Iconicity in the grammar: Pluractionality in French Sign Language

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January 9, 2015

[slides: https://files.nyu.edu/jdk360/public/papers/Kuhn-Aristodemo-pluractionality-slides.pdf]

Section 1

Overview

Overview

- Today, contribute to recent discussions about the interplay of formal grammar and iconicity in sign languages.
- **Case study:** pluractionality in French Sign Language (LSF).

Overview

- A large amount of descriptive work on verbal inflection in sign languages (mostly ASL).

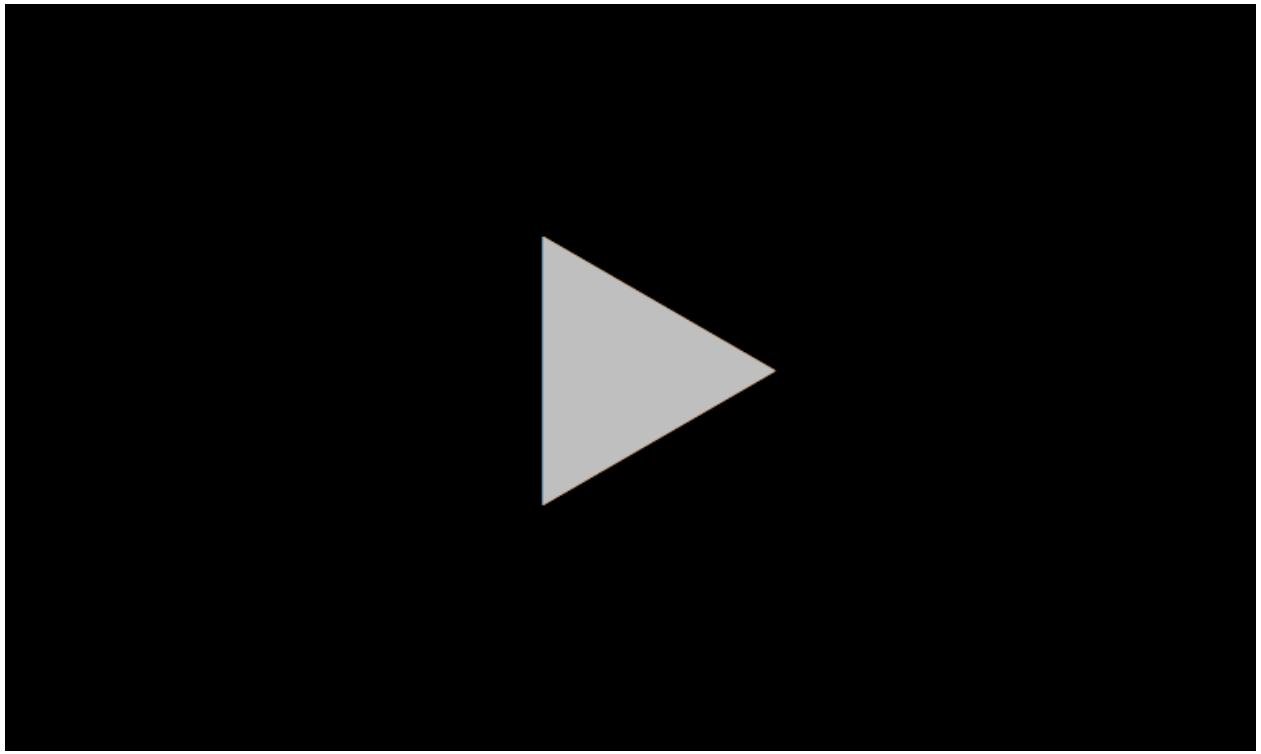
  (Fischer 1973, Klima and Bellugi 1979)

- By repeating a verb form in a variety of ways, a large number of different meanings can be communicated:
  - "Iterative," "Habitual," "Incessant," ...

- Wilbur 2009 (i.a.): decompositional morphological analysis.

Overview

- French Sign Language:



(1) OFTEN ONE PERSON FORGET-rep ONE WORD

Overview

Main points:

- We will show a categorical semantic distinction between two pluractional forms: full repetition and two-handed alternation.
  - The distributive semantics that we will posit for these fit into a larger pattern of pluractionality across (spoken) language.
- Additionally, we will argue that there is an **iconic component** to both forms; an argument from **gradient interpretation**.
  - A more abstract case of iconicity than many previous discussions, since it involves events instead of physical objects.
- The resulting system is expressively more powerful than what is commonly assumed for spoken language.

