Investigating CLI in L3 morphosyntax through artificial languages: *Aliensk*

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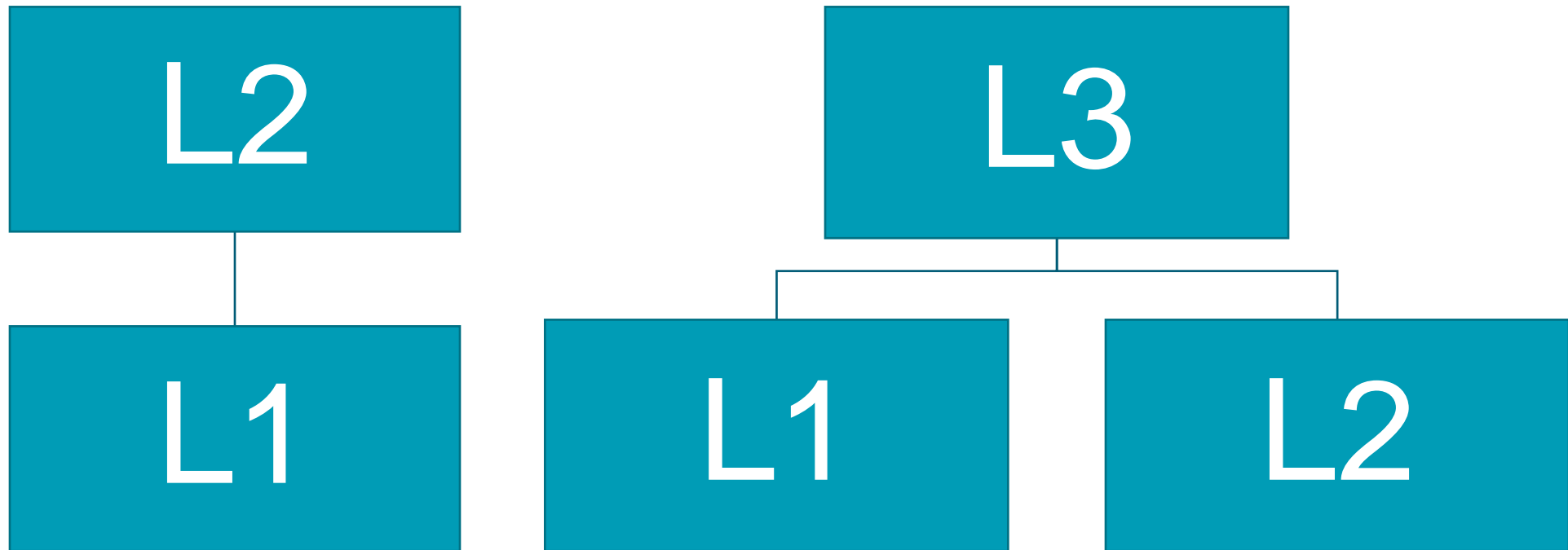
AcqVA Aurora Lab
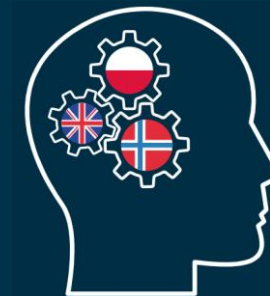
Presentation structure

