Czech speakers productively apply correlations between inflected forms

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Summary

- Czech GEN and LOC suffixes show correlated variation
- Speakers use these correlations to infer LOC from GEN
- Specifically, they extend *known patterns* in their lexicon to *unknown words* for which they have no stored LOC

Background

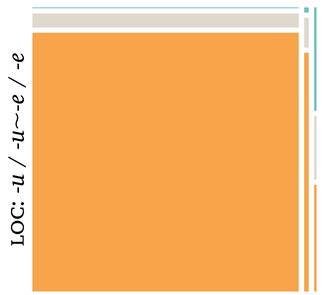
- In languages with rich morphology, correlations between members of an inflectional paradigm are important organizing principles allowing speakers to infer unknown forms of words (e.g. Ackerman & Malouf, 2013; Ackerman et al., 2009; Bonami & Beniamine, 2016; Finkel & Stump, 2007; Wurzel, 1989)
- However, very few behavioral studies showing speakers *actually learn and make* these morphological inferences (but see Copot & Bonami, 2023; Tabachnick, 2024)
- Analogously, we know that speakers learn *phonological* patterns in inflection and extend them to new words (e.g. Albright & Hayes, 2003; Becker et al., 2011; Ernestus & Baayen, 2003; Gouskova et al., 2015; Hayes et al., 2009)

Czech genitive and locative

- One class of Czech nouns has allomorphy in both cases:

noun	'north'	'time'	'evening'	'forest'	'back of head'
NOM	sever	čas	večer	les	týl
GEN	sever-u	čas-u	večer-a	les-a	týl-u∼a
LOC	sever-u	čas-e	večer-u	les-e	týl-u∼e

- The vast majority of nouns take *-u* in both cases
- Some nouns show lexically and contextually conditioned *variation* in one or both cases (Bermel & Knittl, 2012; Guzmán Naranjo & Bonami, 2021)
- Nouns that can take GEN *-a* are more likely to take LOC *-e*
- Still some degree of independence between GEN and LOC
  - Speakers can't encode the correlation into umbrella "inflection classes" covering both cases
  - Must be learned (if at all) as a *gradient pattern* associating GEN and LOC realizations



Distribution of GEN and LOC endings for nouns in Křen et al. (2022)

Experiment 1: nonce words

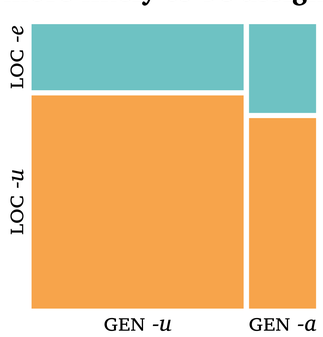
- Have speakers learned tendency for GEN *-a* → LOC *-e*?
- If so, they should apply it productively to new words
- Hypothesis: **Speakers will show sensitivity to a nonce word's presented genitive in choosing its locative.**

Design

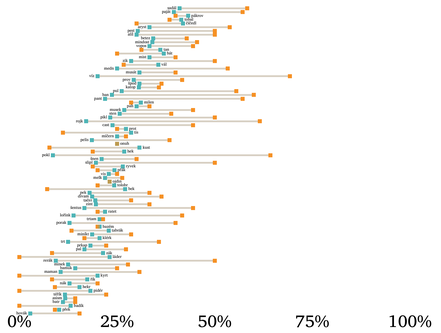
- Task (shown for nonce word *tobal*):
  - Presented: NOM (*tobal*), GEN (*tobalu* or *tobala*)
  - Must select: GEN (*tobalu / tobala*), LOC (*tobalu / tobale*)
- 90 participants shown 50 trials each: 38 with GEN *-u*, 12 with GEN *-a*

Results

Nonce words presented with GEN *-a* were significantly more likely to be assigned LOC *-e*



Distribution of presented GEN and selected LOC for trials in nonce word experiment



Rates of selected LOC -e for nonce words when presented with GEN -u vs. -a

Phonology also has an effect (e.g. dorsal-final stimuli have relatively strong preference for LOC *-u*, as in lexicon)

Discussion

- Speakers don't have stored LOC and must somehow infer it
- Inference shows: they have learned phonological and morphological generalizations over LOC realization and apply them together

Experiment 2: real words

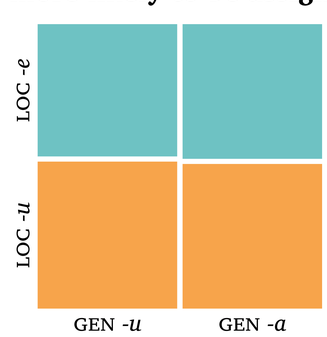
- Two possibilities for the locus of the effect in Experiment 1:
  - Productive application of learned patterns to fill in gaps in storage
  - Somewhere outside morphological inference (e.g. priming)
- Hypothesis: **Speakers will *not* show sensitivity to a *real* word's presented genitive in choosing its locative.**

Design

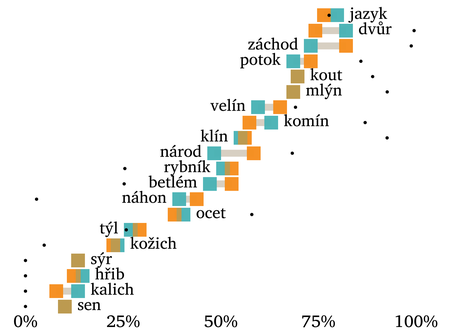
- Task as in Experiment 1
- 20 words with variable GEN, 15 also have variable LOC
- 90 participants shown 40 trials each: each word presented once each with GEN *-u* and *-a*

Results

Real words presented with GEN *-a* were *not* significantly more likely to be assigned LOC *-e*



Distribution of presented GEN and selected LOC for trials in real word experiment



Rates of selected LOC -e for real words when presented with GEN -u vs. -a, with rates of LOC -e in Křen et al. (2022) marked

Actual rate of LOC also has an effect (distribution of *-u* and *-e* similar, though less extreme, than distribution in corpus)

Discussion

- The GEN→LOC effect in Experiment 1 applies in the *extension* of a tendency in the lexicon to *new forms*
- For words with familiar LOC, speakers instead draw from information stored for individual lexical items

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