Section 2

Pluractionality

Pluractionality

- In many languages of the world, there are "pluractional" verbal suffixes, often created by reduplication.
- These contribute the notion that the sentence in some way describes **a 'multitude' of events**.
  - An event happened again and again
  - Many things happened at the same time

Pluractionality via reduplication

- Cross-linguistically, pluractional forms are often created with reduplication.

(2) **Hausa:** kiraa → kirkiraa 'keep on calling'/'call many people'

(3) **Pomo:** quo → quoquot 'cough up'

(4) **Dyirbal:** balgan → balbalgan 'hit too much'

(5) **Yokuts:** simwiyi → simimwiyi 'keep on drizzling'

(Respectively: P. Newman 2012, Moshinsky 1974, Dixon 1972, S. Newman 1944)

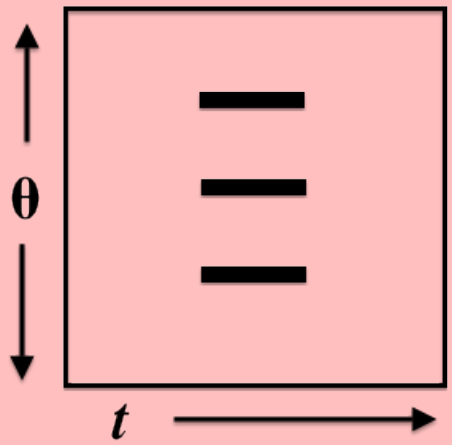
Pluractionality along many dimensions

- Upriver Halkomelem (Thompson 2009):

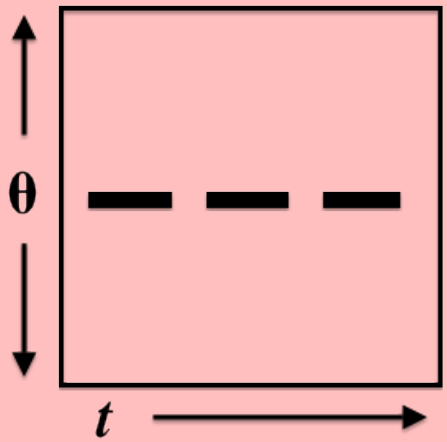
(6) **yáleq'** -et -es te theqát (cf. yáq'-et)
fall.pl -tr. -3sg. det. tree

- True if ...
  - **a.** He felled the trees. (all in one blow, or one after the other)
  - **b.** He felled the same (magic) tree over and over.
  - **c.** They felled the tree.
  - **d.** They felled the trees.
- False if ...
  - **e.** He felled the tree (once).

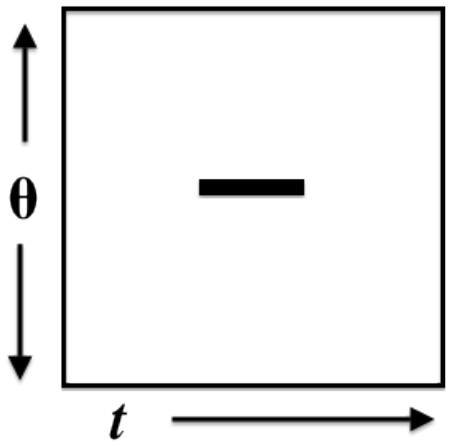
Pluractionality along many dimensions



'He felled several trees in one blow'



'He felled the same tree over and over'



'He felled one tree one time'

