Word order biases in adults and children
A silent gesture experiment

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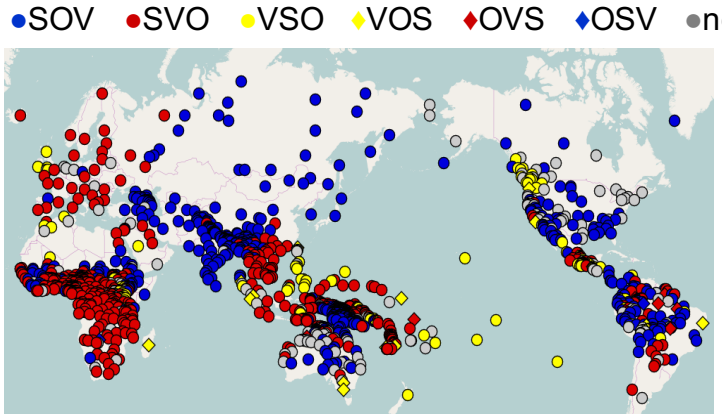
Today's theme: Language learning and language typology

Some features of grammars are more frequent than others across languages ("typological universals")

Where do "universals" come from?

- Language contact & historical and geographical relatedness
  (Evans & Levinson; Dunn et al., 2011; Pientadosi & Gibson, 2014)
- Human cognitive systems constrain the distribution of grammatical features across languages (ease of learning, processing, and use)

Some word orders are more common than others



- SOV most frequent, followed by SVO
- Languages tend to go SOV → SVO, rarely vice-versa (Gell-Mann & Ruhlen, 2011)
- This change can be triggered by loss of case marking (Sinnemaki, 2010).

Interpretation: SOV is the "default" word order in communication, SVO can emerge to highlight thematic roles when case-marking is lost.

Two main sources of evidence:

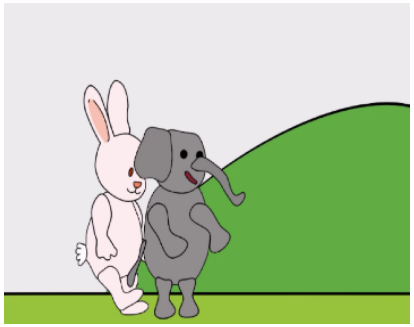
1. emergence of new languages (Aronoff et al., 2008; Senghas et al., 1997)
2. silent gesture experiments in the lab (Goldin-Meadow et al., 2008)

Investigating word order biases in the lab

Goldin-Meadow et al. (2008): speakers of SVO languages mostly used SOV when communicating using gesture

- ***silent gesture, elicited pantomime, improvised communication…***

SOV is "default" but people switch to SVO when communicating about **semantically reversible events – *the bunny kicked the elephant*** (Gibson et al., 2013; Hall et al., 2013)

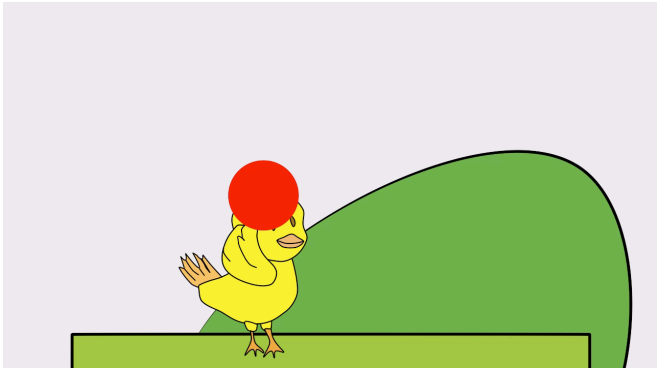


Interpretation: SOV is the "default" word order in communication, SVO can emerge to highlight thematic roles when case-marking is lost.

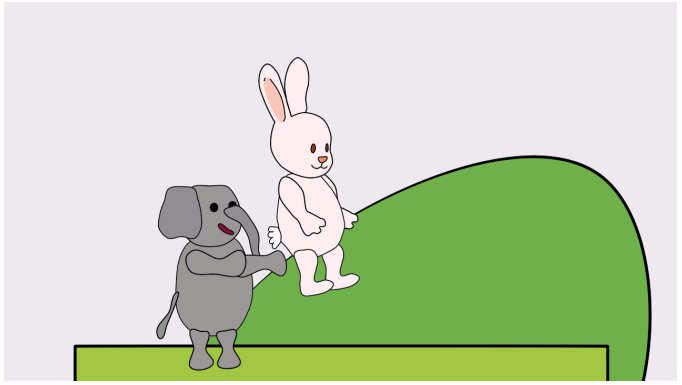
What about children?

