Sign language linguistics
Day 2: Morphology + Syntax

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Section 1

Introduction

Sign language syntax and semantics

- ▶ Sign languages combine words to make sentences.

- ▶ As in spoken language, some linear orders are grammatical; others are not.

- ▶ Sign language, however, offers some new possibilities.

Guiding questions

Guiding questions for today:

▶ Since sign language produces two hands and a face, can syntactic elements to be produced **simultaneously**?

  ▶ What restrictions?

▶ Some aspects of sign language seem to be '**pictorial**.'

  ▶ Should these be considered grammatical elements?

▶ Does the use of **space** allow new syntactic features to appear?

  ▶ How do these features relate to known theory?

Agglutinative morphology in sign language?

▶ Something that spoken language does more easily than sign?

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    ▶ (For the Mirror Principle, maybe don't consult SL first.)

      (1)   Maqa-naku-ya-chi-n.   (Quechua)
           beat-recip-dur-caus-3S
           'He is causing them to beat each other.'

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▶ Why might sign language have less?

  ▶ Possibly: larger articulators make agglutination too slow.

The rate of sign vs. speech

How fast is sign language?

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How fast is sign language?

Bellugi & Fischer (1972):

▶ Have the same story told in English and ASL.

▶ *Subjects:* 3 CODAs (Children of Deaf Adults), native in both.

▶ Then, count number of words; count amount of time to tell it.

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Average words per second:

	sign	spoken
Subj. A	2.3	4.0
Subj. B	2.3	4.9
Subj. C	2.5	5.2

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Average words per second:

	sign	spoken
Subj. A	2.3	4.0
Subj. B	2.3	4.9
Subj. C	2.5	5.2

But, total time similar (min):

	sign	spoken
Subj. A	154.5	144.0
Subj. B	66.1	87.0
Subj. C	38.8	51.3

Less information in sign?

▶ Is this because...

    ▶ ...sign language version removes information?

    ▶ ...sign language has higher information-to-word ratio?

▶ Count rate of 'propositions' — main verbs.

    ▶ Similar rate across both; 1.4 seconds per proposition in each.

Sign language-specific strategies

What are the information-dense strategies of sign language?

Today:

▶ Classifier predicates

▶ Non-concatenative morphology

▶ Non-manual signs

▶ Spatial agreement

Section 2

Classifier predicates

Classifier predicates

▶ 'Classifier' terminology comes from spoken language

   (2) **Korean**

      beoseu pyo   yeol jang
      bus   ticket ten CL:flat
      'ten bus tickets'

▶ Classifiers in SL – handshape carries similar restriction

   (3) ASL
      PAPER THREE CL:flat CL:flat CL:flat
      'three pieces of paper'

▶ Handshapes conventionalized.

▶ Mismatch results in ungrammaticality (for both modalities).

Classifiers as iconic predicates

▶ Unlike spoken language, what are called classifiers in ASL are **verbal predicates**.

    (4)   CAR CL:3-move.
           'The car moved.'

    (5)   HIS HEAD CL:S-nod.
           'His head nodded.'

Kinds of classifiers

Within classifiers, there are several different categories:

- ▶ **Whole entity classifiers** classify a whole entity.
    - ▶ In ASL, CL:1 for humans; CL:3 for vehicles; CL:B for flat objects

- ▶ **Handling classifiers** represent a hand manipulating an object.
    - ▶ In ASL, CL:C for thick objects; CL:F for small objects

- ▶ **Body part classifiers** classify a part of the human body.
    - ▶ In ASL, CL:S for the head; CL:V for the legs

Argument structure

Benedicto and Brentari (2004):

▶ These categories of classifiers mirror classes of ordinary verbs, in ASL and elsewhere in language.

▶ Handling classifiers are transitive; whole-entity and body part classifiers are intransitive.

(6) Ordinary verbs:

    a. JOHN HELP MARY
       'John helped Mary'

    b. MARY LAUGH
       'Mary laughed.'

    c. ICE-CREAM MELT
       'The ice cream melted.'

(7) Classifier predicates:

    a. CUP, JOHN CL:C-move
       'John moved the cup.'

    b. MARY CL:S-nod
       'Mary nodded her head.'

    c. MARY CL:1-move
       'Mary walked.'

Argument structure

▶ Moreover, *within* the class of intransitive verbs, the two kinds of arguments act differently.

(8) a. * WOMAN LAUGH NOTHING
         'No women laughed.'

  b. BUTTER MELT NOTHING
      'No butter melted.'

(9) a. * ACTOR CL:S-bow NOTHING
         'No actors bowed.'

  b. ACTOR CL:1-bow NOTHING
      'No actors bowed.'

(10) a. LAUGH FINISH!
          'Stop laughing!'

 b. * SWEAT FINISH!
      'Stop sweating!'

(11) a. CL:S-bow FINISH!
          'Stop bowing!'

  b. * CL:1-bow FINISH!
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        'Stop bowing!'

▶ Maps onto the *unaccusative*/*unergative* distinction.

Classifiers as iconic predicates

▶ But, perhaps most interestingly, express the event **iconically**.
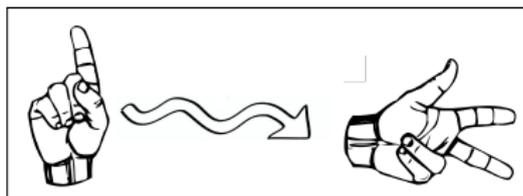
'The person moved to the car along a wavy path.'