1. Background: Crosslinguistic influence
2. Original Aliensk study - replication
3. Research questions
4. Study design
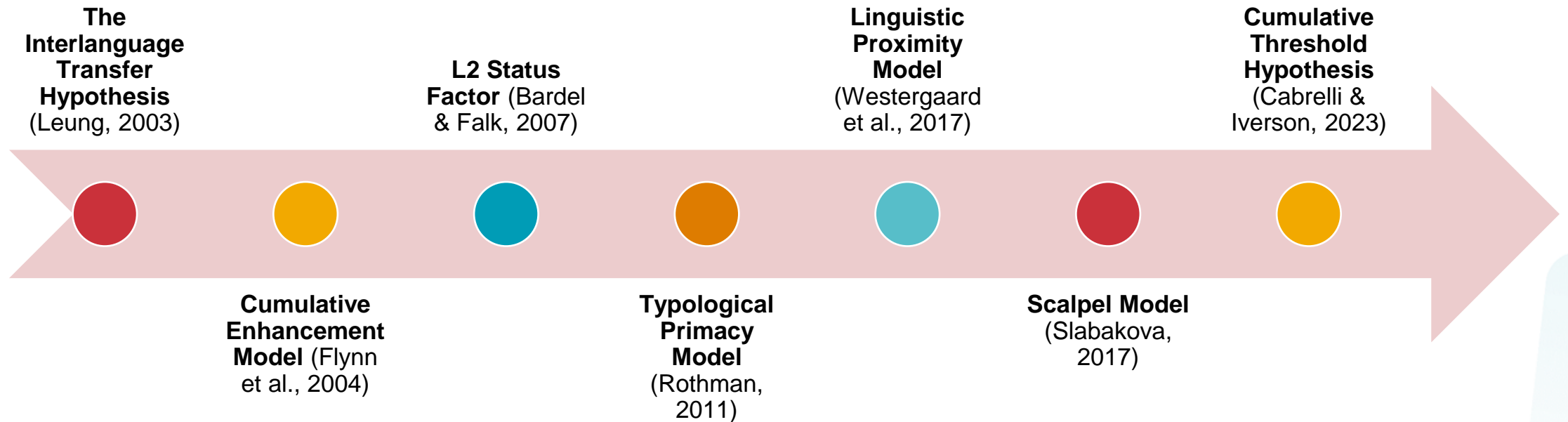5. Predictions
6. Results
7. Discussion

Crosslinguistic influence in L2 acquisition

- The Full Transfer/Full Access (FT/FA) Hypothesis (Schwartz & Sprouse, 1996): Wholesale transfer of the L1.

- The Full Transfer Potential (Westergaard, 2019): Any property from the L1 *may,* but does not *have to*, be shared with the L2.

Key issue: Assuming that crosslinguistic influence happens, where does it come from?

A timeline of L3 models

The Interlanguage Transfer Hypothesis (Leung, 2003)

L2 Status Factor (Bardel & Falk, 2007)

Linguistic Proximity Model (Westergaard et al., 2017)

Cumulative Threshold Hypothesis (Cabrelli & Iverson, 2023)

Cumulative Enhancement Model (Flynn et al., 2004)

Typological Primacy Model (Rothman, 2011)

Scalpel Model (Slabakova, 2017)

Main points of **disagreement**:
- The source(s) of crosslinguistic influence (wholesale vs property-by-property).
- The factors that contribute to the source selection.
- Facilitative vs non-facilitative.

Most important factor:
Linguistic similarity?
L2 status effect?

Wholesale versus property by property

Interlanguage Transfer Hypothesis and the Typological Primacy Model

- **Wholesale transfer** at the initial state/stages (cf. FT/FA) from the language that is typologically closer to the L3.

The Linguistic Proximity Model and the Scalpel Model

- Both preexisting languages may affect L3; cross-linguistic influence is property-specific and based on structural similarity (Westergaard et al. 2017, cf. Slabakova 2017).

Wholesale transfer, cf., the TPM
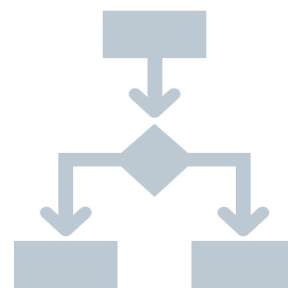
L3 input

Source selection process:

Lexicon

↓

Phonology/Phonotactics

↓

Functional Morphology

↓

Syntactic Structure

"The big decision"

Property-by-property CLI, cf., the LPM

- Rejects the idea of wholesale transfer
- Rejects the idea of a hierarchy of linguistic cues.
- CLI is a result of co-activation, not copying of linguistic representations.
- Learners have access to both previously acquired languages throughout the acquisition process.

Replication study of Mitrofanova, Leivada & Westergaard (2022)

- Subtractive language group design.
  - Norwegian/Russian-Norwegian/Greek-Norwegian.

- AL designed to show similarities/differences with previously acquired languages.

- Case recognition in a sentence-picture verification task.