- All work so far has been done on adults, but adult and child learning can be different (Hudson-Kam & Newport, 2005; Culbertson & Newport, 2015) *and* can play a different role in language change (Lupyan & Dale, 2010; Senghas et al., 2004)
- Current study:
  - Do children prefer SOV for non-reversible events (like adults)?
  - Do children avoid SOV for reversible events (like adults)?

non-reversible events



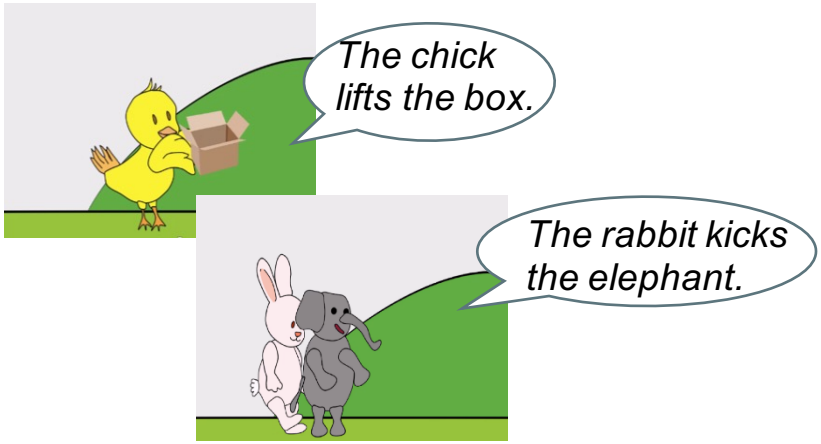
reversible events



Experiment 1: Word order biases in adults & children

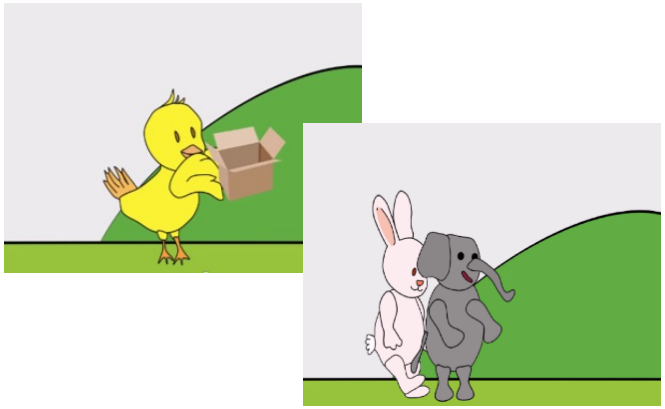
1. Speech task

Watch each video, describe it verbally



3. Gesture task

- Watch each video, describe it <u>using your hands</u>



2. Practice phase: step added for children

