Finding systematicity in the margins: Polysyllabic forms in the ASL Lexicon

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Polysyllabic forms in the ASL lexicon

- **Scope of analysis:**
  - Polysyllabic lexical items with multiple distinct syllables (i.e. first and subsequent syllables are not repetitions of one another)

  - Polysyllabic lexical items will be divided into compound and non-compound forms

Examples: Compound

FIREPLACE

Examples: sign + agentive morpheme

REPORTER

Examples: Other

TIE (verb)

Polysyllabic forms in the ASL lexicon

- Why look at these forms?
  - Margin cases can provide additional insights (Bybee 1994)
  - From an information theory based perspective, the rarity of these forms makes them more complex.

Polysyllabic forms in the ASL lexicon

Primary question:

Do polysyllabic lexical items exhibit constraints in their form?

Polysyllabic forms in the ASL lexicon

- **Conclusions:**
  - Non-compound polysyllabic items in the lexicon display some restrictions in their form, as well as sub-regular patterns.
  - These distributional characteristics are not shared by compounds

Presentation overview

1. Background: Polysyllabic forms in the ASL lexicon
2. Dataset and distribution of forms
3. Discussion
4. Compounds vs. other polysyllabic forms
5. Conclusions and future directions

Previous accounts

- Perlmutter (1992):
  - Claim: Secondary movements, (‘trilled movements’), do not occur in monomorphemic, disyllabic lexical items.
  - Restriction does not hold for signs that are morphologically derived.

Previous accounts

- Brentari (1996):
  - Perlmutter's account does not hold for all examples:
    - Exceptions: AMAZING, MAGIC, GAMBLE, HYPNOTIZE

Previous accounts

- Brentari (1998):
  - Constraints on polysyllabic, monomorphemic signs
    - circle+straight movement allowed
    - straight+circle movement not allowed

    - Restricted to two movements (2-MVT constraint)