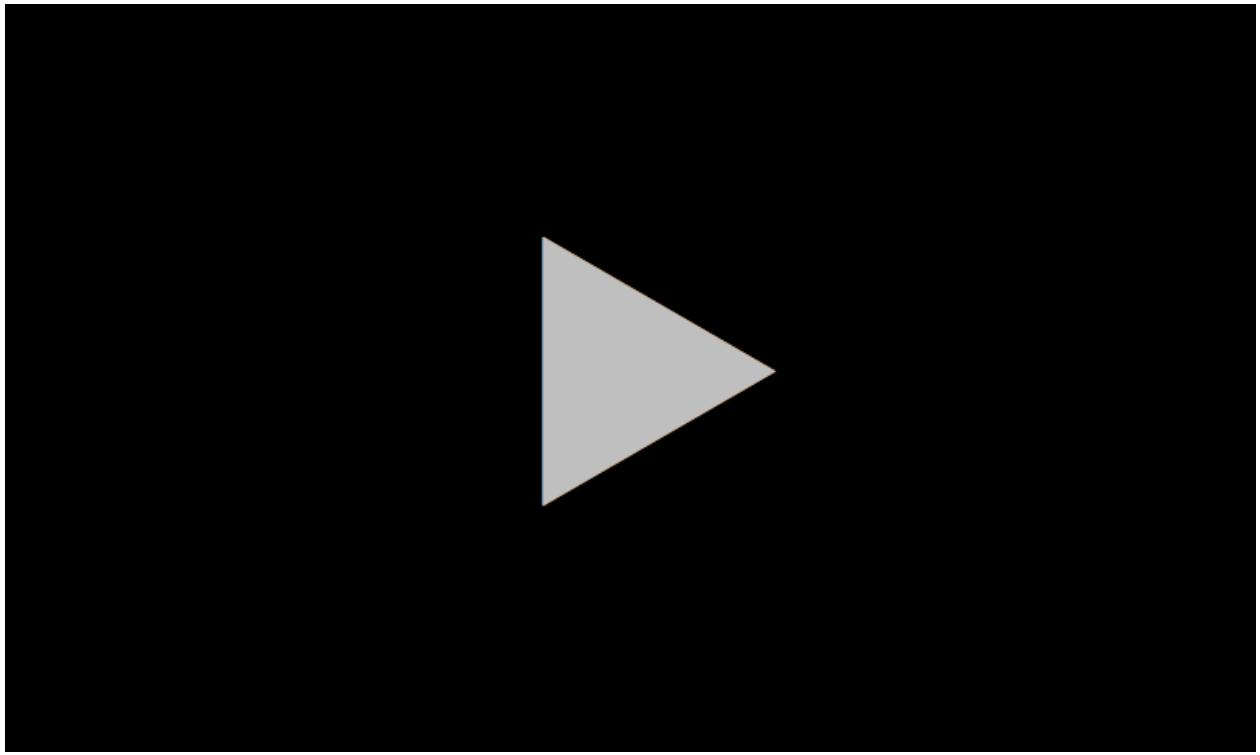
- Pluractional means: "you have more than one line."

Pluractionality in French Sign Language

- In LSF, too, verbs may be modified with reduplication to indicate pluractionality.
- There are at least two different morphemes that appear across a wide range of verbs.
  - /-rep/ is full repetition of the exact same motion of the verb
  - /-alt/ is alternating repetition of the two hands
- Examples:
  - FORGET (OUBLIER)
  - ARRIVE (ARRIVER)
  - GIVE (DONNER)
  - LEAVE (PARTIR)
  - SPIT (CRACHER)
  - TAKE (PRENDRE)

