Valency patterns in Mande: contact vs inheritance

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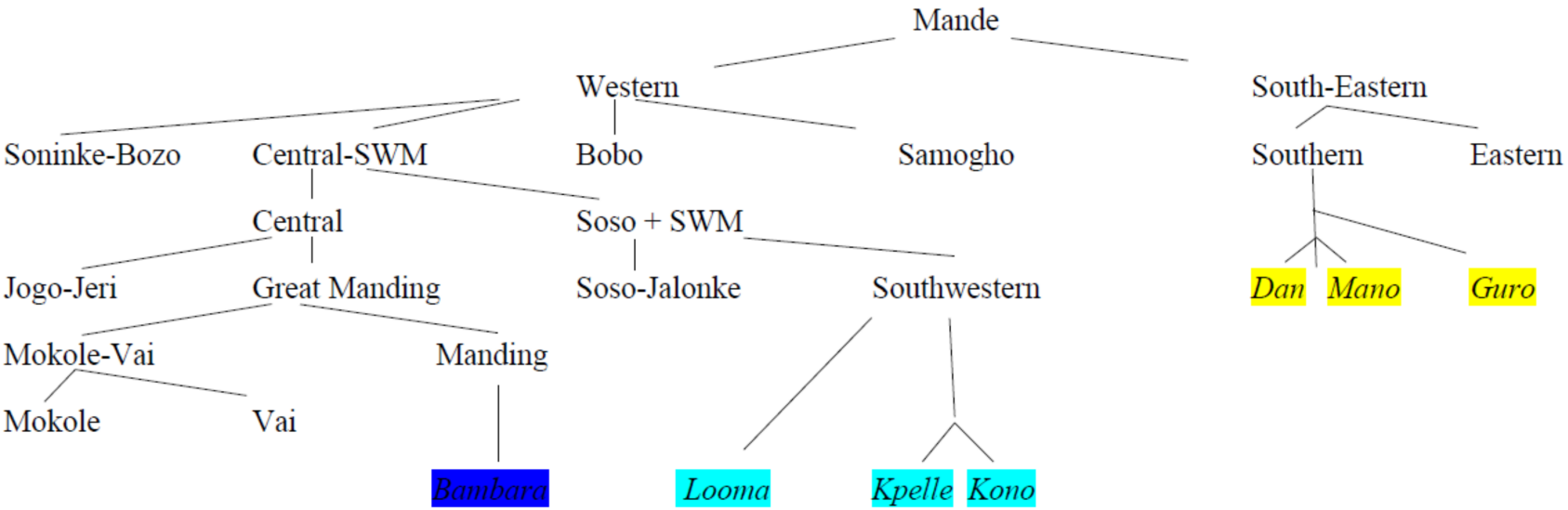
On Mande languages

