

# Iconic features in nominal reduplication

Camil Staps (ZAS Berlin), Grote Taaldag 2025



# Reduplication: the problem

(1) Hausa (Afro-Asiatic; Newman 2000)

*jṑjì* ‘judge’ → *jṑjì~jṑjì* ‘judges’

- Consensus that reduplication is an **iconic** device
- **Many different functions** both across and within languages
- Some functions appear to be **non-iconic** or **counter-iconic**

# Reduplication: the problem

(1) Hausa (Afro-Asiatic): PLURAL

*jōjì* ‘judge’ → *jōjì~jōjì* ‘judges’

(2) Eastern Panjabi (Indo-European): PLURAL/SIMILAR (Bhatia 1993)

*paaNii* ‘water’ → *paaNii~vaaNii* ‘water and the like’

(3) Central Cagayan Agta (Austronesian; Healey 1960)

a. INTENSIVE: *udán* ‘rain’ → *ud~od~án* ‘lot of rain’

b. DIMINUTIVE: *hutug* ‘bow’ → *hut~ot~ug* ‘small bamboo bow’

# Previous solutions

- Regier (1994): two developmental paths
  - repetition > plurality > intensity
  - repetition > baby > small (/ lack of control > lack of specificity)
- Stolz (2007): **complex** form marks **complex** meaning
  - too general: also applies to affixation, but “complex” meanings are not equally often expressed by affixation and reduplication
- Mattes (2014): **change** of quantity in form marks **change** of quantity in meaning
  - still overgenerates (no examples of singulatives)
  - not clear how **increase of form** can iconically mark **decrease in meaning**

Regier, T. 1994. *A preliminary study of the semantics of reduplication*. || Stolz, T. 2007. ‘Re: duplication. Iconic vs counter-iconic principles (and their areal correlates)’. In P. Ramat & E. Roma (eds.), *Europe and the Mediterranean as linguistic areas*, 317–350. || Mattes, V. 2014. *Types of reduplication: A case study of Bikol*.

# An extra problem (or, the start of a solution)

- Previous studies lump together **different morphological types**
- If form resembles meaning, these types **should have different semantics**

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# Approach

- Typological survey to find **recurring meaning components**
- Set up hypotheses for mappings between **specific formal aspects** and **semantic features** (cf. Lǐ & Ponsford 2018)
- Test for **predicted correlations** between semantic features and formal types

(2) Eastern Panjabi: PLURAL/SIMILAR

*paaNii* ‘water’ → *paaNii~vaaNii* ‘water and the like’

# Data set

- **369 languages** from WALS (Rubino 2013) and Mattiola & Barotto (2023)
- **New analysis** based on grammars / descriptive articles
- Morphological types: **full / partial / echo** reduplication
- Initial tagging based on Mattiola & Barotto (2023), eventually **8 semantic features**
- **260 distinct patterns** from 183 languages, in total 386 form-meaning pairings

# Features: plural, collective, distributive

- PLURAL: **more than one** real world entity (Corbett 2000)

(1') Hausa (Afro-Asiatic)

*jōjì* 'judge' → *jōjì~jōjì* 'judges'

*tsirò* 'sprout' → *tsìre~tsìre* 'sprouts'

(4) Olo (Nuclear Torricelli; Staley 2007)

*soni* 'shadow' → *soni~ni* 'shadows'

*rolsi* 'new shoot' → *rolsi~si* 'new shoots'



# Features: plural, collective, distributive

- PLURAL: **more than one** real world entity (Corbett 2000)
- COLLECTIVE: entities **should be considered together as a unit** (Corbett 2000)

(5) Chimakum (Chimakuan; Boas 1892)

*haua'tska* 'deer (one)' → *ha~haua'tska* 'deer (possibly in a group)'  
*χu'ēlěs* 'knife' → *χu~χu'ēlěs* 'knives (possibly in a group)'

# Features: plural, collective, distributive

- PLURAL: **more than one** real world entity (Corbett 2000)
- COLLECTIVE: entities **should be considered together as a unit** (Corbett 2000)
- DISTRIBUTIVE: entities are **spread out** in space.

(6) Cahuilla (Uto-Aztecán; Hill & Hill 2019)

*ki* ‘house’ → *ki~ki-sh* / *ki~ki-che-m* ‘houses **here and there**’

(7) Southwestern Pashto (Indo-European; David 2013)

*Zmuzpə* *maktab* *ki* ***rang~rang*** *xalək* *di*.  
our in... school ...in color~RED people be.CONT.PRS.PL  
‘In our school there are **all kinds of** people.’

# Features: similar

- SIMILAR: referent cannot necessarily be referred to by the base form but **is associated with it** (cf. Rozhanskiy 2015).