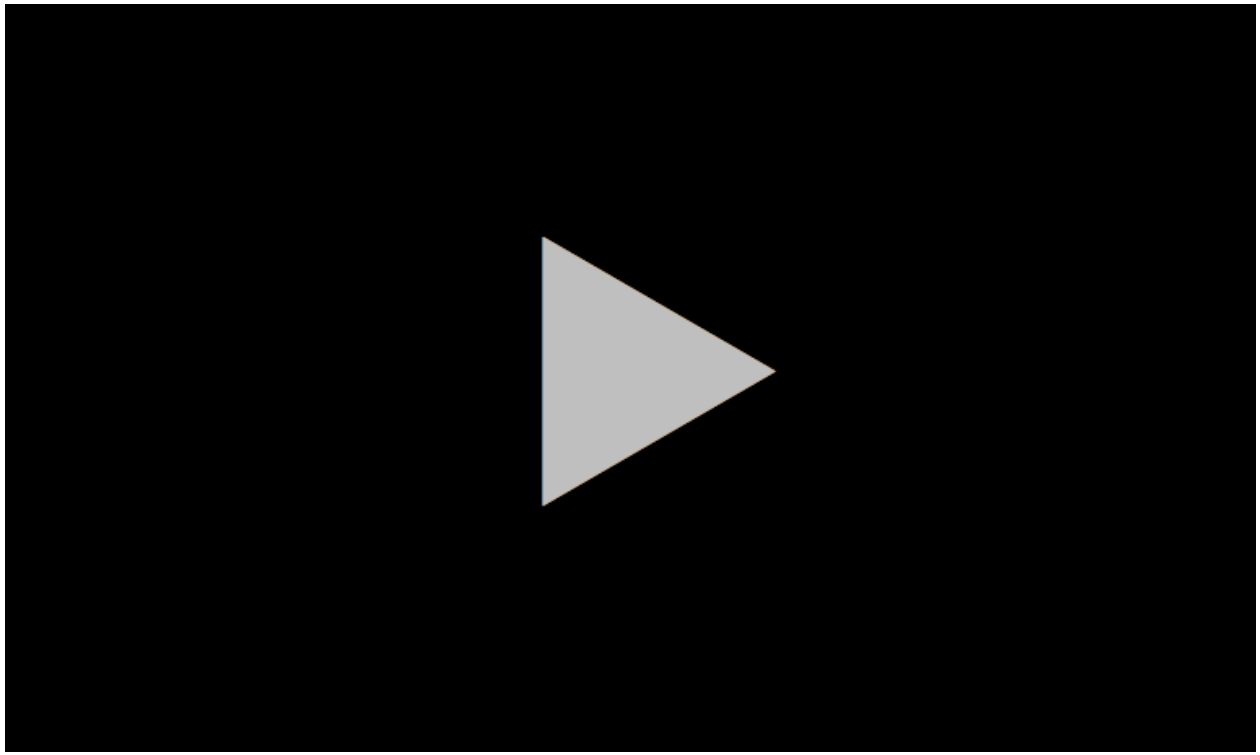
Pluractionality in French Sign Language

LSF: GIVE (singular), GIVE-rep, GIVE-alt



Pluractionality in French Sign Language

LSF: FORGET (singular), FORGET-rep, FORGET-alt



Pluractionality in French Sign Language

- What is the difference in meaning?
- Roughly:
  - FORGET-rep = forget again and again
  - FORGET-alt = forget many things
    OR
    many people forget
- Exactly the same dimensions of pluractionality that we saw earlier; /-alt/ and /-rep/ carve up the space of pluractional meanings.

/alt/: distribution over participants

- /-alt/ may be licensed by a plural in any argument position.

(7) GROUP PEOPLE BOOK GIVE-1-alt **pl. agent**
'A group of people gave me books.'

(8) ONE PERSON FORGET-alt SEVERAL WORDS **pl. theme**
'One person forgot several words.'

- Although (7)-(8) are compatible with events spread over time, distribution over time alone is not sufficient for /-alt/.

(9) * (OFTEN) ONE PERSON FORGET-alt ONE WORD
Intended: 'One person (often) forgot one word.'

/rep/: distribution over time

- In contrast, /-rep/ requires distribution over time.

(10) OFTEN ONE PERSON FORGET-rep ONE WORD
'One person often forgot one word.'

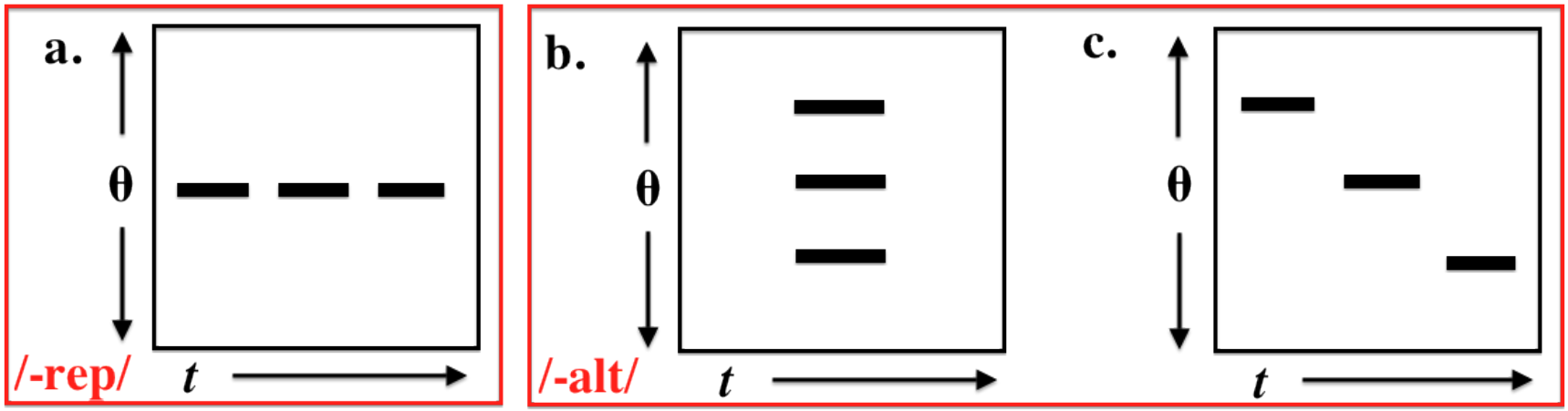
- In fact, /-rep/ requires that participants be the same.

(11) MY FRIENDS CL-area FORGOT-rep BRING CAMERA
'My friends kept on forgetting to bring a camera.'

a. ✓ several times; each time, all forgot
b. * a single time; all forgot
c. * several times; each time, a different one forgot

/-rep/ vs. /-alt/

	/-rep/	/-alt/
a. distribution over only time	✓	*
b. distribution over only participants	*	✓
c. distribution over participants and time	*	✓



Formal definitions

- Formally, we can give a fairly small modification to existing analyses of pluractionals (Lasersohn 1995).
- Below: /-alt/ *must* vary over thematic roles; /-rep/ *cannot*.