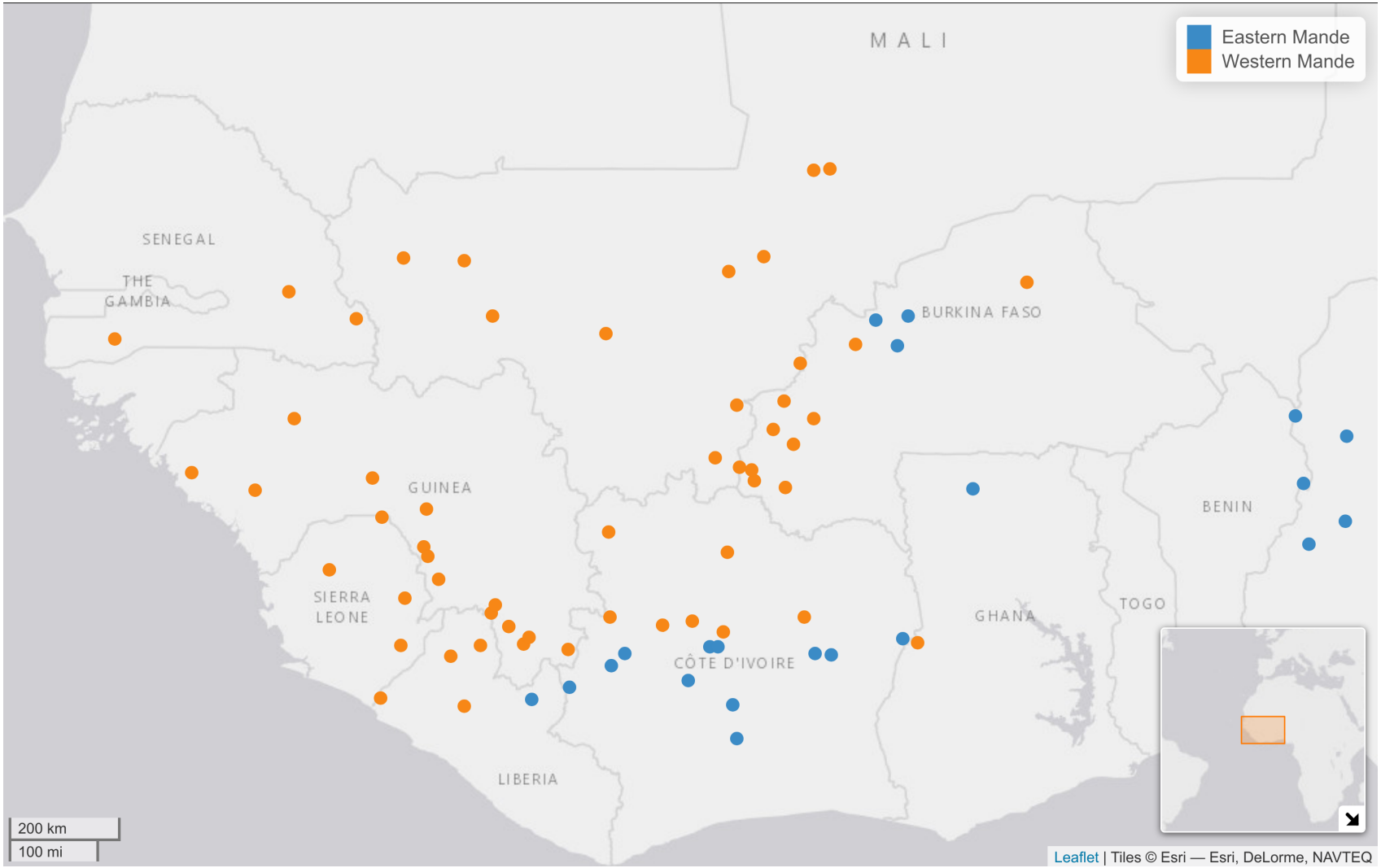
Mande languages

- Word order: S Aux O V X
  - Aux is an auxiliary; it expresses not only TAMP categories but in some Mande languages also indexes the subject's person and number; variable distribution with lexical subjects
  - X stands for all indirect objects and adjuncts, which are typically expressed by postpositional phrases
- tonal and fusional morphology, otherwise mainly isolating
- mainly postpositions; prepositions are rare

