Language-specific and universal factors behind morphological simplification: An agent-based modelling study of Alorese

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Through what **mechanisms** could **adult language learning** cause **morphological simplification?**

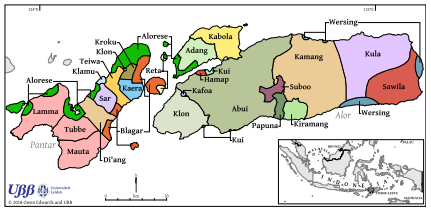
Research using **agent-based simulations** and **real-world data**.
How do **universal** mechanisms surface in **specific** languages?

Case study: Morphological simplification in Alorese

Alorese (Austronesian): spoken on Alor and Pantar islands, Eastern Indonesia.
Contact with Papuan Alor-Pantar languages: >50% of speakers are **adult learners** with Papuan L1 (Moro, 2019).
Two types of verbs: **prefix subject marking** and **suffix subject marking**.
Prefixing verbs are all **vowel-initial**.
Alorese **lost subject suffixes**, but **kept subject prefixes**.
Sister language Lamaholot (**no contact** with AP languages) kept **full morphology**.
Is **adult language contact** causing **morphological simplification**? (Klamer, 2012, 2020)
Since **prefixes are retained** and are **vowel-initial**, could **morphological simplification** partially be caused by a **phonological process**? (cf. Blaxter, 2017)

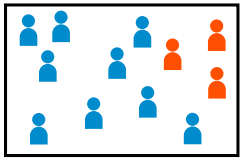
Prefix:	**Suffix:**
n-enung	lodo-ka
drink-3SG	go.down-3SG
"she drinks"	"he goes down"
↓	↓
n-enung	lodo-Ø
drink-3SG	go.down-3SG
"she drinks"	"he goes down"
No simplification	**Simplification**

(examples: Klamer, 2011:61,65 and Nishiyama & Kelen, 2007: 31,32)



Alorese (bright green) and Alor-Pantar languages

Agent-based model



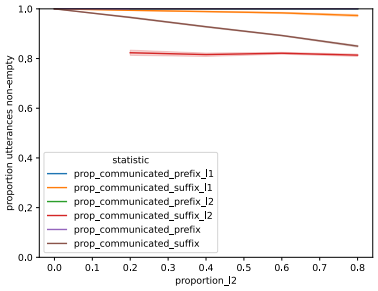
Language game (Steels, 1998).
Concepts: verb+person. Signals: form+affix.
Listener has to **infer person from affix**.
Initialization L1: data from Lamaholot (Nishiyama & Kelen, 2007).
Initialization L2: empty system, first listen.
If model reaches state of Alorese (simplification): support for mechanisms?

Phonotactic mechanism: Reduction of consonant clusters

Alorese: basic syllable structure CV, consonant clusters avoided (Klamer, 2011)
L2 speakers have difficulty with consonant clusters (Osburne, 1996)
In model: **L2 drops affix** if form+affix **syllable structure** contains **consonant cluster** (with probability *p*).

hitun-~~na~~
CVCVC-CV

Results and discussion



Brown: suffix whole population
Orange: suffix L1
Red: suffix L2
All other lines: prefix L1/L2/population, at 1.0 (not visible)

Suffix complexity decreases with increasing L2 speakers, while **prefixes are retained → support for mechanism?**
But: **complexity within L1 and L2 groups independent of proportion L2**. In iterated learning model, would next generation L1 learn simplification from L2?
Future work: phonotactic reduction for both L1 and L2 in combination with different production strategies: sampling (L1) vs maximum a posteriori (L2).