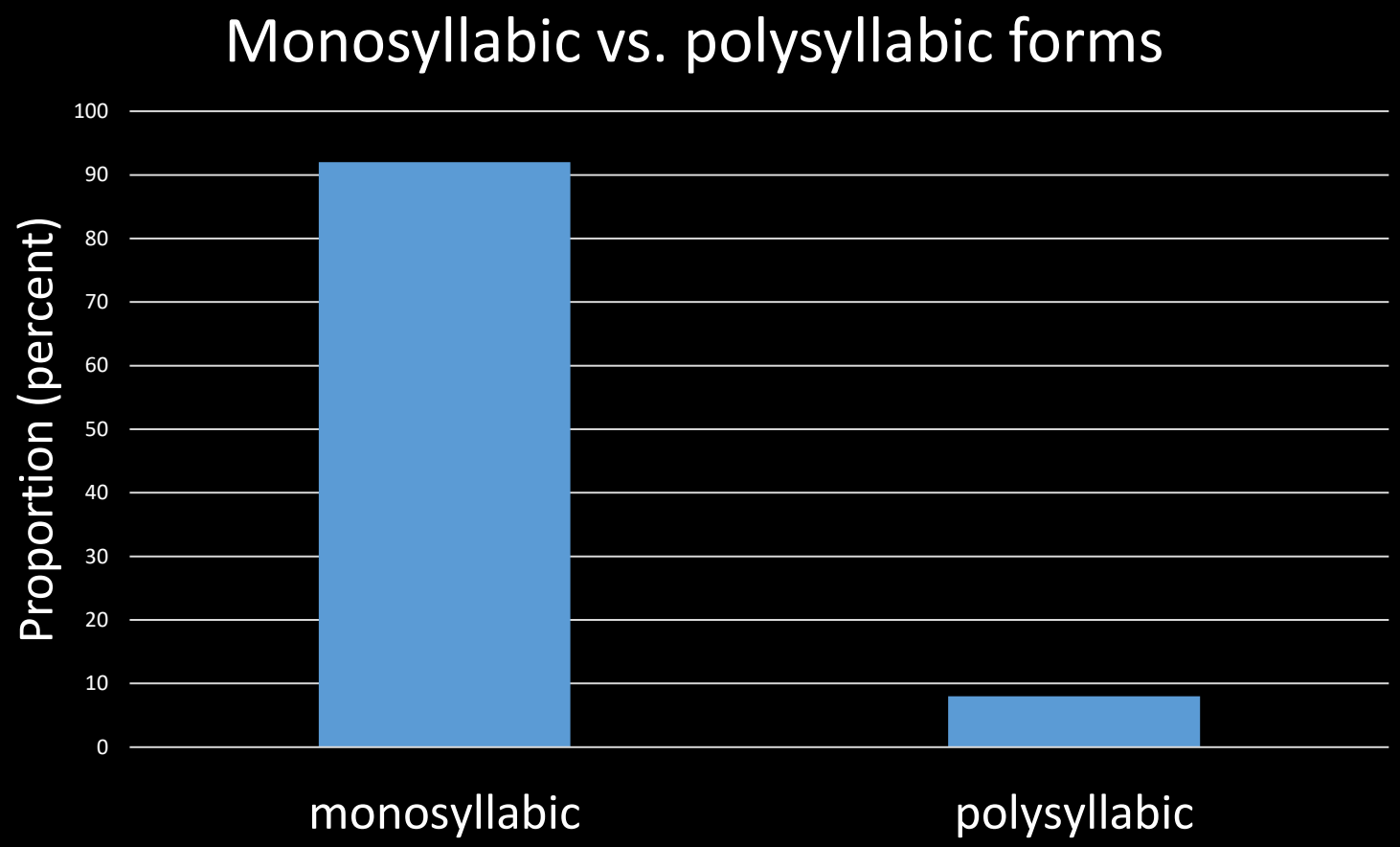
Dataset

Gallaudet Dictionary of American Sign Language (Valli, 2006):

- a dictionary comprising 