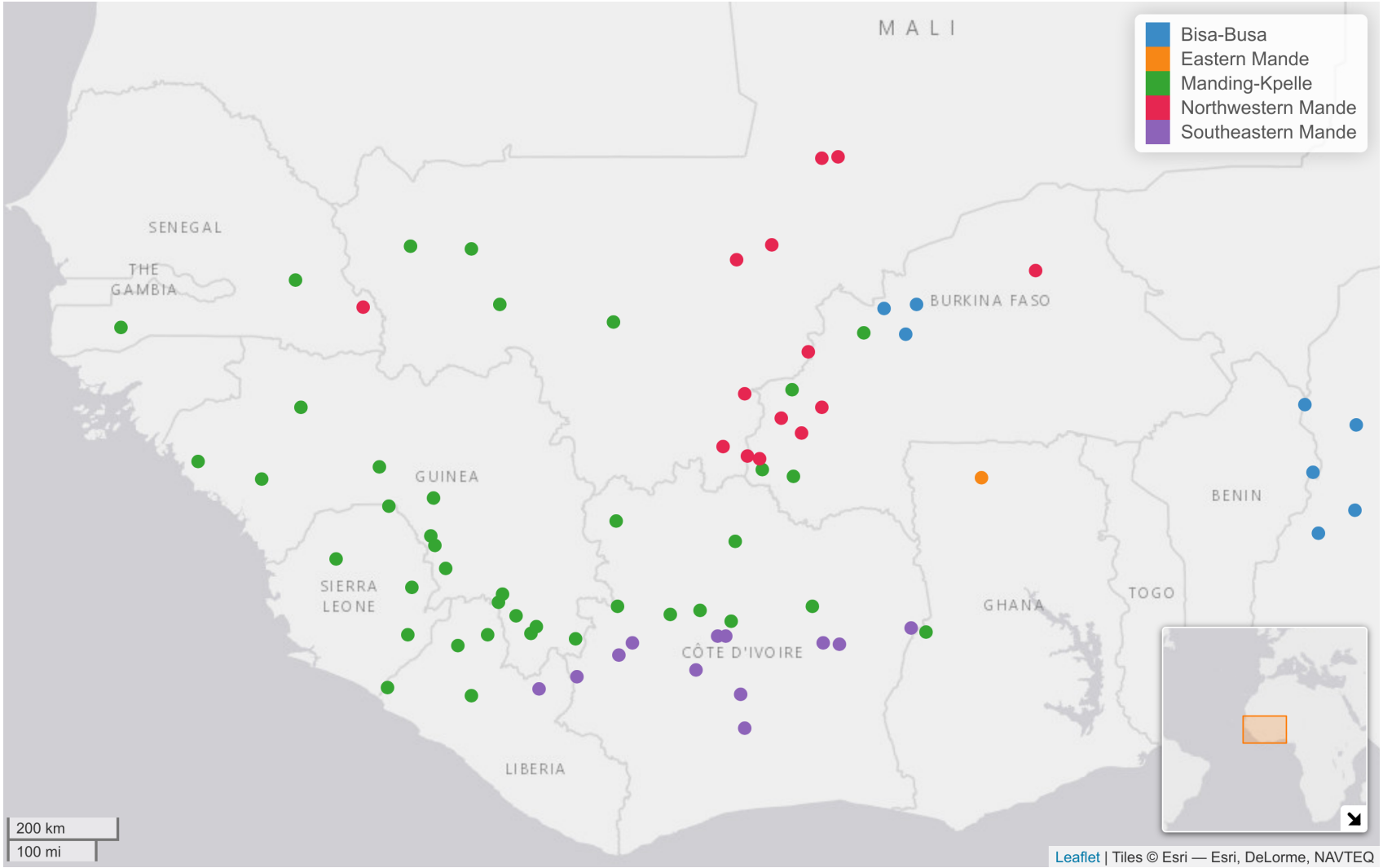
Genetic classification of Mande by [Vydrin, 2009]