▶ Note: may have simultaneous classifiers with the two hands.

  ▶ What is argument structure for this?

▶ This iconic predicate preserves at least:

  ▶ Location
  ▶ Orientation
  ▶ Classifier-internal structure

Conventionalized underspecification

▶ Conventionalized underspecification preserves specific internal structure of an object (c.f. stick figures).
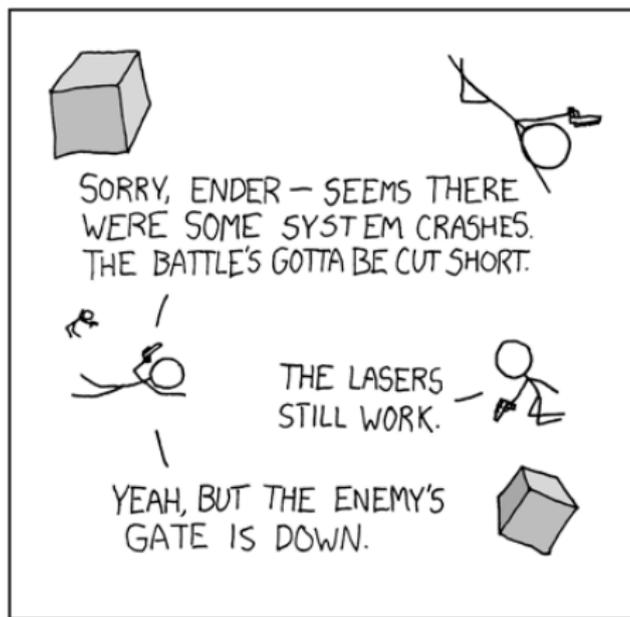
Proposal sketch

Proposal sketch (Zucchi et al. 2012; Davidson 2015):

▶ A classifier is an event predicate (i.e. a set of events) that

    a. presupposes that its agent (for object classifiers) or its theme (for handling classifiers) is in the specified nominal class, and

    b. entails that the event happened in the manner iconically demonstrated

ASL/English bilingual kids

Evidence for demonstration argument CODAs (Davidson 2015):

▶ Sound effects frequently accompany classifiers:

(12) GOLF CL:1(path of ball) BALL CL:1(path of ball)
      golf (sound-effect)   ball (sound-effect)
      'In golf the ball goes high up, the ball goes like this.'
      (3 year-old with Deaf father)

▶ Corpus search of 48 classifiers:
   ▶ 20 accompanied by no speech (all w/Deaf interlocutor)
   ▶ 14 accompanied by verb (12 w/hearing interlocutors)
   ▶ 9 with sound effects (equal mix interlocutors)
   ▶ 5 other/unintelligible

An analogue in spoken language?

- ▶ **Ideophones** = onomatopoetic words with eventive meaning.
    - ▶ English: *snip*, 'a cut with scissors'
    - ▶ Tseltal: *tsok'*, 'dropping food into hot oil'
    - ▶ Korean: t'ak, 'a short, fast and big bang'
- ▶ 'Sound classifier'? - only applies to very specific events.
- ▶ Allow freer iconic modification than other verbs:

    (13) I went to the barber and snip, no more ponytail.

    (14) I went to the barber and snip snip snip, no more
          ponytail.

- ▶ At-issue accompaniment by gestures.

Don't take this slide seriously

▶ English expression 'A picture is worth a thousand words.'

▶ I don't know exactly how many classifiers were in the Bellugi and Fischer study, but I think we can propose a better lower and upper bound:

▶ A picture is worth somewhere between 1.66 and 222 words.

Section 3

Morphology

Morphology

▶ Because of the pressures discussed earlier, concatenative morphology is relatively rarer than in spoken language.

▶ Nevertheless, it exists.

    ▶ Already saw one example: perfect marker in LIS

    ▶ Another example from ASL...

Weak-hand drop

- ▶ The sign for PERSON has been grammaticalized as an agentive marker. Much like the bound morpheme '-er' in English, it attaches to verb to derive agentive nouns.

  - ▶ TEACH + ER = TEACHER

- ▶ Not just parasitic on English:

  - ▶ LEARN + ER = STUDENT

Weak-hand drop

▶ In casual conversation, the ER morpheme pronounced with only the dominant hand.

Weak-drop

▶ TEACH + ER = TEACHER

▶ SCIENCE + ER = SCIENTIST

▶ LEARN + ER = STUDENT

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A phonological process in a phonological environment.
What's the rule?

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- In casual conversation, the ER morpheme pronounced with only the dominant hand.

Weak-drop

- TEACH + ER = TEACHER
- SCIENCE + ER = SCIENTIST
- LEARN + ER = STUDENT   weak-drop

A phonological process in a phonological environment.
What's the rule?

- LAW + ER = LAWYER
- MANAGE + ER = MANAGER

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Weak-drop

▶ TEACH + ER = TEACHER

▶ SCIENCE + ER = SCIENTIST

▶ LEARN + ER = STUDENT   weak-drop

A phonological process in a phonological environment.
What's the rule?

▶ LAW + ER = LAWYER   weak-drop

▶ MANAGE + ER = MANAGER   none

Weak-hand drop

▶ What feature is targeted by this phonological rule?

Weak-hand drop

▶ What feature is targeted by this phonological rule?

▶ Note: the same feature that we saw in the exercise yesterday!