(12) a. $[\![\text{-alt}]\!] = \lambda V.\lambda e[e \in \textbf{Dist}(V) \wedge \exists e', e'' \leqslant e[\theta(e') \neq \theta(e'')]]$

b. $[\![\text{-rep}]\!] = \lambda V.\lambda e[e \in \textbf{Dist}(V) \wedge \forall e', e'' \leqslant e[\theta(e') = \theta(e'')]]$

- Notation: **Dist** gives the algebraic closure of singular events; $\theta(e)$ is a tuple of the arguments of an event: $\langle \text{ag}(e), \text{th}(e), \ldots \rangle$

Pluractionality Summary

Interim summary:

- The pattern of pluractional verbs in LSF fits perfectly into a broader typology of pluractionality in spoken languages.

- But wait, there's more...

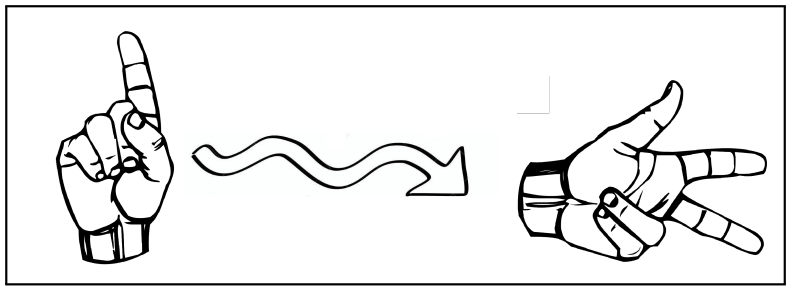
Section 3

Iconicity

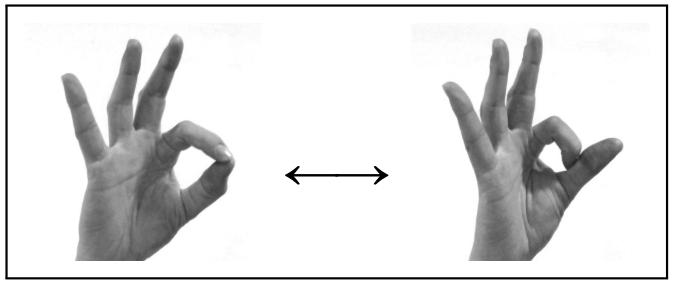
Iconicity

- **Iconicity (definition):** A construction is iconic if there is a structure-preserving mapping from the form of a sign to its meaning.

- Examples (ASL):



"The person walked up to the vehicle along a wavy path."



small disk ⟷ smaller disk

(Emmorey & Herzig 2003)

Iconicity

- It can preserve **geometric structure** (i.e. measurement).
- **Result:** gradient phonetic changes yield gradience in semantic interpretation.

- In contrast, generative grammar is a discrete, combinatorial system. Thus, gradient effects not possible.

- **Upshot:** the interpretation of gradient phonetic changes can serve as a diagnostic for iconicity. (Note: sufficient but not necessary.)

(Emmorey and Herzig 2003)

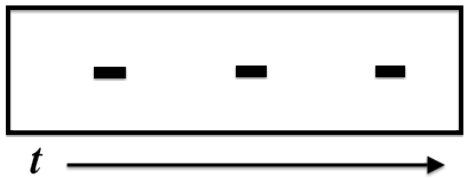
The iconic mapping

- **Claim: rate of reduplication** is iconically mapped to the **rate of the event repetition** over time.
  - GIVE-rep, when signed slowly, means that the giving events happened slowly.
- Note, though: it is clear that **absolute** speed is not preserved.
  - GIVE-rep signed slowly can describe events that take place over several days...even though it takes only a few seconds to sign.
- Therefore: If only *relative* speed preserved, we need to look at comparative forms in order to get gradient effects.

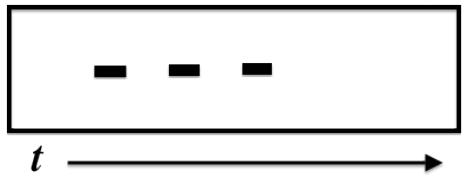
Gradient iconicity in LSF

- In comparative paradigms, multiple levels of speed are interpreted.
- Change in speed shows gradience *within a single verb form*.

