Pear Story Narratives in American Sign Language: A Distributional Analysis of Disfluency Types

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Disfluency in language production

What is disfluency?

- Interruption of fluent discourse

Processes of Disfluency

- Cognitive planning load (Bortfield et al 2001)
- Coordination of communication (Shriberg 1996)

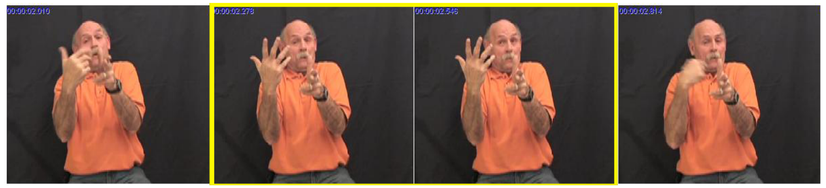
Signed language disfluencies

Still under-investigated: Studies primarily on SL production errors

- *Slip of the hands, Tip of the fingers, Repairs*

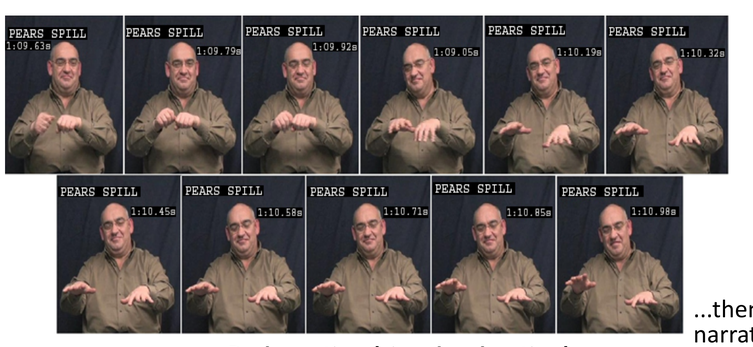
Editing expression (BACK.UP)

Pause



Filler (WELL)

Disfluency Type[1]	ASL
Pause	Frozen handshape, Neutral Pos.
Filler	Finger wiggling, palm 5, index bounce
Restart	ACROSS-FROM (L-R) ACROSS-FROM (R-L)
Repeats	MAN…MAN
Editing expression	WRONG, BACK.UP, EXCUSE, NEG headshake
Prolongation	Repetitions, Decelerations, Exaggerations
Unknown	GEESH, Hands out
Other	Brush hair from face, scratch



Prolongation (sign deceleration)

[1]Disfluencies are both modified and adapted from Emmorey et al (2000) along with additional categories from our study.

Research Questions

What types of disfluencies are produced during narratives? Do other disfluency types exist that were not presented in Emmorey et al (2000)?

Methodology

Procedure

5 participants from Winnipeg, Canada...

...individually watched the Pear Film (Chafe 1980).

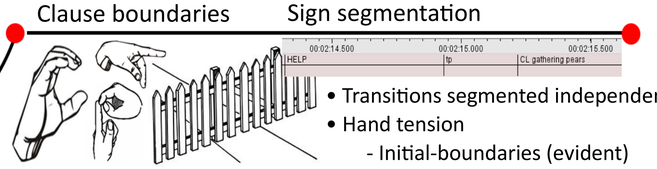
...they narrated it from memory again without review.

After a 40-50 minute wait...

...then immediately narrated the story from memory.

Editing Phase

Clause boundaries — Sign segmentation



Eye blinks, change in eyebrows, head nods, pauses (Wilber (1994)

- Transitions segmented independent of signs
- Hand tension
  - Initial-boundaries (evident)
  - End-boundaries (loss)
- Facial expr. limited to end-boundaries
- Directional changes for 2+ syllabic signs

(Wilbur & Nolen, 1986; Green, 1984)

Emmorey, Tversky, & Taylor (2000)

- Described a map of a convention centre from memory
- ASL signers produced significantly less: pauses, fillers, restarts, (but not editing expressions)
- Co-occurrence of pauses and eye gaze shifts: ASL > 70% (sig diff.) & < 40% English
- ASL signers produced disfluencies at a significantly lower rate than English speakers

- ASL signers: 6.0 disfluencies /min
- English speakers: 17.0 disfluencies /min

Data

Disfluency type	Take 1	Take 2
Others	2	7
Pauses (#)	32	62
Repeats	45	46
Restarts	10	14
Edit expression	27	38

Disfluency type	Take 1	Take 2
Repairs	6	4
Fillers	131	209
Sign lengthening	69	102
Unknown	12	13

First narration:
27.3 disfluencies / min

Second narration:
31.1 disfluencies / min

Averages

	Take 1	Take 2
Avg. # of disfluencies	45.7	71.5
Avg. # duration narration	2:51	3:28
Avg. # of signs in narration	202	210.4
Avg. # rate of disfluency/min	27.3	31.1

Discussion/Emerging trends

- Differences in the rate of disfluencies in Emmorey et al (2000) suggest that they were not looking at other disfluency types that may be modality and/or language specific.
- Co-occurrences of manual disfluencies with eye gaze: *Eye gaze shifting upwards, eyes closed*
- Upward palm orientation may correlate to disfluent events
- Older participants frequently pause

Literature Reviews

Bortfeld, H., Silvia D. L., Bloom, E.J., Schober F. M., & Brennan E. S. (2001).Disfluency Rates in Conversation: Effects of Age, Relationship, Topic, Role and Gender. Language and Speech, 4(2), 123-147.

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Shriberg, E.E. (1996). Disfluencies in SWITCHBOARD. *Proc. International Conference on Spoken Language Processing*, Addendum, pp. 11-14, Philadelphia, PA.