Non-concatenative morphology

▶ Often, we see non-concatenative morphology

  ▶ Alteration of sign movement
  ▶ Suppletive forms

Alteration of movement

▶ In many sign languages, nouns are number neutral.

  ▶ ASL APPLE = 'apple' or 'apples'

▶ However, a common strategy for pluralization is reduplication.

  ▶ Phonological properties constrain when this is possible.

▶ Examples

  ▶ ASL: FRIEND vs. FRIENDS
  ▶ ASL: BOOK vs. BOOKS

Alteration of movement

▶ Verbal iterativity, too, can be indicated with reduplication.
  ▶ Two, three, or more repetitions.
  ▶ More on verbs tomorrow!

Alteration of movement

▶ In ASL, verb nominalization is also a movement change.

  ▶ Path movement of verb is reduced.
  ▶ Short movement of verb is repeated exactly once.

▶ Examples:

  ▶ SIT vs. CHAIR
  ▶ FLY-BY-PLANE vs. AIRPLANE

▶ Note: unlike previous two examples, this particular phonological exponent is more language specific.

Suppletion

- ▶ Sign languages also occasionally show instances of *suppletion*.
- ▶ Inflected form is a completely different, memorized form.
    - ▶ English: good / better

- ▶ LSF: tense and aspect on the verb SEE
    - ▶ SEE
    - ▶ SAW
    - ▶ HAVE-NOT-SEEN
    - ▶ WILL-SEE

Suppletion

▶ A common place for suppletion in SL is negated verbs.

  ▶ ASL: CAN'T, WON'T, NOT-WANT, NOT-LIKE, DON'T-KNOW, …
  ▶ LSF: CAN'T, NOT-NEED, NOT-FINISH, NOT-WANT, NOT-LIKE, DON'T KNOW, …

▶ Compare CAN and CAN'T in ASL, LSF, and LIS

Section 4

Simultaneous morphology?

Simultaneity

- ▶ In sign language, two hands are being used.

- ▶ In principle, could have simultaneous compounds, one root signed by each hand.

- ▶ Do such *simultaneous compounds* exist?

Simultaneity

▶ ...no.

▶ FATHER + MOTHER = PARENTS

▶ Must be signed in succession with a single hand, not
  simultaneously with two.
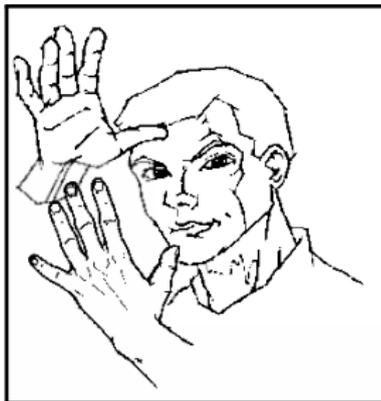
(not possible)

Simultaneity

▶ **Possible exception #1:**

▶ Brazilian sign language has some lexical signs which are entirely non-manual.

  ▶ SEX (cheek puff)
  ▶ STEAL (lip lick)

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▶ Simultaneous compounds in Brazilian Sign Language?

   ▶ HONEYMOON = SEX + TRAVEL
   ▶ MOTEL = SEX + HOTEL
   ▶ ENRAPTURE = STEAL + GET-ATTENTION

(Garcia Rodero Takahira 2013)

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▶ **Why?**

Simultaneity

- ▶ **Possible exception #1:**

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    (Garcia Rodero Takahira 2013)

- ▶ **Why?** Non-manuals easier to dissociate than H1 and H2?

Simultaneity

▶ **Possible exception #2:**

▶ Some words are arguably simultaneous compounds involving a classifier.

For example, in ASL, ...

▶ A whole-entity classifier for a flat object is a flat hand

▶ A handling classifier for pens and pencils is the handshape to hold a pen.

When you put them together, you get...

Simultaneity

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For example, in ASL, ...

▶ A whole-entity classifier for a flat object is a flat hand
▶ A handling classifier for pens and pencils is the handshape to hold a pen.

When you put them together, you get...

▶ WRITE

A simultaneous compound?

WRITE

Other examples?

A list of possible simultaneous classifier-compounds in LIS:
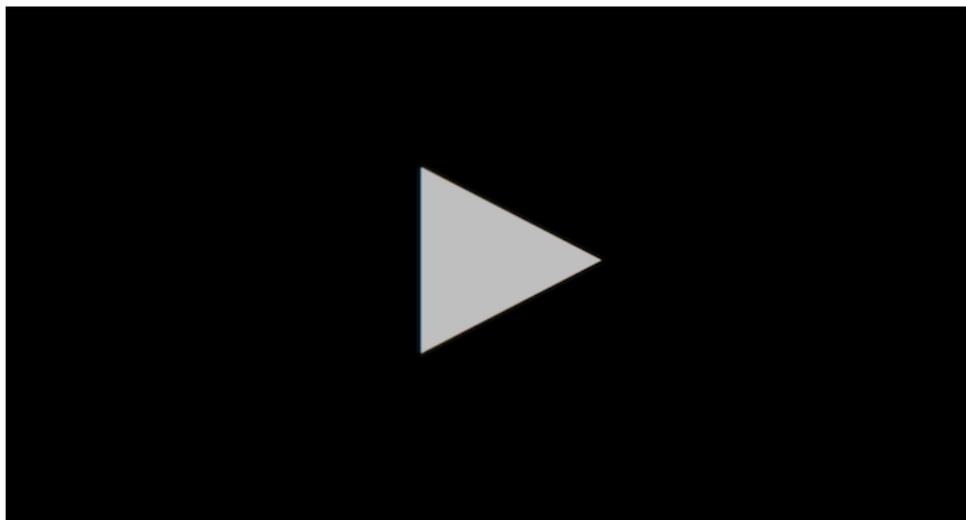
Theoretical questions

▶ How do we tell if these are compounds, and not single words?