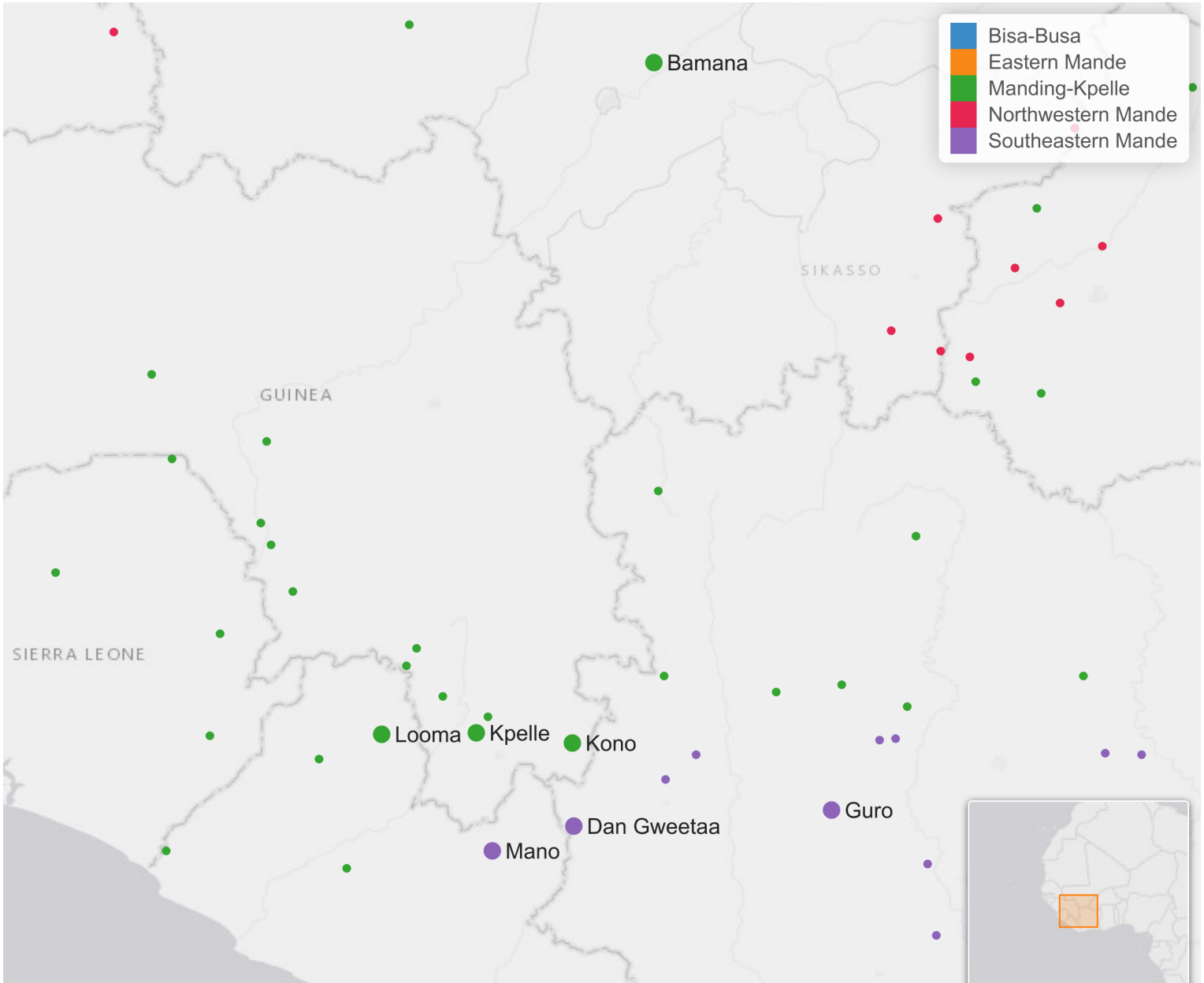
Mande languages



Mande languages



Languages in the study



Mande languages

Language	Group	Speakers
Looma, Loma, Toma	Southwestern	261 000 in Guinea
Kono	Southwestern	99 300 in Guinea
Kpelle, Guerzé	Southwestern	497 000 in Guinea
Mano, Maa	Southern	86 900 in Guinea
Dan-Gweetaa, Eastern Dan, Yakuba	Southern	650 000 in Ivory Coast
Guro	Southern	500 000 in Ivory Coast
Bamana, Bambara	Manding	ca. 4 millions L1 speakers in Mali