(2') Eastern Panjabi (Indo-European)

*paaNii* 'water' → *paaNii~vaaNii* 'water **and the like**'  
*kamm* 'work' → *kamm~vamm* 'work **and the like**'

(8) Mangarrayi (Mangarrayi-Maran; Merlan 1982)

*ηala* 'mother' → *ηala~ηala-yi* 'mother(s) **and child**(ren)'  
*yirag* 'father' → *yi~ri~rag-ji* 'father(s) **and child**(ren)'

(9) Makasar (Austronesian; Jukes 2006)

*kaluara* 'ant' → *kalu'~kaluara* '**something like** an ant'  
*lima* 'hand' → *lima~lima* '**something like** a hand'

(10) Tausug (Austronesian; Rubino 2006)

*iru'* 'dog' → *iru'~iru'* '**stuffed animal** dog'  
*pulis* 'police' → *pulis~pulis* '**fake** police'

Rozhanskiy, F. I. 2015. 'Two semantic patterns of reduplication: Iconicity revisited. *Studies in Language* 39(4):992–1018. || Merlan, F. C. 1982. *Mangarrayi*. || Jukes, A. 2006. *Makassarese (baka Mangkasara)*. *A description of an Austronesian language of South Sulawesi*. || Rubino, C. R. G. 2006. *Intensive Tausug: A pedagogical grammar of the language of Jolo, Philippines*.

# Features: diminutive, intensive

- DIMINUTIVE: entity is **smaller** than the entities denoted by the base (cf. Jurafsky 1996).

(11) Kwak'wala (Wakashan; Boas 1911)

*g'ōk<sup>u</sup>* 'house' → *g'ā'~g'og-um*

*gwēg'* - 'whale' → *gwā'~gwēg'-îm*

(12) Clallam (Salishan; Thompson & Thompson 1971)

*kwátán?* 'mouse' → *kwə?<sup>?</sup>~kwátán?* 'rat'

*s-tú?wi?* 'river' → *s-tú~tə?wi?* 'creek'

*s-qəxə?* 'dog' → *s-qə?<sup>?</sup>~qəxə?* (diminutive of 'dog')

Jurafsky, D. 1996. 'Universal tendencies in the semantics of the diminutive'. *Language* 72(3):533–578. || Boas, F. 1911. 'Kwakiutl'. In F. Boas (ed.), *Handbook of American Indian languages*, 1:423–557. || Thompson, L. C. & M. T. Thompson. 1971. 'Clallam: A preview'. In J. O. Sawyer (ed.), *Studies in American Indian languages*, 251–294.

# Features: diminutive, intensive

- DIMINUTIVE: entity is **smaller** than the entities denoted by the base (cf. Jurafsky 1996).
- INTENSIVE: entity that implies a **greater intensity** along a salient dimension than the entities denoted by the base.

(3a) Central Cagayan Agta (Austronesian)

*udán* ‘rain’ → *ud~od~án* ‘lot of rain’

(13) Luvale (Atlantic-Congo; Horton 1949)

*cixika* ‘fever’ → *cixika~xika* ‘a great fever’

*woma* ‘fear’ → *ci-woma~woma* ‘nervous fear, dread’

# Features: exhaustive, exclusive

- EXHAUSTIVE: either **all entities** that can be denoted by the base or **the entirety of one entity** that can be denoted by the base.

(14) Jaqaru (Aymaran; Hardman 2000)

*Wata~wata.w jallu.q pur.k.i* ‘**Every** year rain arrives’ (*wata* ‘year’)  
*apsa* ‘tomorrow’ → *apsap''~apsap''-a* ‘**every** day after’

(15) Central Cagayan Agta (Austronesian; Healey 1960)

*bari* ‘body’ → *bar~bari-k kid-in* ‘my **whole** body’

# Features: exhaustive, exclusive

- EXHAUSTIVE: either **all entities** that can be denoted by the base or **the entirety of one entity** that can be denoted by the base.
- EXCLUSIVE: **a predicate from the context applies only to the entity/-ies** denoted by the base noun.

(16) Hindi (Indo-European; Montaut 2008)

*bookmarkoN~bukmârkoN meN hî bāt hotî calî gāi*  
bookmarks~RED in just speech be went  
'The conversation went on **exclusively** by means of bookmarks.'

(17) Indonesian Bajau (Austronesian; Verheijen 1986)

*dangang* 'one person' → *da~dangang* 'one person **alone**'  
*dambila tangang* 'one (side) hand' → *da~dambila tangang* '**only** with a single hand'

Montaut, A. 2008. 'Reduplication and "echo words" in Hindi/Urdu'. In R. Singh (ed.), *Annual review of South Asian languages and linguistics*, 21–62. ||  
Verheijen, J. A. J. 1986. *The Sama/Bajau language in the Lesser Sunda Islands*.

# Proposed iconicities: echo reduplication

- Echo reduplication is defined by phonological distortion
- In SIMILAR, meaning is “distorted”

Hypothesis:

- **Distortion:** the **phonological distortion** of the base in the copy through replacement of phonological material may reflect **similarity** of events, entities, ...

Prediction:

- Echo reduplication is correlated with SIMILAR

Features:

- PLURAL, COLLECTIVE, DISTRIBUTIVE
- SIMILAR
- DIMINUTIVE, INTENSIVE
- EXHAUSTIVE, EXCLUSIVE



# Proposed iconicities: partial reduplication

- Partial reduplication is defined by subtraction
- In DIMINUTIVE, meaning is smaller as well

Hypothesis:

- **Smallness**: the **smaller size** of the copy relative to the base may reflect **smaller** events, entities, ...