2,998 video entries in ASL.

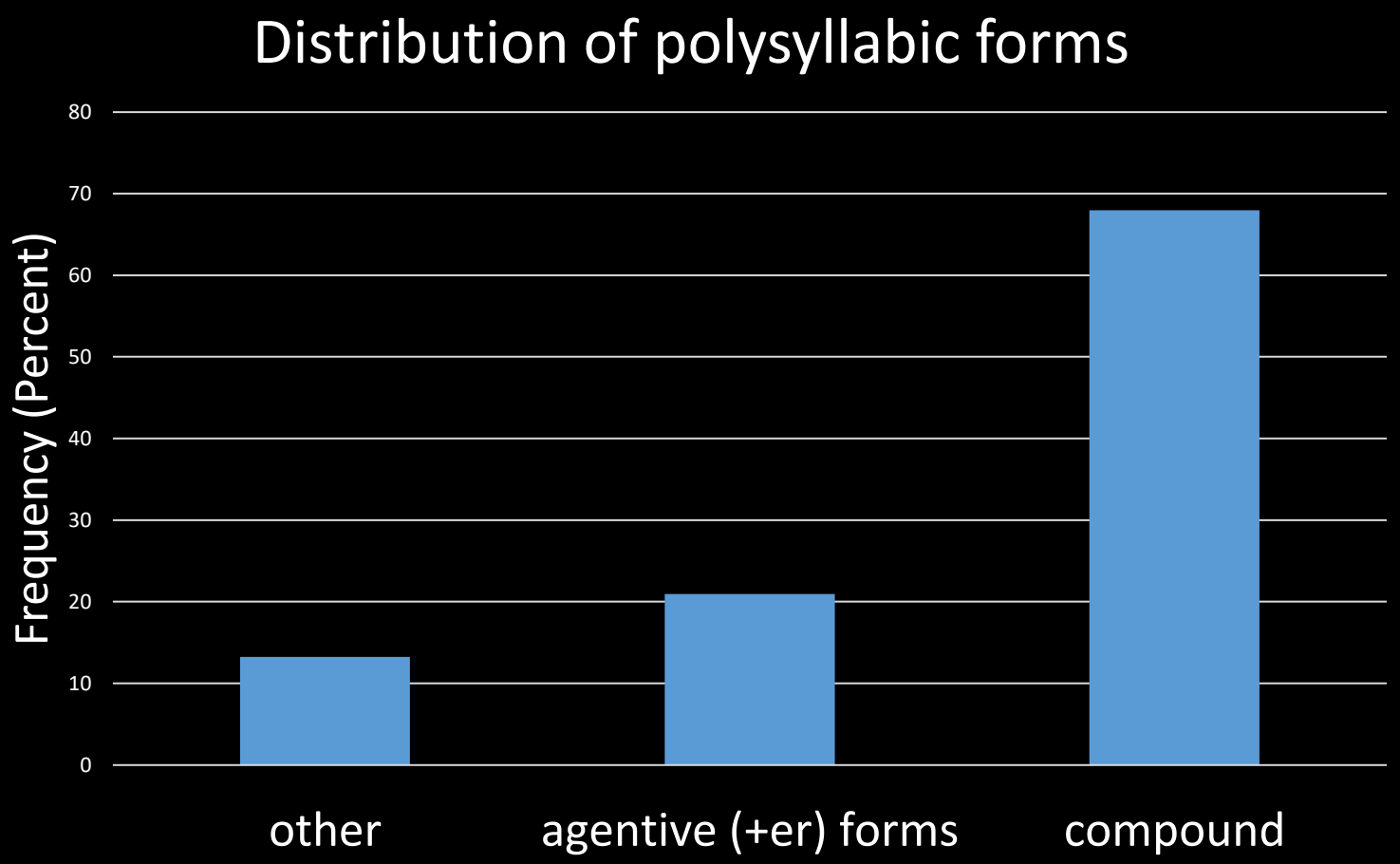
- Entries excluded:
  - fingerspelled words
  - full phrases

