Towards a unified view of “co-sign gesture” depictions as demonstrations

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Introduction

How do depictive/gestural and abstract/linguistic components of language interact with each other?

- Classifiers
- Role Shift
- Iconic Comparatives

Co-sign/speech gesture as demonstration

An event of communication **d** is a demonstration of another event **e**

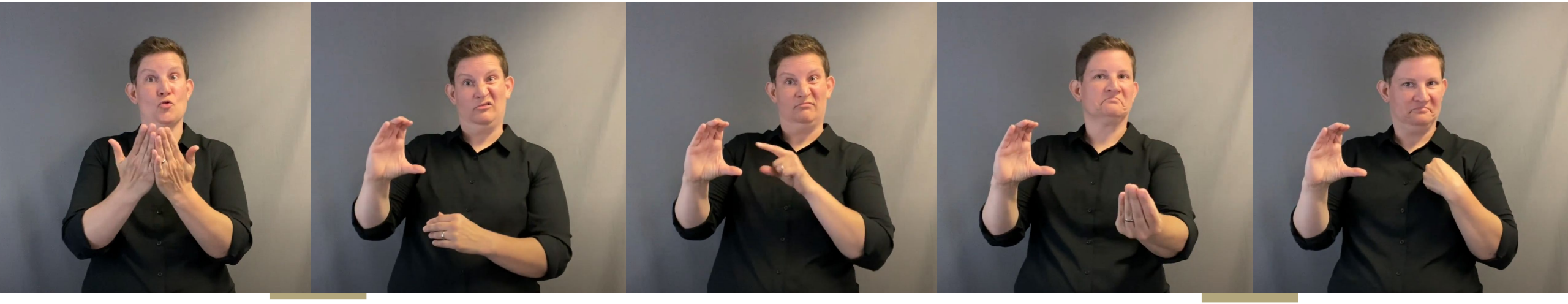
(i.e. *demonstration(d, e)* holds)

if **d** reproduces properties of **e** relevant in the context of communication

Formally, we can relate the two events as a two-place predicate: *λd. λe[demonstration(d, e)]*

(Davidson 2015)

Depictive Classifier Predicates: language and gesture



BOOK CL:C-“thick” IX 2-GIVEo-1

Classifiers using demonstration

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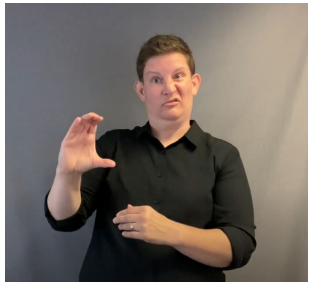


$$[[\text{CL-C THICK}]] = \lambda d.\lambda x.\lambda s.[\text{theme}(s,x) \wedge \text{flat-object}(x) \wedge \text{thick}(s) \wedge \textbf{Demonstration}(\textbf{d}_0, \textbf{e})]$$

Language **Gesture**

(Davidson 2015, Zucchi 2017)

Role Shift

fe-boy

pondering

fe-boy

have-an-idea

fe-boy

HAVE-IDEA

Context: From the fable *`The shepherd and the wolf'*. The shepherd boy is bored of tending the sheep.

(Steinbach 2023)

Role Shift as complex demonstration

$$\exists e[\text{have-idea}(e) \wedge \text{agent}(e, \text{shepherd-boy}) \wedge \text{form}(e, (\text{'HAVE-IDEA'}) \wedge \mathbf{demonstration(d_{10}, e)}]$$

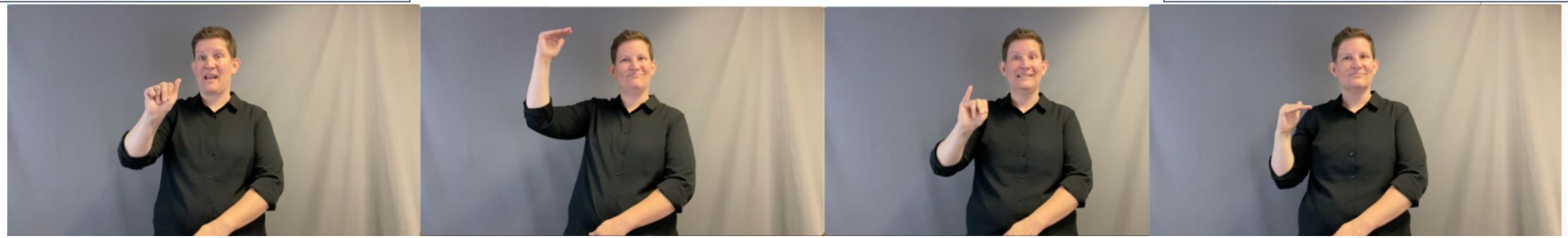
Language **Gesture**

d_{10} is the signer's reproduction of the shepherd boy who has an idea.
d_{10} involves the facial expression, the upper part of the body and the hands