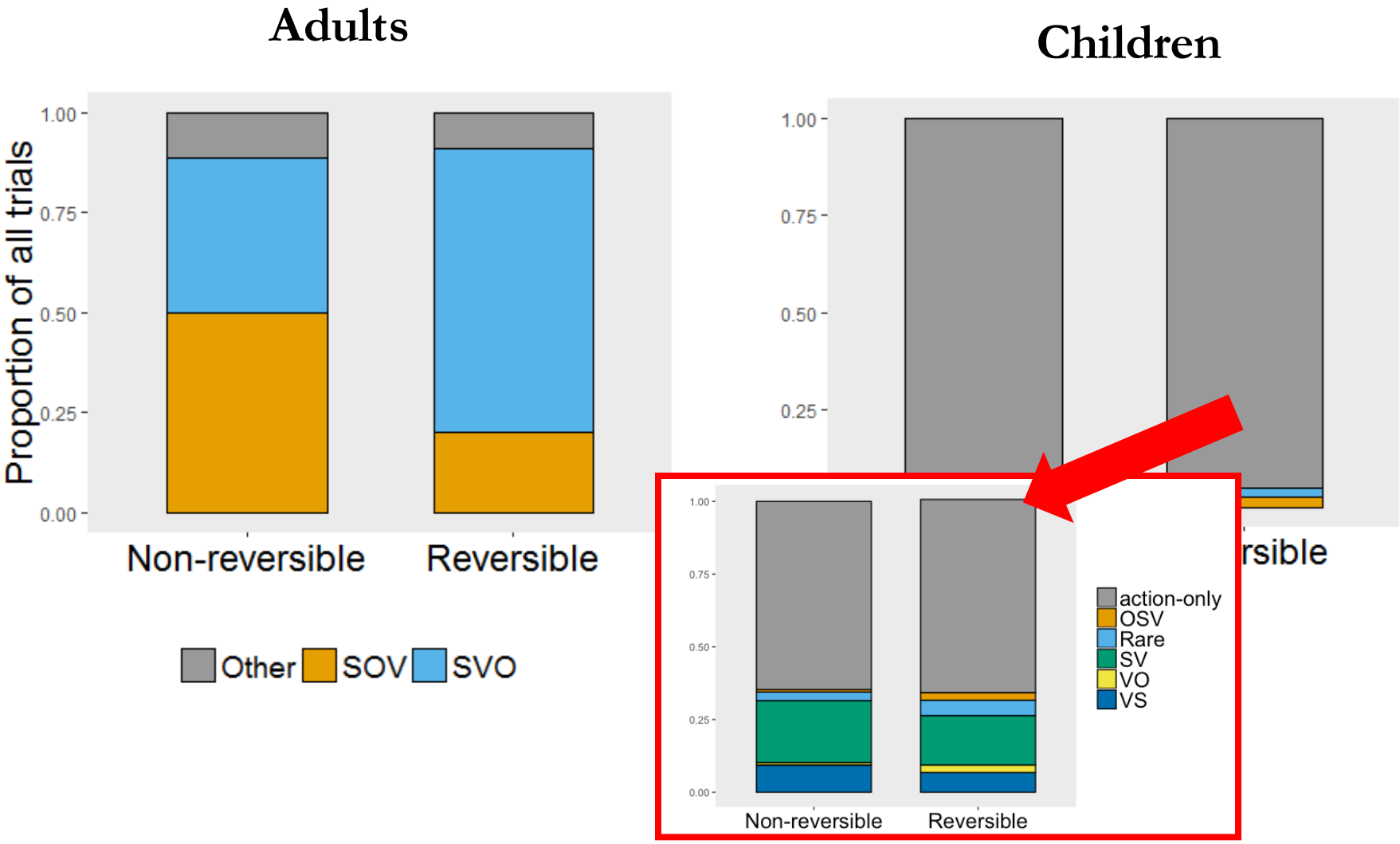
Watch BSL signs, guess meaning and "do your own"

Experiment 1: Word order biases in adults & children

21 adult (M=24.5) and 22 5-6-year old (M=6;1) speakers of English (SVO) with no knowledge of any sign language

All trials coded for relative position on agent (S), patient (O), and action (V).

Is there an effect of reversibility and age on word order?



Experiment 2: Modified paradigm

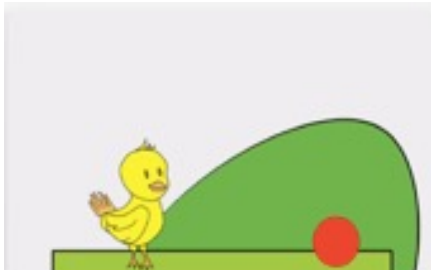
1. **Speech task**
2. **Practice**

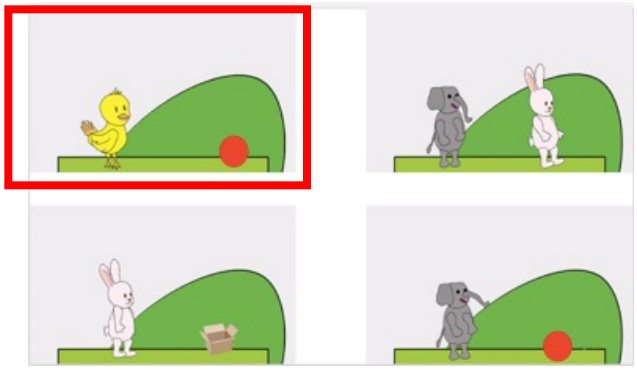
same as Experiment 1

KEY change: communication

3. Gesture task

- Re-watch each video, describe using hands <u>to experimenter</u> who guesses from choice of 4

