Sign language grammars

Shared properties between signed and spoken languages:
- Conventional vocabularies
- Duality of patterning
- Productivity
- Syntactic structure

(from Meier, 2002)

Sign language grammars

Shared properties between signed and spoken languages:
- Conventional vocabularies
  - learned pairings of form and meaning

(from Meier, 2002)

Sign language grammars

Shared properties between signed and spoken languages:
- Duality of patterning
  - sublexical structure in spoken words and manual signs

(from Meier, 2002)
Sign language grammars

Shared properties between signed and spoken languages:

Productivity
- expanding the lexicon by types of rules
- derivational, inflectional morphology

from Meier, 2002

Sign language grammars

Shared properties between signed and spoken languages:

Syntactic structure
- same parts of speech
- recursion/embedded clauses
- verb agreement

from Meier, 2002

Modality differences in human languages

The articulators
- Speech uses the vocal tract
- Sign uses the hands, the body, the face
- Vocal articulators produce sounds, and are minimally visible
- Sign language articulators are directly visible

Modality differences

The articulatory space
- Space within the vocal tract modifies sound quality
- Signing space is visibly available and exploited for different layers of meaning
Modality differences

Iconicity

Ideophones in spoken languages, e.g. Kambera (Klamer 1998): lexical roots that directly refer to sounds, motions and sights

Iconicity exerts pragmatic and sequential pressures on spoken languages (Croft 2003; Haiman 2002)

Signs can represent objects, locations and movements through visible iconic means (Meier 2002; McBurney 2002)

Iconicity and grammar

Sound symbolism is found in varying degrees across spoken languages

But iconic properties of sign languages are apparently general to all:

Use of space
Possibility of near-infinite indexing
The body as referent

Modality and grammar

Is there evidence of modality effects beyond perceptual and articulatory levels?

Is there evidence of modality effects that are not strictly iconic?

Iconicity and grammar

A special case: the handling/instrument pattern in sign languages

A number of sign languages represent a class of objects held by hand with a preferential pattern: either handling or instrument
Objects held by hand

Hand tools
- Hand saw, toothbrush, broom

Cosmetics
- Mascara, lipstick, nail polish

Clothing
- Hat, shoes, pants

Utensils
- Fork, knife, spoon

But not:

Mechanical tools

Musical instruments

Food
- Pineapple, banana, meat, chicken

Containers
- Cup, bowl, glass, vase, box

Shoes | Scissors | Pants
------|----------|--------
Hat   | Broom    | Fork
Jacket | Paintbrush | Knife
Toothbrush | Socks | Rake
Hand saw | Spoon   | Screwdriver
Mascara | Nail polish | Hair dryer
Gloves | Cell phone | Nail file
Comb  | Vacuum cleaner | Hair brush
Hammer | Lipstick  | Mop

Vocabulary list

Signers shown slides of objects
List modified over time, as responses were analyzed
Final list: 27 items
To encourage nouns, slides showed varying numbers of objects
The handling pattern

Israeli Sign Language (ISL), Japanese Sign Language (JSL), and New Zealand Sign Language (NZSL) favor the handling pattern for noun objects that are held by hand.

The instrument pattern

ASL, Danish Sign Language (DSL) and Al-Sayyid Bedouin Sign Language (ABSL) favor the instrument pattern.

Handling/instrument pattern

Strong preferential pattern favoring one type over the other.

Strong agreement across signers over which signs display the favored pattern.

In six sign languages surveyed, the less favored pattern is used for a smaller set of signs.

The handling pattern

ISL (n=5)
Handling favored: 62%

NZSL (n=7)
Handling favored: 67%

JSL (n=6)
Handling favored: 64%
The instrument pattern

ABS (n=7)
Instrument favored: 85%

ASL (n=9)
Instrument favored: 75%

DSL (n=6)
Instrument favored: 60%

data by C.C. Poliak & R. Bergmann

Handling/instrument pattern

Strong preferential pattern favoring one over the other

Strong agreement across signers over which signs display the favored pattern

In six sign languages surveyed, the less favored pattern is used for a smaller set of signs
The instrument pattern

ABS L n=7

ASL n=9

The handling pattern

NZSL n=7

JSL n=6

ISL n=5

Within the pattern

Some forms are almost always handling across sign languages, including those that favor the instrument pattern: HAMMER, LIPSTICK

Other forms are often instrument in languages that favor handling: FORK, RAKE, SCISSORS

Languages with handling forms use instrument forms to show contrast in pairs: FORK vs. SPOON; RAKE vs. BROOM; COMB vs. HAIRBRUSH.

SCISSORS may qualify as a tool with moving parts.

What type of pattern?

Instrumental case?

Instrumental case marked on nouns indicates the instrument by which an action is carried out (e.g. Russian)

The handling/instrument pattern is a preferential pattern of one form or another.
What type of pattern?

*Lexicalization pattern?*

Similar to verb pattern in spoken languages.

Spoken languages differ systematically in whether they express manner or direction on the verb (Talmy 1985, 2000).

In satellite-framed languages, the manner is encoded in the verb. The ball rolled down the hill.

In verb-framed languages, the path is encoded in the verb. Le ballon est descendu la colline.

The handling/instrument pattern

May be a diagnostic of language differences, or sign language dialects.

ISL and ABSL pattern differently which provides additional evidence that ABSL is not related to ISL.

Further evidence: ABSL-ISL bilinguals

Bilingual ABSL-ISL signer

Bilingual signer in ABSL

Instrument preference: 85%

Bilingual signer in ISL

Handling preference: 55%

All ABSL signers

All ISL signers

Iconicity and grammar

Iconicity does not determine the preferential pattern. Both types - handling or instrument - are equally iconic.

The pattern emerges early in a new sign language, and is robustly expressed.
Implications

A lexicalization pattern in sign languages, but involves nouns, not verbs. There is no apparent equivalent to the handling/instrument lexicalization pattern in spoken languages. Is this a problem for the notion of linguistic universals?

Embodiment

The body is not merely an articulator, but actively present in sign language grammars. Handling and instrumental forms take advantage of bodily resources in sign languages. Such resources are not equally available in spoken languages.

In search of grammar?

Grammars as logical, disembodied, universal systems
Or grammars as built from bodily resources which are implicated at levels beyond the perceptual/articulatory level
Iconicity is not a simple concept in human languages, signed or spoken.

Thanks to...

Support from NIH: R01 DC 6473
Shai Davidi, videographer and Deniz Ilkbasaran, graphics and video support
Irit Meir, Adam Stone, David McKee, Elisabeth Engberg-Pedersen, Ritva Bergmann, Soya Mori for assistance with data collection