    ▶ Challenge: compound meanings are not fully compositional.

▶ If they are compounds—why is simultaneity allowed here?

    ▶ Observe: syntactic classifier constructions allowed simultaneity.

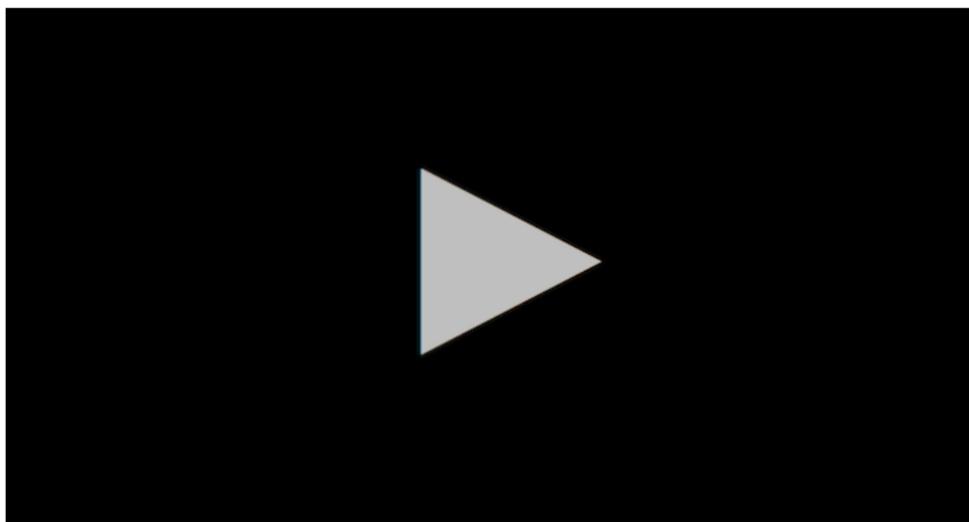Section 5

Syntax

Exercise

Download exercise (I hope it will work!)

Open up Vocabulary and Sentence set 1.

▶ Is Italian Sign Language a head-initial language (like Italian), or a head-final language (like Korean)?

▶ Based on your knowledge of syntactic functional hierarchy, how do you think you'd sign 'It's possible that Giovanni bought a book'?

▶ How about 'It's not possible that Giovanni bought a book.'?

Open up Sentence set 2.
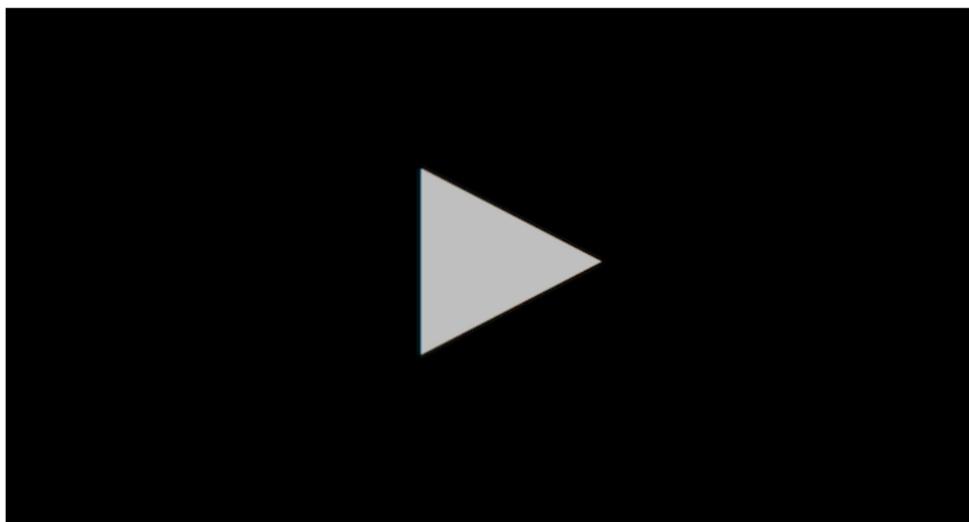
▶ How do these results fit into your findings?

Answers

(15)   'It's possible that Giovanni bought a book.'

Answers

(16)   'It's not possible that Giovanni bought a book.'

Answers

(17)   BOOK GIOVANNI BUY

Section 6

Non-manual signs

Non-manual markers

- ▶ JOHN LIKE ICECREAM

- ▶ $\overline{\text{JOHN LIKE ICECREAM}}^{\text{br}}$

Non-manual markers

- ▶ JOHN LIKE ICECREAM
  'John likes icecream.'

- ▶ $\overline{\text{JOHN LIKE ICECREAM}}^{\text{br}}$
  'Does John like icecream?'

The function of non-manuals

- ▶ Grammatical: Y/N questions, *wh*-questions, negation, conditionals. (Similar to **intonation** in spoken language.)
- ▶ Affective (adverbial): repeatedly, slowly, carefully. . .

Non-manual markers

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The function of non-manuals

- ▶ Grammatical: Y/N questions, *wh*-questions, negation, conditionals. (Similar to **intonation** in spoken language.)
- ▶ Affective (adverbial): repeatedly, slowly, carefully...