Guinean Mano (Southern Mande) is in intense contact with and substantially influenced by Guinean Kpelle (Southwestern Mande) in lexicon, morphosyntax (pronominal paradigms), reflexive marking, and phonology, in particular consonant assimilation patterns [Konoshenko, 2015, Khachaturyan, 2018, 2019, Khachaturyan et al., Forthcoming]

Data collection and coding

Data source

Data were collected with the help of the BivalTyp [Say, 2020] questionnaire focusing on bivalent predicates and containing 130 stimulus sentences. The Russian variant of the questionnaire, which we then translated into French and used in our fieldwork.

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- elicitation
  - Kono (Southwestern)
  - Kpelle (Southwestern)
  - Mano (Southern)
- published data based on the questionnaire
  - Looma (Southwestern) (Mishchenko 2018)
  - Guro (Southern) [Kuznetsova, 2018, Kuznetsova and Kuznetsova, 2021]
  - Dan-Gweetaa (Southern) [Vydrin, 2021]
  - Bamana (Manding) [Dumestre, 2011, Bailleul et al., 2011]

Data

Resulting database does not have exactly 130 equivalents per language:

- some stimulus meanings do not have a straightforward equivalent
- some pairs of stimuli showed identical equivalents, so we excluded stimuli 112, 114, 122, 125, and 128
- we collected all equivalent per stimulus predicate

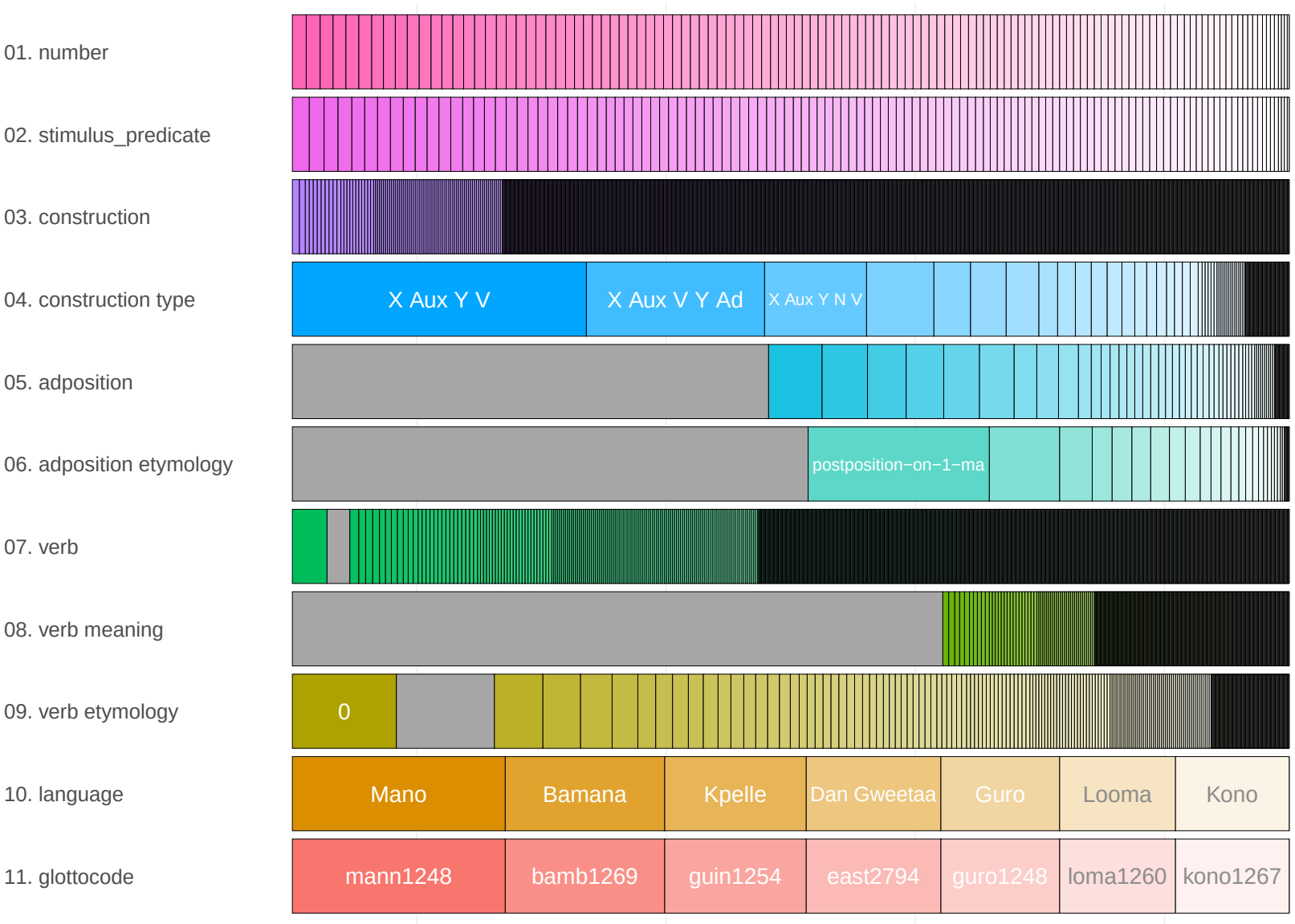
language	N stimuli
Kono	115
Looma	117
Guro	120
Dan Gweetaa	136
Kpelle	143
Bamana	161
Mano	215

