inflectional (results in different form of same word)
    \[\text{sing} + -s \rightarrow \text{sing-s}\]
  - Derivational (results in new word)
    \[\text{sing} + \text{er} \rightarrow \text{sing-er}\]

- Like many spoken languages, ASL exhibits nonlinear morphology.

- Even English has some nonlinear morphology.
  - Linear (suffix): \[\text{play} + \text{past} \rightarrow \text{play} + -\text{ed} \rightarrow \text{play-ed}\]
  - Nonlinear (ablaut): \[\text{sing} + \text{past} \rightarrow \text{s-ng} + -\text{a-} \rightarrow \text{s-a-ng}\]
Morphology, 2

- Movement is productive in the formation of deverbal nouns.
  - SIT / CHAIR
  - IRON, v. / IRON, n.

- Location can express natural gender.
  - female: chin (e.g., MOTHER)
  - male: forehead (e.g., FATHER)
Morphology, 3

- An important source of new words is compounding (= combining two independent signs).

- “Blending” and “smoothing” over time lead to loss of iconicity.
  - Recall HOME (< EAT + BED)
  - Cf. smog < smoke + fog
  - Blending is unusual in spoken languages, but the norm in signed languages.
Morphology, 4

- ASL has no case, grammatical gender, or true tense (cf. Chinese).
- It has a minimal person distinction.
- But it has an extremely expressive system of verbal aspect (cf. pidgins and creoles).
- Aspect is expressed nonlinearly.
  - Sign with circular movement = continuous (over and over on a single occasion)
  - Sign repeated = iterative (over and over on more than one occasion)
Syntax – Basic clause structure

- Three word orders are common in ASL.
- Before non-manuals were recognized, word order was considered to be free.
- Today, SVO is considered the basic order.
Syntax – Marked clause structures

- Clause-initial non-subjects ("topics") must be marked by raised eyebrows and head tilt.
  - $SVO \rightarrow S, _{VO}$
  - $SVO \rightarrow O, SV_\ (\text{but } *OSV)$
  - $SVO \rightarrow VO, S_\ (\text{but } *VOS)$

- Spoken language counterparts
  - Topic morphemes (like Japanese –$wa$)
  - Intonation (as in English)
Syntax - Phrase structure change

- Early ASL (like most of the world’s spoken languages) seems to have been SOV.
- The change from SOV to SVO seems to have taken place in the 1900s.
- Most likely causes
  - Oralism in the early 1900s
  - Continuing diglossia with English
Sociolinguistics

- Spoken languages vary according to social parameters such as formality, region, ethnicity, social class, and gender.
- The same is true of ASL.
Regional variation, 1

- BIRTHDAY (Philadelphia)
- BIRTHDAY (Indiana)
- BIRTHDAY (Virginia)
- BIRTHDAY (more conventional)
Regional variation, 2

Each sign represents a mask, but in different ways.
Ethnic variation
Schools for the Deaf were segregated in the South into the 1970s.
Gender variation, 1

Men are more likely to use newer signs, and women more likely to retain older ones.
Gender variation, 2

TERRIFIC
(Gallaudet females)

TERRIFIC
(Gallaudet males)
Morphology, 5

- Discourse entities are assigned a location in space
- Different classes of verbs use the locations in different ways
  - Orientation: HATE = back of hand toward subject, palm toward object
  - Location: HELP = first location of subject, then location of object
As in English, topicalization in ASL is constrained by universal principles.

- **Simple structure**
  
  I like apples.
  
  Apples, I like __.

- **Coordinate structure**

  I like apples and bananas.

  * Bananas, I like apples and __.