- ▶ Non-manuals articulated *concurrently* with manual signs.
  - ▶ Note connection to Brazilian Sign Language compounds.

Adverbial non-manuals

▶ Some adjectival/adverbial non-manuals
  ▶ th = 'carelessly/sloppily'
  ▶ mm = 'average/regular'
  ▶ oo = 'small'
  ▶ puffed.blow = 'to a great degree'

(18) a. BOY WRITE LETTER.
          'The boy is writing a letter.'

$$\overset{\text{mm}}{}$$
  b. BOY $\overline{\text{WRITE LETTER}}$.
          'The boy writes letters regularly.'

$$\overset{\text{th}}{}$$
  c. BOY $\overline{\text{WRITE LETTER}}$.
          'The boy writes letters carelessly.'

Adverbial non-manuals

oo
‾‾‾‾‾‾‾‾
INCREASE
'increase little by little'

th
‾‾‾‾‾
SPILL
'spill sloppily'

Pictures of Lydia Callis, via The Atlantic

Timing: Generalizations

▶ There is a lot of work on the timing of non-manuals.

▶ **A first approximation:**
A non-manual sign is held for the duration of the constituent that it modifies.

Synchronous syntax

- ▶ In our phrase structure grammar so far, we have rules like:
    - ▶ A → B C   'A can be decomposed into a B followed by a C'
    - ▶ A → C B   'A can be decomposed into a C followed by a B'
- ▶ How do we create a syntax for a language in which two syntactic objects occur **simultaneously**?
- ▶ Any suggestions?

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▶ Any suggestions?

   ▶ VP → ~~VP~~s

Synchronous syntax

- ▶ In our phrase structure grammar so far, we have rules like:
    - ▶ $A \rightarrow B\ C$ 'A can be decomposed into a B followed by a C'
    - ▶ $A \rightarrow C\ B$ 'A can be decomposed into a C followed by a B'

- ▶ How do we create a syntax for a language in which two syntactic objects occur **simultaneously**?

- ▶ Any suggestions?
    - ▶ $VP \rightarrow \overset{\text{nms}}{\cancel{VP}}$

- ▶ Better:
    - ▶ $VP \rightarrow \overset{\text{nms}}{VP}$

Grammatical nonmanuals

In ASL:

▶ Brow raise:

    ▶ Y/N questions
    ▶ Conditionals
    ▶ Topicalization
    ▶ Cleft-constructions

▶ Brow furrow

    ▶ Wh-questions

▶ Head-shake and frown

    ▶ Negation
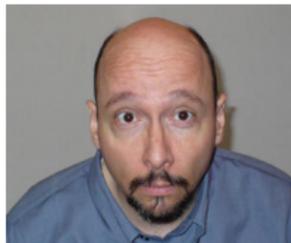
Analysis of topicalization

- ▶ The feature that induces topicalization is spelled out as $\overline{}^{\text{br}}\cdot$

- ▶ This must apply to a syntactic constituent.

- ▶ As in spoken language, induces left-dislocation.

Negation in ASL

▶ Negation in ASL can be formed by a manual sign NOT, or by a non-manual headshake.

(19)   JOHN BUY HOUSE.
        'John bought a house.'

(20)   JOHN $\overline{\text{NOT}}^{\text{neg}}$ BUY HOUSE.
        'Did John buy a house?'

(21) $\overline{\text{JOHN NOT BUY HOUSE}}^{\text{neg}}$.
        'Did John buy a house?'

(22) $\overline{\text{JOHN BUY HOUSE}}^{\text{neg}}$.
        'Did John buy a house?'

Y/N questions in ASL

▶ *Yes/no* questions in ASL can be formed by brow-raise, or by a manual question particle.

(23)   JOHN BUY HOUSE.
       'John bought a house.'

(24) $\overline{\text{JOHN BUY HOUSE.}}^{\text{br}}$
       'Did John buy a house?'

(25)   JOHN BUY HOUSE $\overline{\text{Q}}^{\text{br}}$.
       'Did John buy a house?'

(26) $\overline{\text{JOHN BUY HOUSE Q}}^{\text{br}}$.
   'Did John buy a house?'

Summary: non-manuals

▶ In all cases, non-manuals span over a syntactic constituent.

▶ On two different particles, a similar pattern:

  ▶ Non-manual can span over overt head.

  ▶ When no overt manual sign, non-manual appears across full c-command domain.