Distribution in the lexicon



Type	Percent
monosyllabic	92%
polysyllabic	8%

Distribution in the lexicon



Type	Percent
other	13%
agentive	21%
compound	68%

Sub-patterns in polysyllabic forms

- Two sub-regular patterns:
  - Two patterns within the movement parameter comprise 71% (22/31) of the non-compound forms

- Restricted distributional tendencies in:
  - Selected fingers
  - Number of syllables

Sub-patterns in polysyllabic forms

- Sub-patterns:
  - Type A: circle movement + straight movement
  - Type B: straight movement + repeated tap (or nod) movement

Sub-patterns in polysyllabic forms

- Type A:
  - Circle movement + straight movement
  - Comprises 42% (13/31) of the forms under consideration
  - Appears in both one-handed and two-handed forms

Examples: Type A

TIE

APPOINTMENT

Sub-patterns in polysyllabic forms

- Type B:
  - Straight movement + repeated tap (or nod) movement
  - Comprises 29% (9/31) of the forms under consideration
  - All Type B signs begin with contact with the body

Example: Type B

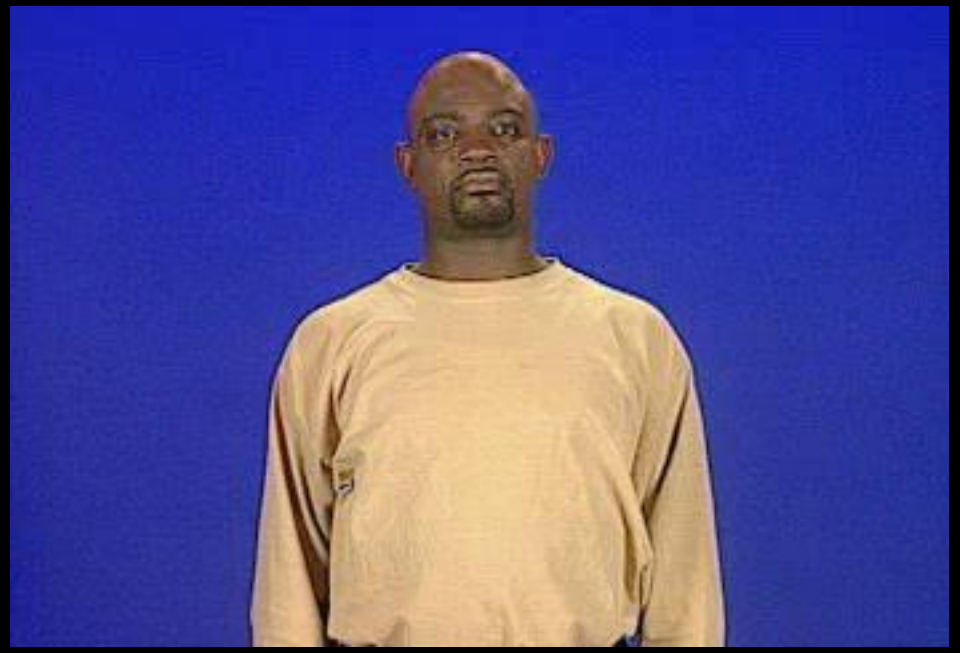
MEXICO

WITCH

Example: Type B continued

LICK

Remaining items



BUCKET

GAMBLE

- Most morphologically complex, highly iconic, based in classifier constructions

Additional distributional tendencies:

- Most forms (30/31) have either:
  - i. no change in aperture (20/31)
  - ii. an aperture change within the same selected finger group (10/31)

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- All forms limited to two distinct syllables
- No forms violated the *straight+circle constraint

Analysis: Type A and B

- ‘Other’ category shows tendencies towards two types of movement patterns, although not all forms fit into these groups.

- Perhaps driven by a pressure towards perceptual distinctiveness.

Analysis: Remaining items

- Signs outside of the Type A/B categorization largely comprise classifier-derived constructions (8/9)

- Iconicity and morphological complexity may be contributing to the increased complexity in the lexical items that did not fit into the proposed classification.

Comparison with compounds

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- Compounds do not appear to be as strictly constrained in form:
  - Ex. violation of *straight+circle

SOUTH AFRICA

Comparison with compounds

- Compounds do not appear to be as constrained in form.
- Compounds not necessarily limited to two syllables (ex. DESERT)

Comparison with compounds

- Example: DESERT

DRY + transition movement + AREA

Conclusions (1/2)

- Sub-regularities and distinct distributions within the non-compound set separate it from compounds in the ASL Lexicon.

- Within the non-compound forms two distinct subgroups comprise the majority of the data within this subset

Conclusions (2/2)

- Existence of these sub-regularities further supports the analysis of edge cases.

- While not representative of the whole lexicon, these potentially provide additional insights into the pressures that shape the phonological system of sign languages

Future work

- Dataset does not include all attested polysyllabic forms.
  - Example: MAGIC
  - Further examination of additional polysyllabic signs will reveal whether the trends identified hold

Thank you to....

- Project advisor Diane Brentari

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References

- Brentari, D. (1996). Trilled movement: Phonetic realization and formal representation. *Lingua*, *98*, 43-71.
- Bybee, J. L. (1994). A view of phonology from a cognitive and functional perspective. *Cognitive Linguistics*, *5*(4), 285-306.
- Brentari, D. (1998). A prosodic model of sign language phonology, Cambridge, MA, MIT Press.
- Lapiak, J.A. ASL sign for: magic. Retrieved from https://www.handspeak.com/word/search/index.php?id=1330
- Perlmutter, D. M. (1993). Sonority and syllable structure in American Sign Language. In *Current issues in ASL phonology* (pp. 227-261).
- Signing Savvy, L.L.C. Sign for SPANISH. Retrieved from https://www.signingsavvy.com/sign/SPANISH/6113/1
- Valli, C. (2006). The Gallaudet Dictionary of American Sign Language. Gallaudet University Press.