Prediction:

- Partial reduplication is correlated with DIMINUTIVE

Features:

- PLURAL, COLLECTIVE, DISTRIBUTIVE
- SIMILAR
- DIMINUTIVE, INTENSIVE
- EXHAUSTIVE, EXCLUSIVE

# Proposed iconicities: full reduplication

- Full reduplication is defined by complete copying: **everything** is copied
- EXHAUSTIVE and EXCLUSIVE involve entire groups as well

Hypothesis:

- **Completeness**: copying a base **in its entirety** may reflect **universal quantification** over events, entities, ...

Prediction:

- Full reduplication is correlated with EXHAUSTIVE and EXCLUSIVE

Features:

- PLURAL, COLLECTIVE, DISTRIBUTIVE
- SIMILAR
- DIMINUTIVE, INTENSIVE
- EXHAUSTIVE, EXCLUSIVE

# Proposed iconicities: contiguity

- The bond between base & copy is “tighter” in partial than in full/echo reduplication
- With COLLECTIVE, entities are “tightly” connected; with DISTRIBUTIVE, they are not

Hypothesis:

- **Discreteness:** the discreteness of base and copy may match discreteness in the denoted events, entities, ...

Predictions:

- Partial reduplication is correlated with COLLECTIVE
- Full/Echo reduplication is correlated with DISTRIBUTIVE

Features:

- PLURAL, COLLECTIVE, DISTRIBUTIVE
- SIMILAR
- DIMINUTIVE, INTENSIVE
- EXHAUSTIVE, EXCLUSIVE

# Other proposed iconicities

- **Magnitude:** increased number of utterances of a form may reflect an increase in magnitude or quantity
  - Predicts PLURAL for any kind of reduplication
  - Cannot be tested here, because no correlation with one specific type of reduplication
- **Identity:** identical content in base and copy may reflect identical events, entities,  
...
  - Predicts non-SIMILAR for any kind of reduplication
  - Again cannot be tested

## Features:

- PLURAL, COLLECTIVE, DISTRIBUTIVE
- SIMILAR
- DIMINUTIVE, INTENSIVE
- EXHAUSTIVE, EXCLUSIVE

# Experiment

- Reduced sample to balance for genealogical bias: 134 patterns from 118 languages
- For each prediction, count number of patterns
- For echo–SIMILAR:
  - Fisher’s exact test for echo vs. full/partial:  $p = 0.003$  (\*\*)
  - Post hoc comparisons:
    - Echo vs. full:  $p = 0.009$  (\*\*)
    - Echo vs. partial:  $p = 0.009$  (\*\*)
  - Conclusion: evidence for the Distortion iconicity

	SIMILAR	full	partial	echo
yes		21 (23.5)	27 (31.3)	16 (9.2)
no		45 (42.5)	61 (56.7)	10 (16.8)

# Results

Hypothesis	Prediction	Overall effect	Post hoc comparisons
Distortion	echo-SIMILAR	$p = 0.003$ (**)	vs. full $p = 0.009$ (**); vs. partial $p = 0.009$ (**)
Smallness	partial-DIMINUTIVE	$p = 0.068$ (.)	
Completeness	full-EXHAUSTIVE	$p = 0.019$ (*)	vs. partial $p = 0.072$ (.); vs. echo $p = 0.072$ (.)
	full-EXCLUSIVE	$p = 0.005$ (*)	vs. partial $p = 0.028$ (*); vs. echo $p = 0.081$ (.)
Discreteness	partial-COLLECTIVE	$p = 0.216$	
	full-DISTRIBUTIVE	$p = 0.233$	
	echo-DISTRIBUTIVE	$p = 0.996$	

# Discussion

Hypothesis	Prediction	Overall effect	Post hoc comparisons
<b>Distortion</b>	<b>echo-SIMILAR</b>	<b><math>p = 0.003</math> (**)</b>	<b>vs. full <math>p = 0.009</math> (**); vs. partial <math>p = 0.009</math> (**)</b>
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	<b>full-EXCLUSIVE</b>	<b><math>p = 0.005</math> (*)</b>	<b>vs. partial <math>p = 0.028</math> (*) ; vs. echo <math>p = 0.081</math> (.)</b>
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	<b>echo-DISTRIBUTIVE</b>	<b><math>p = 0.996</math></b>	

# Conclusion

- Evidence for specific iconicities:
  - Distortion (echo-SIMILAR)
  - Completeness (full-EXHAUSTIVE and full-EXCLUSIVE)
- Going back to counter-iconic and non-iconic functions:
  - Non-iconic meanings (e.g. SIMILAR) *is* iconic once we look more carefully
  - Counter-iconicity (DIMINUTIVE) does remain a problem
- Partial reduplication apparently less iconic
  - Possible correlation with DIMINUTIVE, but weaker than other iconicities
  - May be because partial reduplication is less frequently freshly coined?
  - For Smallness, including more morphological information (size of the copy) may help