Section 7

The use of space and directional verbs

The use of space

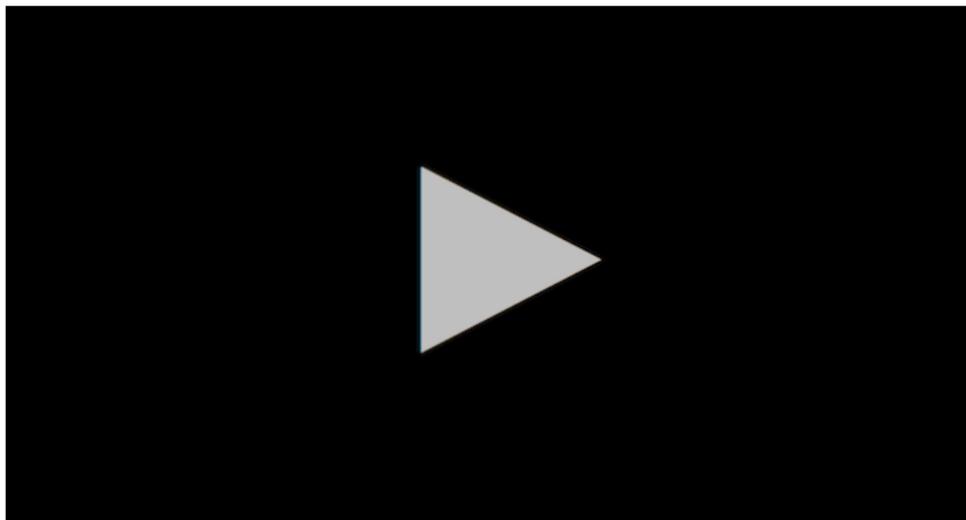▶ In ASL (and all other developed SLs), NPs may be associated with locations in space ('loci').
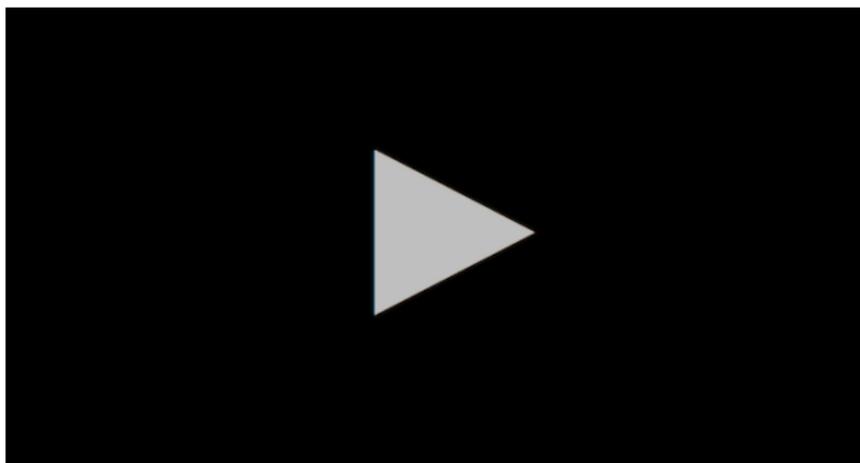
(27)   MY ZOO LION-a TIGER-b BEAR-c HAVE. UNICORN NOT HAVE. WHY? NOT REAL.

Kinds of verbs

Two classes of verbs:

▶ **Agreement verbs** move in space between their arguments.

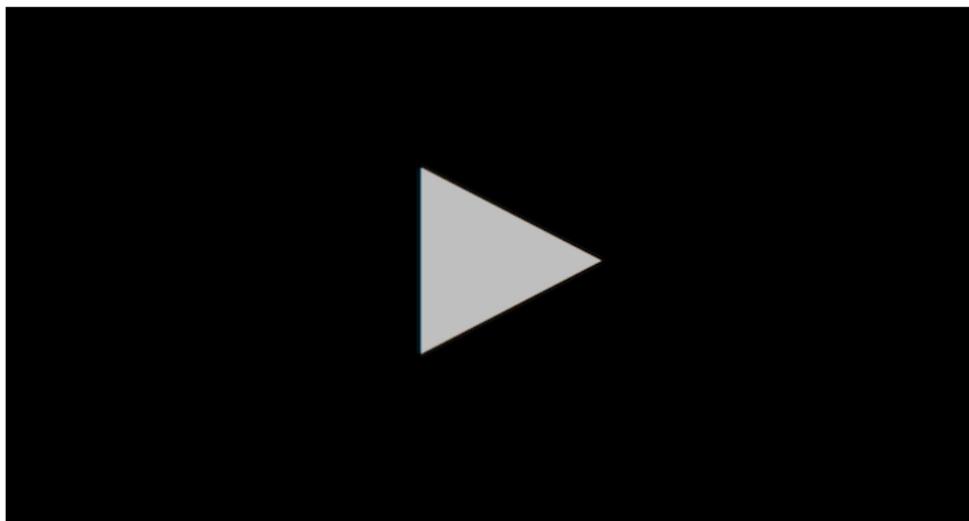   ▶ (Also called 'directional verbs.')

▶ **Plain verbs** do not.

Agreement verbs

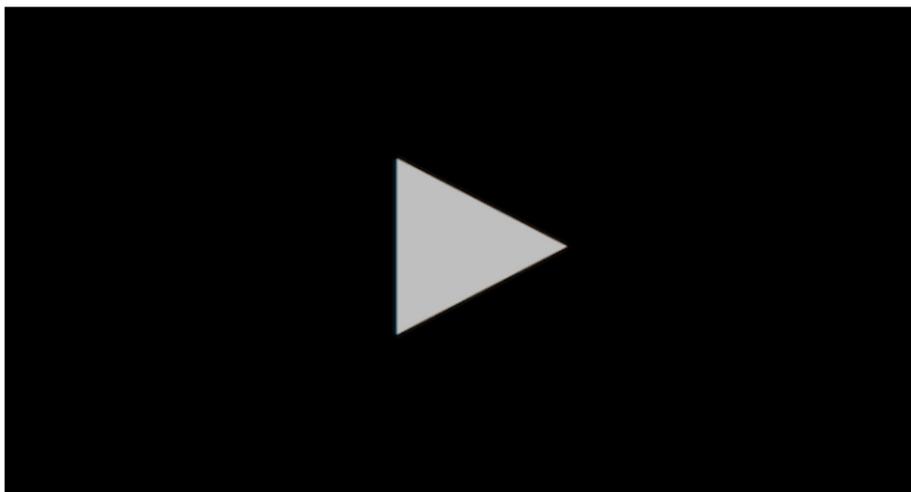(28)   JOHN-a a-HELP-b MARY-b.