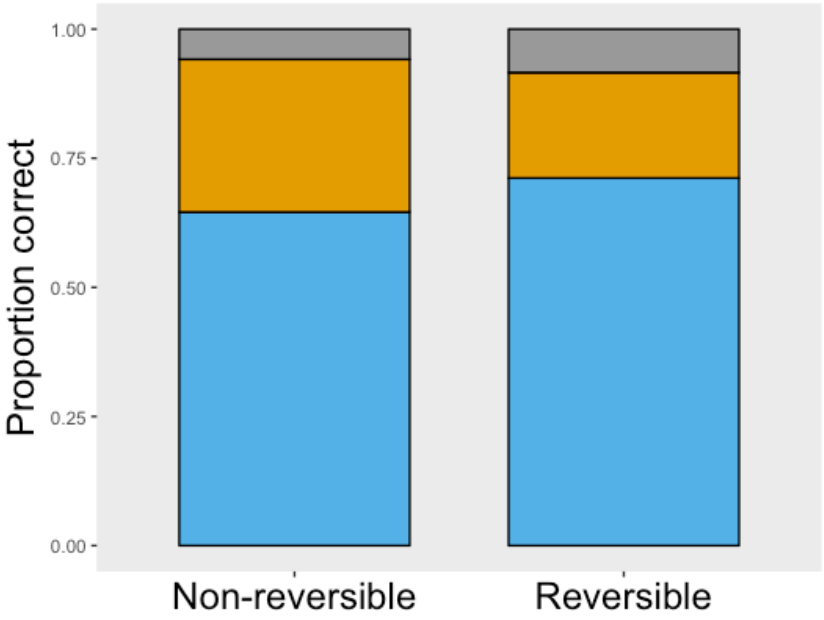




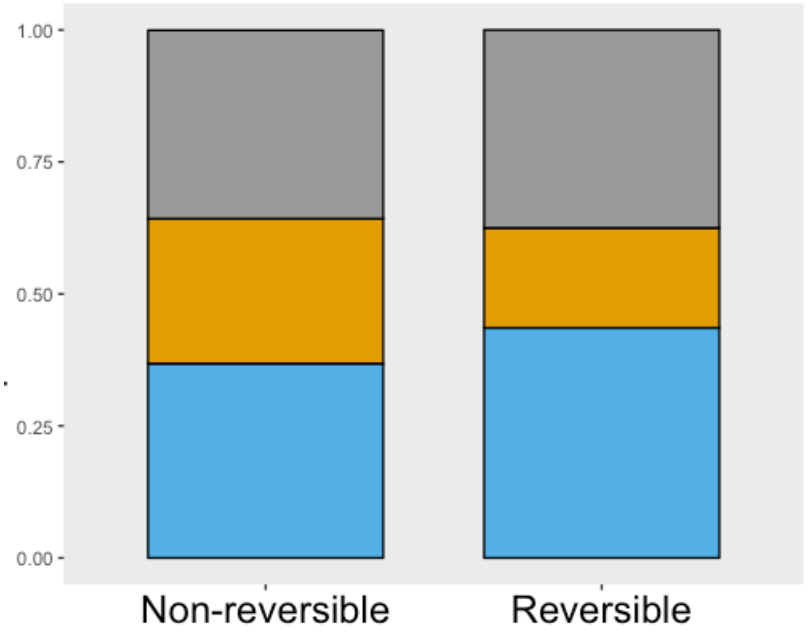
- Experimenter gets it right → sticker ☺

Is there an effect of reversibility and age on word order?

Adults (N= 20, M_{age} = 29)



Children (N= 27, M_{age} = 6;4)



- Children used more SVO and SOV than in Experiment 1
- No significant effect of reversibility in either age group (BF suggest inconclusive)
- Adults switch to SVO when communicating in pairs or using a consistent lexicon of gestures (Christensen et al., 2016; Hall et al., 2014; Marno et al. 2015)

Summary

- Experiment 1: Classic silent gesture paradigm **did not work** with children
  - Adults: effect of reversibility (replication of previous work)

- Experiment 2: Modified silent gesture paradigm using communication **did work** with children
  - Both adults and children used SVO most, followed by SOV
  - Communication might have confounded the effect of reversibility

Some food for thought…

- Is language change driven by adults or children?
  - We found no evidence of *stronger* biases in children compared to adults.

- SOV preference reflects people's conceptual representations of events, but it disappears when the task is more communicative.
  - What does this imply for learning/communicative pressures that might shape language?

- Can we tap into children's conceptual representations without using a communicative task?

Thank you!

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