- Norwegian: No case
- Greek: Case on articles
- **Russian: Case on nouns**
- **Aliensk: Case on nouns (like Russian), lexically similar to Norwegian**

Training: correct SVO
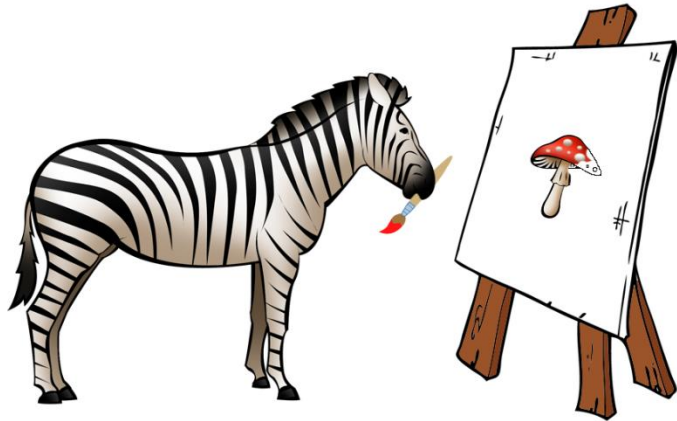
Test: Incorrect SVO

Sebra-il tegner sopp-su

Zebra-NOM draws/is drawing mushroom-ACC

Baker-su spiser suppe-il

Baker-ACC eats soup-NOM

Critical conditions

Language	Picture: A rabbit finding a carrot	Case	WO
Aliensk	A. Rabbit-NOM finds carrot-ACC	correct	SVO
	B. Rabbit-ACC finds carrot-NOM	incorrect	SVO
	C. Carrot-ACC finds rabbit-NOM	correct	OVS
	D. Carrot-NOM finds rabbit-ACC	incorrect	OVS

Mitrofanova, Leivada & Westergaard (2022)

Results

- Speakers of a language with a case system on the noun (Russian) are better at recognising case in an AL than speakers of a language without a case system (Norwegian).
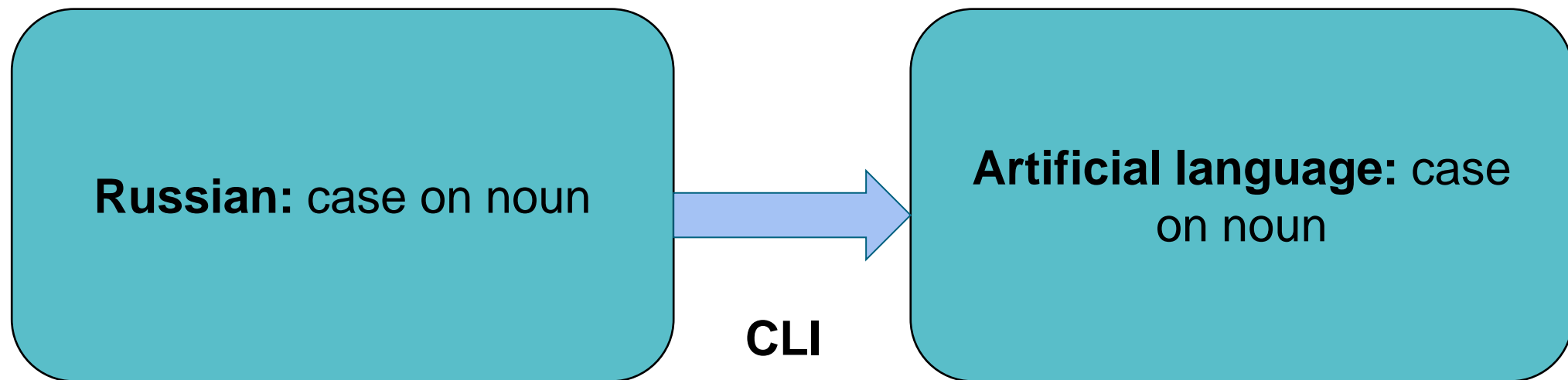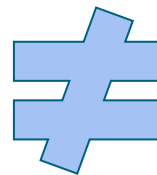
Russian: case on noun → **CLI** → **Artificial language:** case on noun

Mitrofanova, Leivada & Westergaard (2022)

Results

- Speakers of a language with a case system on the article (Greek)

Greek: case on article

≠

No CLI

Artificial language: case on noun

Research questions

Overarching research question:

- How do previously acquired languages influence the acquisition of new linguistic properties at the very beginning of the acquisition process?

More specifically:

- How do lexical and syntactic similarities between the L3 and previously acquired languages affect CLI?

- Does speaking a language with abstract structural but not surface similarity to a new language facilitate CLI at very early stages of L3A?