Agreement verbs

(since the next talk is Experimental syntax, ...)

(29)   * JOHN-c a-HELP-b MARY-b.

Agreement verbs

▶ Plural NPs are indexed over *areas* of space
▶ Verbs may move over the same area to indicate distribution.

(30) MANY STUDENTS IX-arc-b STRUGGLE MATH. IX-a TEACHER
      STAY AFTER SCHOOL a-HELP-arc-b.

Agreement verbs

▶ Seems to behave much like agreement in spoken language.

(31) a. I am happy.
     b. *I is happy.

(32) a. John is happy.
     b. *John are happy.

(33) a. JOHN-a a-HELP-b MARY-b.
     b. *JOHN-c a-HELP-b MARY-b.

(34) a. MANY STUDENT-b, TEACHER-a a-HELP-arc-b.
     b. *MANY STUDENT-b, TEACHER-a a-HELP-arc-b.

Agreement verbs

Plain verbs (ASL):

▶ LIKE, KNOW, COUGH

Agreement verbs (ASL):

▶ HELP   moves between the subject and direct object
▶ GIVE   moves between the subject and indirect object
▶ SEE   moves from the eyes to the direct object
▶ TELL   moves from the chin to the indirect object

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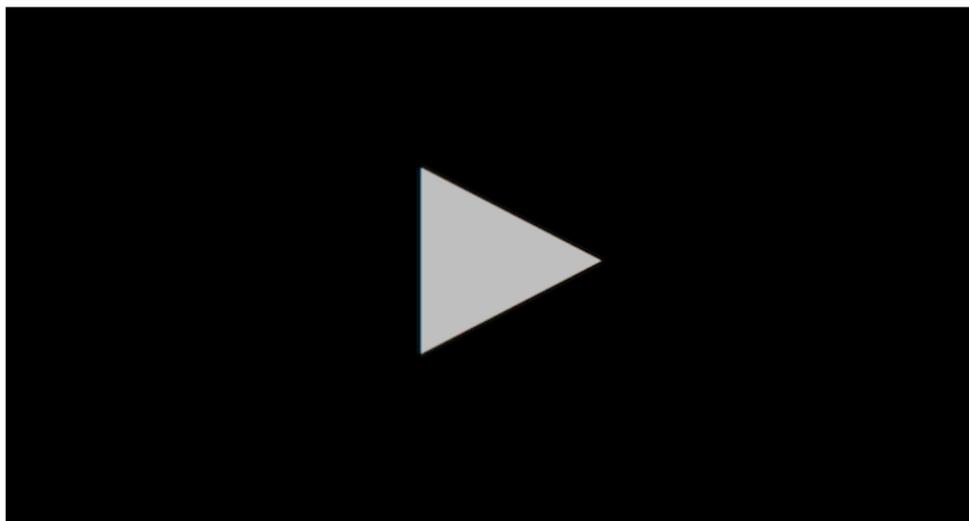
Typologically, some unusual things:

▶ Marks Source-Goal, not Subject-Object

▶ Possible to have object marking without subject marking

   ▶ Contra typology: if agreement w/ object, then w/ subject, too

Pronominal agreement, too

ASL pronominal words:

▶   pronoun ('she/he/her/him')

▶   reflexive ('herself/himself')

▶   possessive ('her/his')

Pronouns in space

(35) IX-a JOHN TELL IX-b BILL {IX-a/IX-b} WILL WIN.
      'John$_i$ told Bill$_j$ that he$_{\{i//j\}}$ would win.'

Typological atypicality explained?

Nevins (2011):

► Is the typological atypicality of ASL agreement if we consider the marking to be clitics instead of agreement?

► Note: Clitics bear the same agreement features as pronouns.

Loci as features?

Still, if loci are features, they have unusual properties:

1. Because there are infinitely many locations in space, there are in principle arbitrarily many loci for NPs.

   ▶ In reality, psychological upper bound, but still.

2. Locus choice is arbitrary.

   ▶ JOHN-a = JOHN-b

Towards an analysis

▶ Observe: locations in space mirror the behavior of **syntactic indices** as they are used in binding theory.

(36)   a.   John$_i$ likes himself$_i$.
         b.   * John$_i$ likes him$_i$.

(37)   a.   * John$_i$ said Mary likes himself$_i$.
         b.   John$_i$ said Mary likes likes him$_i$.

▶ BT principles are stated as constraints on the value of indices.
▶ These indices determine co-reference.
▶ Like loci, they are arbitrarily assigned and theoretically infinite.