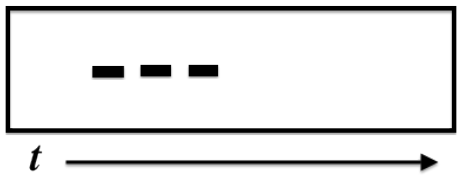
(13) a. GIVE-slow



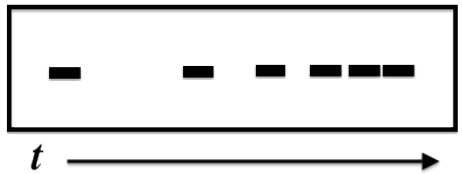
b. GIVE-medium



c. GIVE-fast



(14) GIVE-accelerating



Comparative paradigms

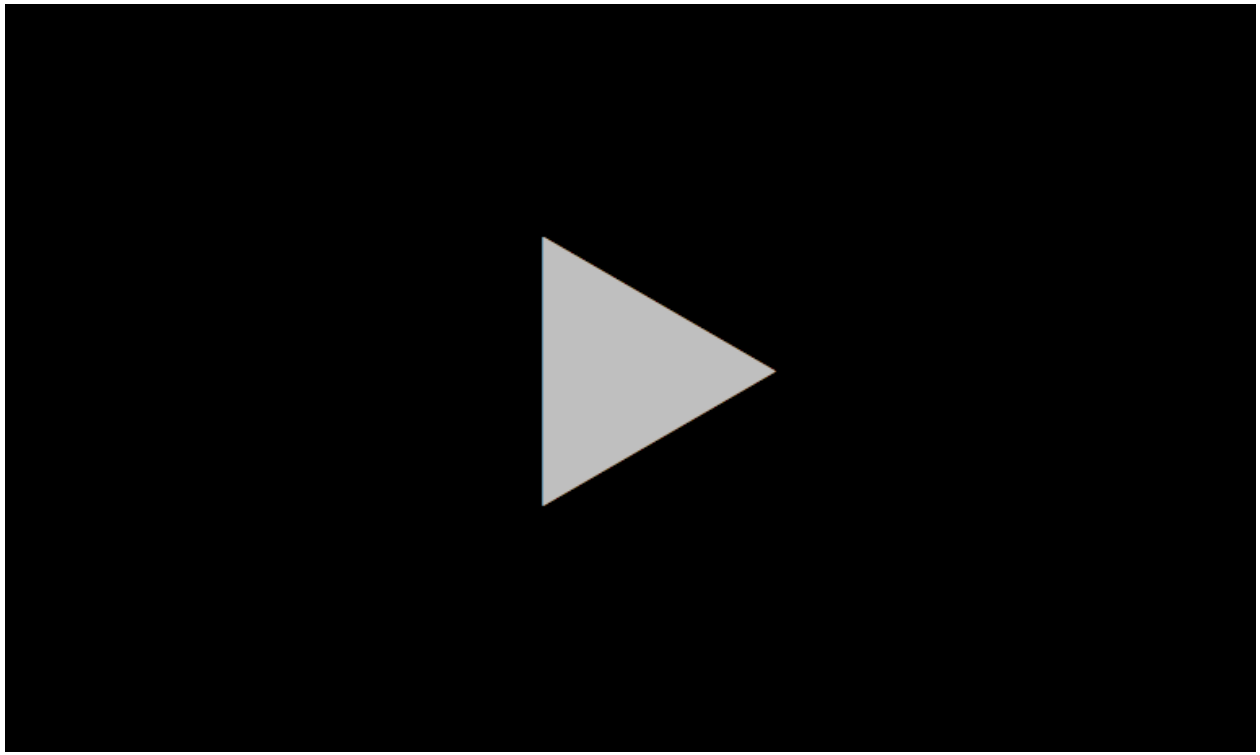
(15) a. GIVE-slow b. GIVE-fast c. GIVE-medium

- Judged independently, there's a binary distinction: (a) is judged as slower than some default rate (=once per day); (b) and (c) as faster than the default rate.
- But, when asked to compare the forms, gradient judgements emerge between all three forms:

"Of the three, the second and the third describe the same situations, *but* the timing is different: fast or slow — I'll explain. The second [fast]: "give-give-give book" means the person was like "ask-ask-ask-ask!"; I gave-gave-gave. The third [medium]: "give-give-give" means the person was like "ask please ... ask please give-me ... ask please"; I gave-gave. The level of the degree is different. The idea's the same."

Comparative paradigms

LSF judgement: comparing (b) GIVE-fast to (c) GIVE-medium.