Subtractive language groups design

- L3 group compared to one (or two) L2 groups with the same target language

- Allows us to isolate the role of individual languages

- The experimental group is compared to the control group

- If we find a significant difference between the control group and the experimental group, we can attribute it to the influence of the subtracted language

Participants

Subtractive language groups design

Polish–
Norwegian–
English
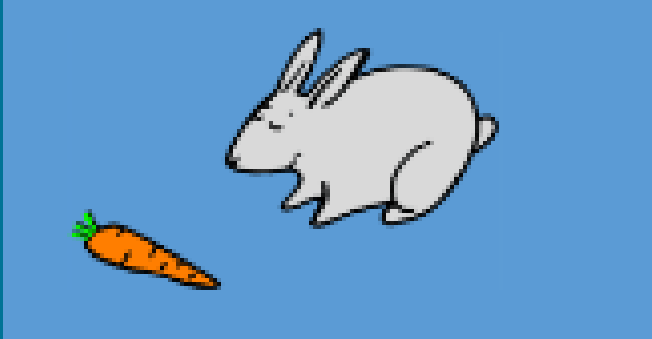
Norwegian–
English

Properties under investigation

- Norwegian: No case marking.
- Polish: Case marking on the noun.
- Two artifical languages, **both lexically similar to Norwegian**:

1) Case on nouns (cf., Mitrofanova et al., 2022)
  - AL = Polish ≠ Norwegian.
  - Aliensk N

2) Case on articles
  - Abstract similarity between AL and Polish (≠ Norwegian)
  - Aliensk A

Critical conditions

Language	Picture: A rabbit finding a carrot	Case	WO
Aliensk N	A. Rabbit-NOM finds carrot-ACC	correct	SVO
	B. Rabbit-ACC finds carrot-NOM	incorrect	SVO
	C. Carrot-ACC finds rabbit-NOM	correct	OVS
	D. Carrot-NOM finds rabbit-ACC	incorrect	OVS
Aliensk A	A. NOM rabbit finds ACC carrot	correct	SVO
	B. ACC rabbit finds NOM carrot	incorrect	SVO
	C. ACC carrot finds NOM rabbit	correct	OVS
	D. NOM carrot finds ACC rabbit	incorrect	OVS

Method

1. Exposure phase.
2. Testing phase: Sentence-picture verification task.
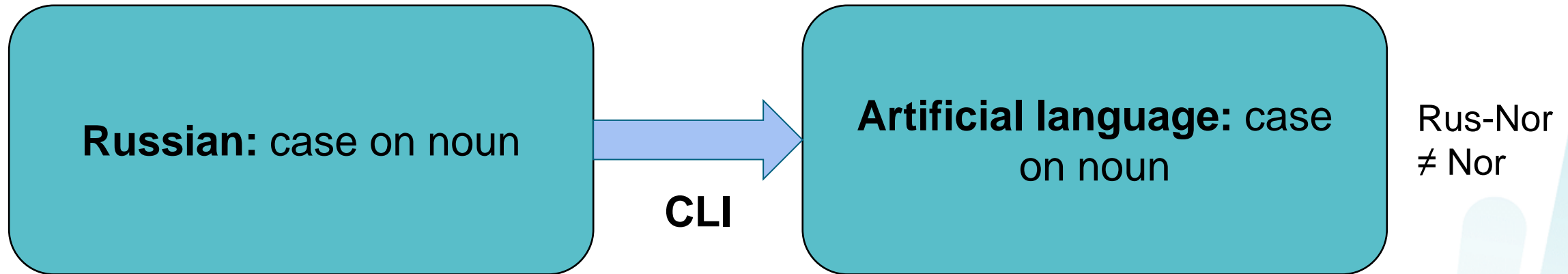3. Proficiency test.
4. Short background questionnaire.

Sentence-picture verification task (Mitrofanova, Leivada & Westergaard, 2022).