(Steinbach 2023)

Classifiers, Role shift both examples of gestures integrated with linguistic content, i.e. “co-sign gestures”

Iconic Comparatives



MARY

TALL$_{(at\ -signer-\ head)}$

GIANNI

TALL$_{(neutral\text{-}space)}$

`Mary is taller than Gianni'

(Aristodemo and Geraci 2018, Kentner 2020, Koulidobrova et.al 2023)

Iconic Comparatives as demonstrations

Mary's Height: TALL +  = λ s(s ∈ domain(⟨Dheight , ≥height ⟩)).Tall$_c$(s)

∧ Holder (s, Mary) ∧ Demonstration( , s))]

Gianni's Height: TALL +  =λ s(s ∈ domain(⟨Dheight , ≥height ⟩)).Tall$_c$(s) ∧ Holder(s,Gianni)

∧

s))]

monstration(,

(Thalluri and Davidson 2024)

Iconic Comparatives

$$[[\text{GIANNI a-IX TALL}_{(\text{neutral-space})}]]c = [\underbrace{\exists s(s \in \text{domain}(\langle D_{\text{height}}, \geq_{\text{height}}\rangle))(\text{Holder}(s, \text{GIANNI}) \wedge \text{Tall}_c(s)}_{\text{Language}} \underbrace{\wedge \text{Demonstration}(\delta_1, s))}_{\text{Gesture}}]$$

Language

Gesture

'Gianni is in a state of being tall (relative to the context c) and δ_1 demonstrates that state.'
The meaning "Mary is taller than Gianni" is inferred from the demonstrations

Conclusions

- Gestures are often integrated with linguistic structure in sign languages (just as in spoken languages)
- Analyzing iconicity as gesture doesn't preclude a formal semantic analysis; demonstrations are perfect for this!
- We draw inferences from both the linguistic and gestural components.
- Formal analyses of these "co-sign gestures" provide detailed empirical predictions (e.g. (Kentner 2020, Wilbur et.al 2012) for ASL comparatives)

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Classifier Predicates (ASL)

BOOK CL:C-"thick" IX 2-GIVEo-1

Language

λd.λx.λs.[theme(s,x) ∧flat−object(x)∧thick(s)∧

Gesture

Demonstration(d_0, e)]

Action Role shift (DGS)

Steinbach (2023)

fe-boy *pondering* fe-boy *have-an-idea* fe-boy HAVE-IDEA

Gesture

Demonstration(d_{10}, e)]

Language

∃e[have−idea(e)∧agent(e, shepherd−boy)∧form(e, ('HAVE−IDEA')∧

"Co-sign" gesture as demonstration

A demonstration event **d** is a demonstration of another event **e** (i.e. demonstration(d, e) holds) if d reproduces properties of e relevant in the context of speech

[[demonstration − like]]=λd.λe[demonstration(d, e)]

Language

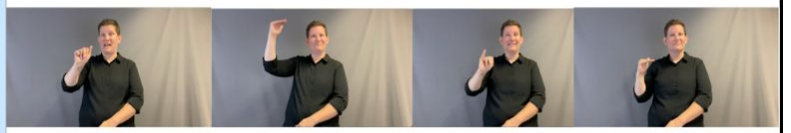
Linguistic content describing the event (e)/ state (s) agent or theme of an utterance

Gesture

Iconic content demonstrating (d) the event (e)/ state (s) of an utterance.

- Gesture is often integrated with linguistic structure in sign (and spoken) language.
- Analyzing iconicity as gesture doesn't preclude a formal semantic analysis.
- Demonstrations provide a uniform semantic tool for iconic elements as gesture across various sign language phenomena.
- We draw inferences from both the linguistic and gestural components.

Iconic Comparatives (ASL)



MARY $TALL_{(at\text{-}signer\text{-}head)}$ GIANNI $TALL_{(neutral\text{-}space)}$

Language **Gesture**

λ s(s ∈ domain(⟨D_{height}≥ height ⟩)). $Tall_c$(s)∧ Holder (s, Mary)∧**Demonstration(d_1, s))]**

Comparison via demonstration

(Mary's height) d_1 > d_2 (Gianni's Height)

i.e the height depicted in d_1 is greater than the height depicted in d_2

Selected References

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