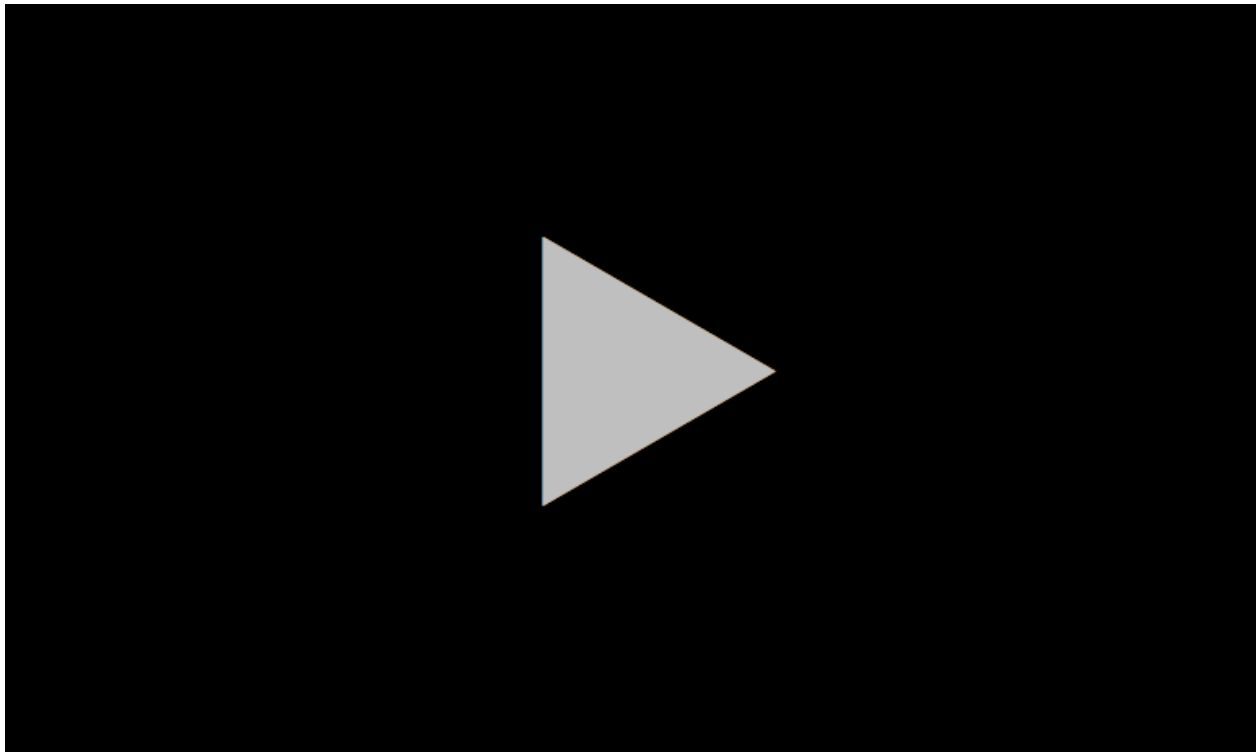
Verb-internal gradience (ASL data)

- We can see gradient effects in a single verb form if we allow **change** in speed (acceleration/deceleration).

- The following data is from ASL — we have no empirical reason to believe that the iconic component is different between LSF and ASL, and, indeed, there are theoretical reasons why iconic effects may be cross-linguistically stable.

Verb-internal gradience (ASL data)

ASL: GIVE-alt (decelerating), GIVE-alt (accelerating)