Participants view pictures on a screen, listen to test sentences and reply by clicking "**Yes***" or "**No**".
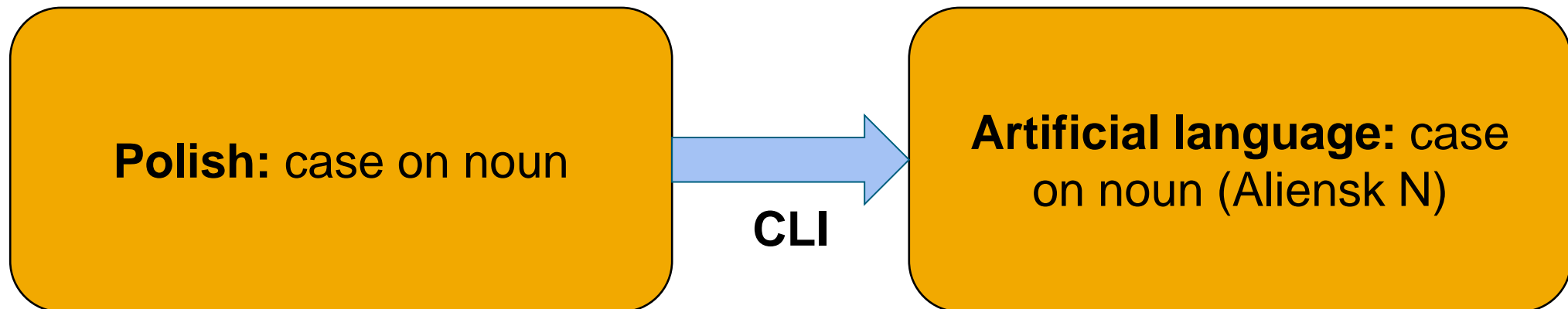
Accuracy

Predictions for case on nouns
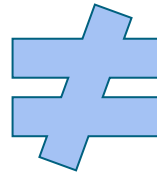
Mitrofanova, Leivada & Westergaard (2022)

Russian: case on noun → **CLI** → **Artificial language:** case on noun

Rus-Nor ≠ Nor

Replication study:

Polish: case on noun → **CLI** → **Artificial language:** case on noun (Aliensk N)

Predictions for case on articles

Mitrofanova, Leivada & Westergaard (2022)

Greek: case on article ≠ **Artificial language:** case on noun

Greek-Nor = Nor

No CLI

Replication study:

Polish: case on noun **?** **Artificial language:** case on article (Aliensk A)

No CLI

21

Participants

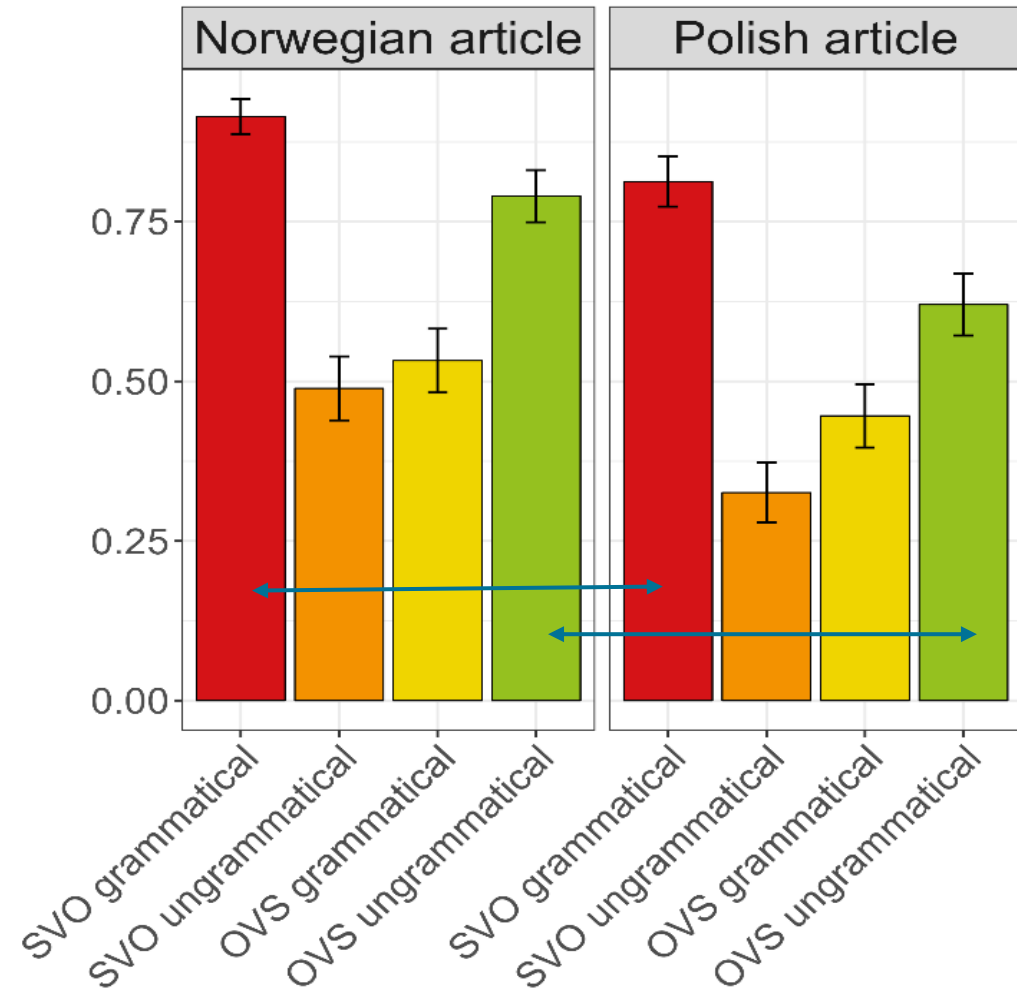| Polish		Norwegian	
Article	24 participants (18 – 25, mean = 21.1)	**Article**	22 participants (18 – 38, mean = 25.9)
Noun	33 participants (19 – 24, mean = 21.3)	**Noun**	17 participants (19 – 56, mean = 35.6)