The meaning of a pronoun

The classic idea: <u>syntactic indices are semantic variables</u>

▶ Variables in math:

  ▶ $f(x) = x^2$
  ▶ Takes an input (number) and gives an output (number)
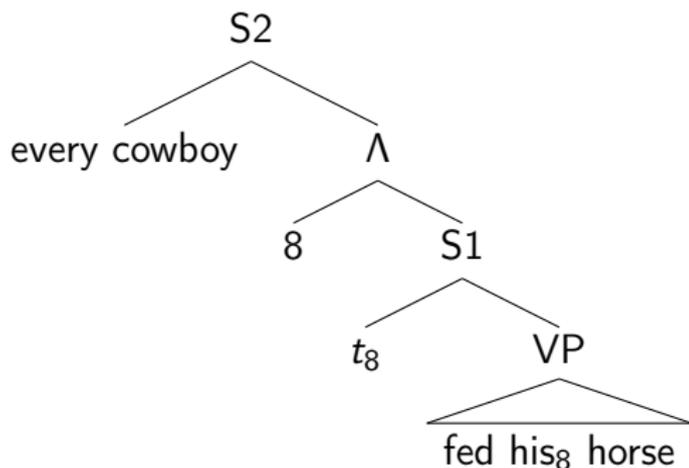
▶ Variables in language:

  ▶ "the woman that he saw" = the woman that x saw
  ▶ Takes an input (a person) and gives an output (a person)

Binding with variables

▶ Standard Heim and Kratzer:

(38)

```
                    S2
              /          \
     every cowboy         Λ
                       /     \
                      8       S1
                            /    \
                          t_8     VP
                                /    \
                             fed his_8 horse
```

(39) a. $[\![S1]\!] = \lambda g[g(8) \text{ fed } g(8)\text{'s horse}]$
      b. $[\![8\ S1]\!] = \lambda g \lambda x [\![S1]\!]^{8 \to x}$

The Variable Hypothesis

▶ **The (strong) loci-as-variables hypothesis:**

There is a one-to-one correspondence between ASL loci and formal variables.

Binding with variables

- ▶ **A defining property of variables:** Two variables with no intervening operators must receive the same value...

  - ▶ from the context, if free,

  - ▶ or from the closest operator, if bound ("variable capture")

- ▶ **Prediction:** If loci are variables, then when two pronouns appear at the same locus with no intervening operators, **these pronouns must receive the same value**.

  (40) Jay told Bob that [his$_x$ cat licked his$_x$ dog].

Uninterpreted loci under *only*

▶ **English:** Pronouns under *only* may optionally co-vary in the focus alternatives.

▶ a. [Only Mary$_x$] $\lambda y.y$ saw her$_x$ mother.
   $\rightarrow$ John didn't see Mary's mother.

   b. [Only Mary$_x$] $\lambda y.y$ saw her$_y$ mother.
   $\rightarrow$ John didn't see his own mother.

▶ In (a), the pronoun is free and co-referential with Mary; in (b), the pronoun is bound by the lambda operator.

Uninterpreted features

▶ *Note:* for bound reading, the presupposition is not interpreted in the focus alternatives.

(41) Only Mary did her homework.
 $\neq$ Mary is the only person who is a woman and who did her homework.

(42) Only I did my homework.
 $\neq$ I am the only person who is the speaker and who did his homework.

Counterexample 2: Uninterpreted loci under *only*

▶ When <u>two</u> pronouns appear under *only*, mixed readings are available: one pronoun bound and one free. (Kratzer 2009)

▶ Only Billy told his mother his favorite color.
In English: four readings.

▶ If ASL loci are variables, then the use of a single locus should permit only two readings (*bound-bound* and *free-free*):

▶ Billy $\lambda b.b$ only-one $\lambda x.x$ | tell x's mother x's favorite color. |
  Billy $\lambda b.b$ only-one $\lambda x.x$ | tell b's mother b's favorite color. |

Uninterpreted loci under *only*

▶ However, mixed readings *are* attested.

▶ IX-a BILLY ONLY-ONE(-a) FINISH-TELL <u>POSS-a</u> MOTHER <u>POSS-a</u>
FAVORITE COLOR.
'Only Billy told his mother his favorite color.'

▶ *Can be read as:*
bound-bound, bound-free, free-bound, or free-free.

▶ True in particular under the bound-free reading:
'Billy is the only x who told x's mother Billy's favorite color.'

Result

▶ The strong loci-as-variables hypothesis **undergenerates**.

Loci as features

- ▶ A weaker hypothesis: referential information is carried in a syntactic feature.
- ▶ These features act analogously to phi-features.

Uninterpreted features

- As we saw earlier, under focus sensitive operators, features may be **uninterpreted**.

- The use of the horizontal plane is exactly parallel: loci are uninterpreted in the focus alternatives.

- IX-a BILLY ONLY-ONE(-a) FINISH-TELL ~~POSS-a~~ MOTHER ~~POSS-a~~ FAVORITE COLOR.
  'Only Billy told his mother his favorite color.'

Loci as Variables <u>and</u> as Features?

▶ One possible direction...

    ▶ NPs may bear two variables: a covert variable i (like spoken language), and an optional overt variable a (the locus).

    ▶ Indexing an NP at locus a adds a feature that presupposes that $s(i) = s(a)$ on an assignment s.

    ▶ This feature is uninterpreted under focus.

▶ Definition of IX-a:

    ▶ $[\![IX_i\text{-}a]\!]^s = s(i)$ if $s(i) = s(a)$
                          $\#$ otherwise

Section 8

Summary

Summary

▶ Classifier predicates

    ▶ Predicates with verbal structure include an iconic component

    ▶ Still open: argument structure for simultaneous classifiers?

▶ Simultaneous morphology

    ▶ Rarer than you might expect, but it depends what you count.

    ▶ Constrained by morphophonological pressures seen elsewhere.

▶ Non-manual signs

    ▶ Grammatical and affective uses governed by syntactic structure.

▶ Spatial agreement

    ▶ Parallels with syntactic indices.

    ▶ New insights into the semantic interpretation of these indeces.