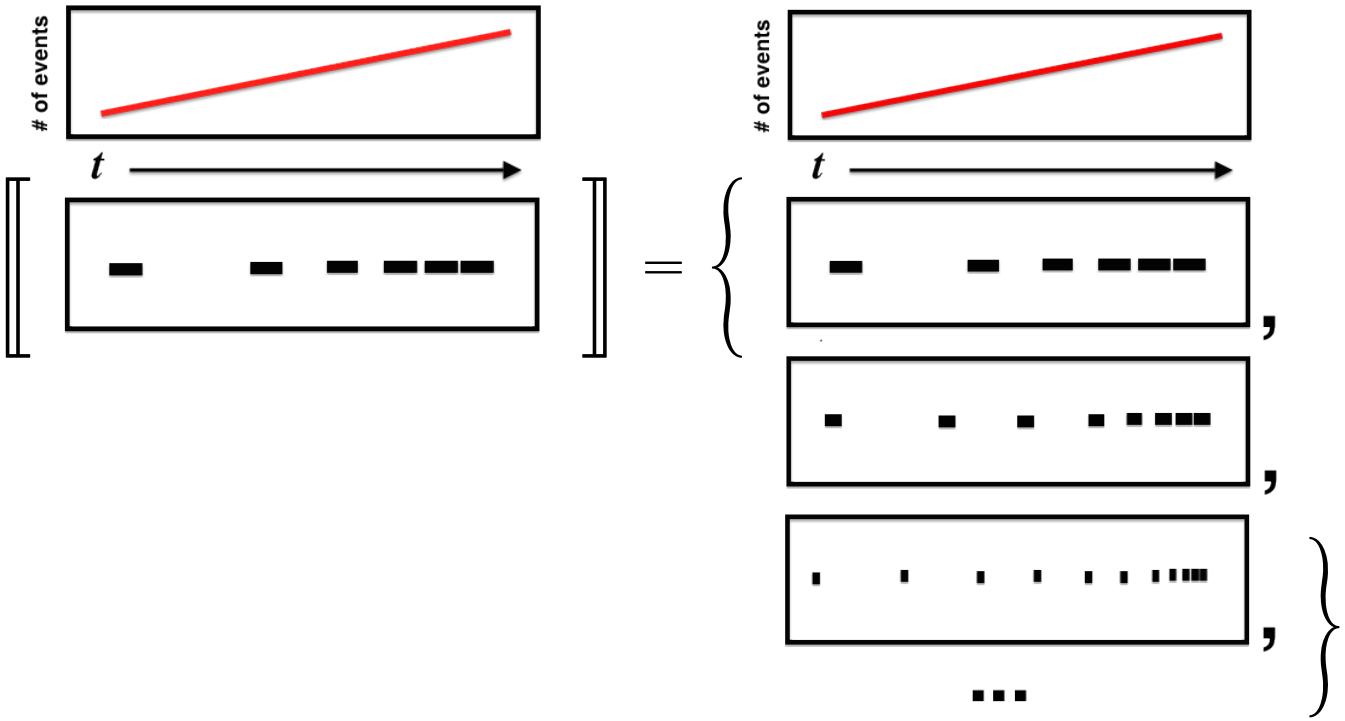


Iconicity: what's not preserved

- In fact, it's possible to preserve quite a lot of information:
  - E.g. speeding up, plateauing at a fast speed, then decelerating again
- BUT, notably **not** preserved: the exact number of repetitions.
  - No inference for the "GIVE-alt (decel.)" example that the speaker gave something exactly twelve times.
- General finding in the sign language literature: "three means plural."
- General cognitive finding (Carey 2009): relative cardinality judgements is easier than absolute cardinality judgements.

Iconicity: proposal sketch

- **Proposal:** Repetition associated not with a discrete set of points, but with a continuous distribution of events over time.
- The verb is true of any sequence of events which matches the same contour.



Iconicity in the grammar

- Now, notice that what we've just done is associate a verb with a set of plural events — in other words, we have a predicate type $\langle v, t \rangle$ that we can pop into a formal definition.

(16) a. $[\![\text{-alt}]\!] = \lambda V.\lambda e[e \in \textbf{Icon}(V) \wedge \exists e', e'' \leqslant e[\theta(e') \neq \theta(e'')]]$

b. $[\![\text{-rep}]\!] = \lambda V.\lambda e[e \in \textbf{Icon}(V) \wedge \forall e', e'' \leqslant e[\theta(e') = \theta(e'')]]$

- This follows Schlenker, Lamberton & Santoro 2012 in allowing iconically-defined predicates to be incorporated directly into the formal system.

Iconicity in the grammar

On the resulting system's expressive power...

- Stripping away iconic predicates leaves us with exactly the system used for spoken language.
  - The system is *at least as expressive* as spoken language.
- But, iconic predicates can express meaning in ways that a purely combinatorial grammar cannot (e.g. gradient interpretation).
  - So, in fact the system is *more* expressive than spoken language.
- A combinatorial grammar with iconicity can be seen as a "fine-graining" of a purely combinatorial grammar.

Section 4

Conclusion

Conclusion

- Here, we focused on two reduplicative verbal forms in LSF.
- First, we tried to position the semantics of these forms within a broader linguistic context, showing how the meanings fit in with more general patterns of cross-linguistic pluractionality.
  - Distribution over time or distribution over participants?
- Then, we argued that the sign language forms go beyond what we've seen to date in spoken language forms: critically, there is an iconic component incorporated, too.
  - Critically: in comparative forms, gradient interpretation.
- Putting these together, we get a system that is expressively more powerful than a grammar without iconic predicates.

Thanks!

Special thanks to:

Thomas Levêque, Jonathan Lamberton, Philippe Schlenker, and the audience at the NYU League of Linguistics Students.

The research leading to these results received funding from an NSF GROW grant to Paris (PI: Kuhn) and from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013) / ERC Grant Agreement No 324115–FRONTSEM (PI: Schlenker). Research was conducted at Institut d'Etudes Cognitives (ENS), which is supported by grants ANR-10-IDEX-0001-02 PSL* and ANR-10-LABX-0087 IEC.

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