Results

Aliensk N
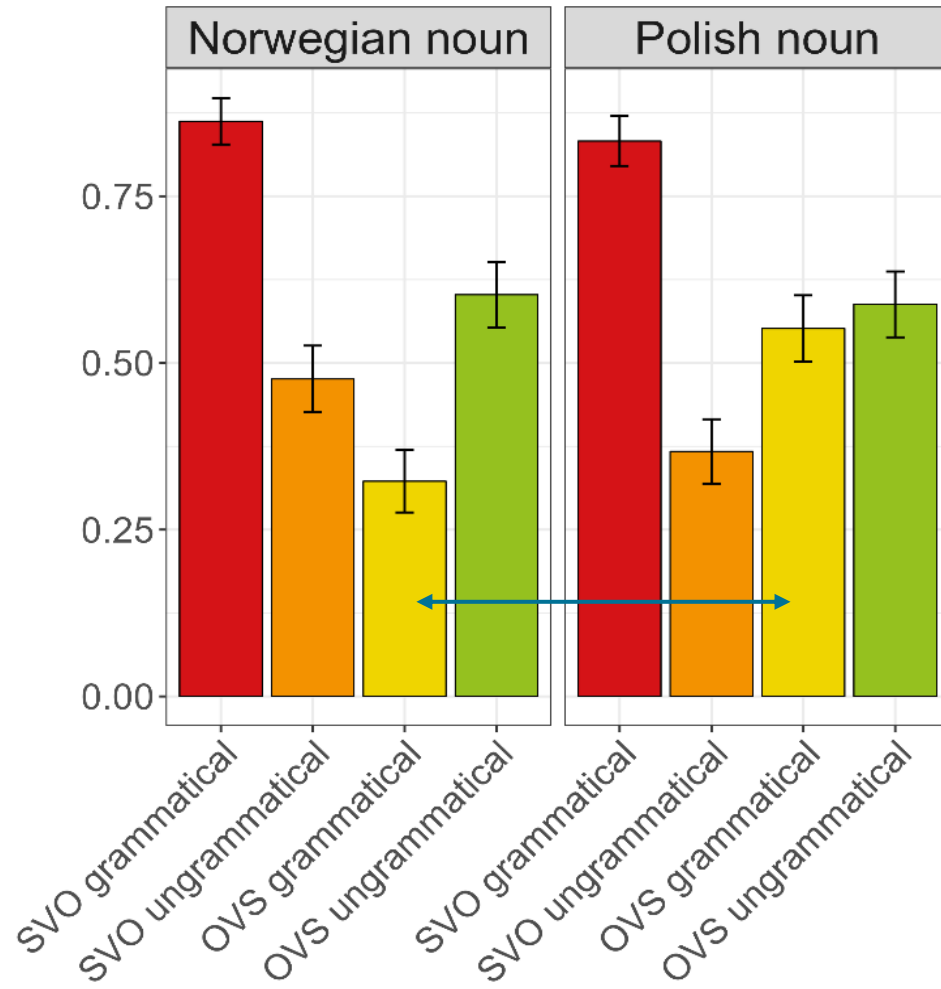
Aliensk A

Results

Aliensk N

- Polish group perform significantly better than Norwegian group in one non-critical condition
  - OVS grammatical

Suppe-su spiser baker-il

Soup-ACC eats baker-NOM

Aliensk A

- Norwegian group perform significantly better than Polish group in the two non-critical conditions
  - SVO grammatical
  - OVS ungrammatical
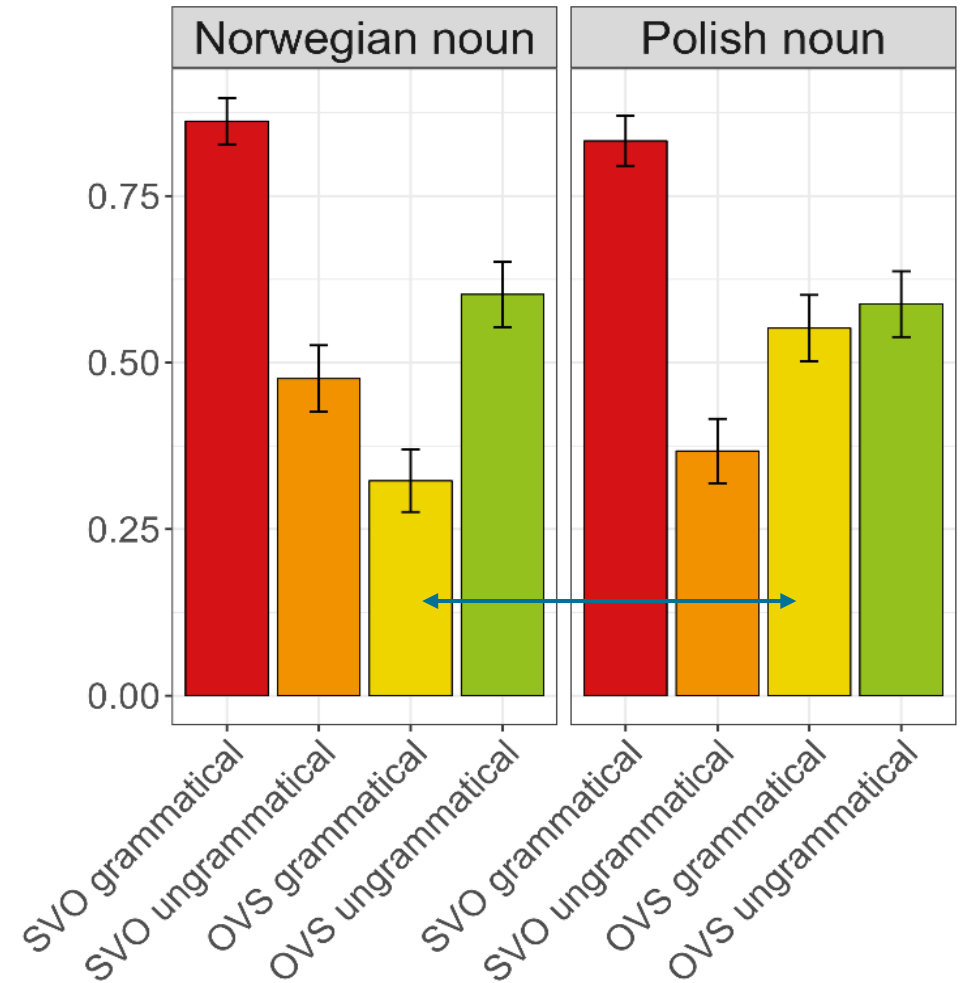

Baker-il spiser suppe-su

Baker-NOM eats soup-ACC

Suppe-il spiser baker-su

Soup-NOM eats baker-ACC

Aliensk N

- ## OVS grammatical
  - Property-by-property approach
- ## SVO ungrammatical
  - Proficiency level, activation
  - SVO bias
    - Agent-first sentence order
  - Yes bias

Proficiency level + activation

- Coactivated structures from previously acquired languages compete in processing

- Winner = language with strongest activation (Mitrofanova et al 2022)

Russian-Norwegian group
A2?

Polish-Norwegian group
Mean = C1 level
Range = B1 – C2

SVO bias + task effect

Test: Incorrect SVO

Test: Correct OVS

Baker-su spiser suppe-il

Baker-ACC eats soup-NOM

Suppe-su spiser baker-il

Soup-ACC eats baker-NOM

Yes bias

Condition	Yes
All	60.6%
SVO grammatical	83%
SVO ungrammatical	**63%**
OVS grammatical	55.2%
OVS ungrammatical	**41.2%**

Aliensk A

- No significant difference between Norwegian and Polish groups in critical conditions (SVO ungrammatical, OVS grammatical)

- Norwegian group – SVO grammatical and OVS ungrammatical

  - Confident in selecting sentences congruent with previously acquired languages

- Superficial similarity matters
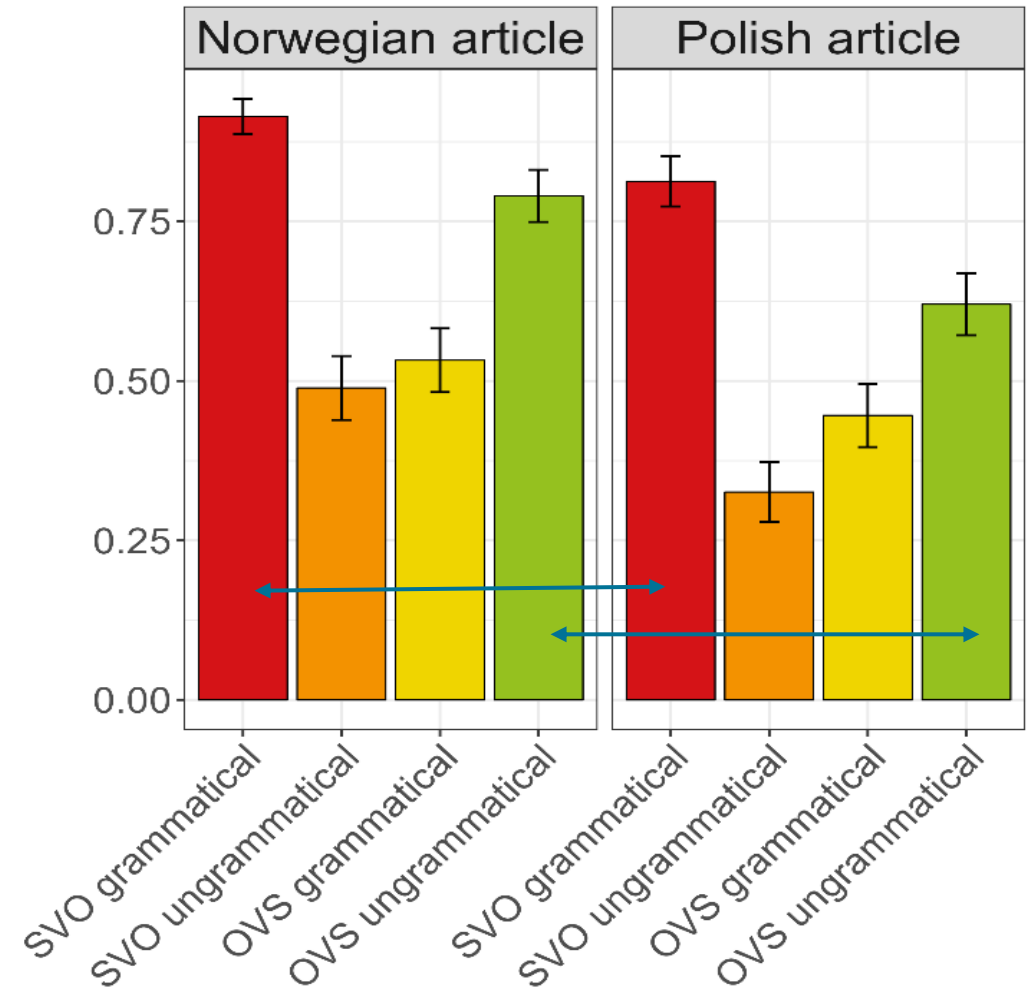
Conclusions

- Previously acquired language = facilitative for Aliensk N
- Other factors may play a role
  - SVO bias
  - Yes bias
  - Proficiency and activation of the lexically similar language
- Abstract structural similarity = not sufficient for CLI to take place at very early stages of acquisition
- Future investigations

Thank you!

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