Data annotation: Looma, 101 (shoot at)

Language material: X Aux kpàdɛ̀ tò Y mà

- construction type: X Aux N V Y Ad
- adposition: mà
- verb: kpàdɛ̀ tò
- verb meaning: gun drop
- adpositional etymology: postposition-on-1-ma
- verb etymology: stand (to)-1-d'o

Data


01. number
02. stimulus_predicate
03. construction
04. construction type
X Aux Y V
X Aux V Y Ad
X Aux Y N V
05. adposition
06. adposition etymology
postposition−on−1−ma
07. verb
08. verb meaning
09. verb etymology
0
10. language
Mano
Bamana
Kpelle
Dan Gweetaa
Guro
Looma
Kono
11. glottocode
mann1248
bamb1269
guin1254
east2794
guro1248
loma1260
kono1267

Methods

Methods: variables

We run clustering of lects for all annotated variables:

- construction type
- complex verb meaning
- adpositional etymology
- verb etymology

Methods: coding

We applied agglomerative hierarchical clustering [Everitt et al., 2011, 71–110; Zepeda-Mendoza and Resendis-Antonio, 2013]. Within each stimulus, we defined the range of values attested in languages and converted it to a table that coded the presence or absence of the value in each language. Here is the table that represents the coding of construction types for the analysis of stimulus 1 'hurt':

Construction type	Bamana	Dan Gweetaa	Guro	Kono	Kpelle	Looma	Mano
`Xinal Y Aux X V`	1	1	0	0	0	0	0
`Y Aux V X Ad`	0	1	0	0	0	0	0
`Xinal Y N Aux V`	0	1	0	0	0	0	0
`Z Aux V X Y loc`	0	1	0	0	0	0	0
`Xinal Y Aux V`	0	1	1	0	0	1	1
`N be X Y Ad`	0	1	0	0	0	0	0
`Xinal Y Aux Xpron V`	0	0	0	1	1	0	1

Methods: distance

In order to run the hierarchical clustering we calculate the distance matrix using Jaccard distance [Jaccard, 1912, Fletcher et al., 2018]. For each pair of languages it calculates pairwise ratio of shared values between two languages except the cases, when the value is absent in both languages. This can be formulated with the following formula:

$$Jaccard(A, B) = 1 - \frac{|A \cap B|}{|A \cup B|}$$

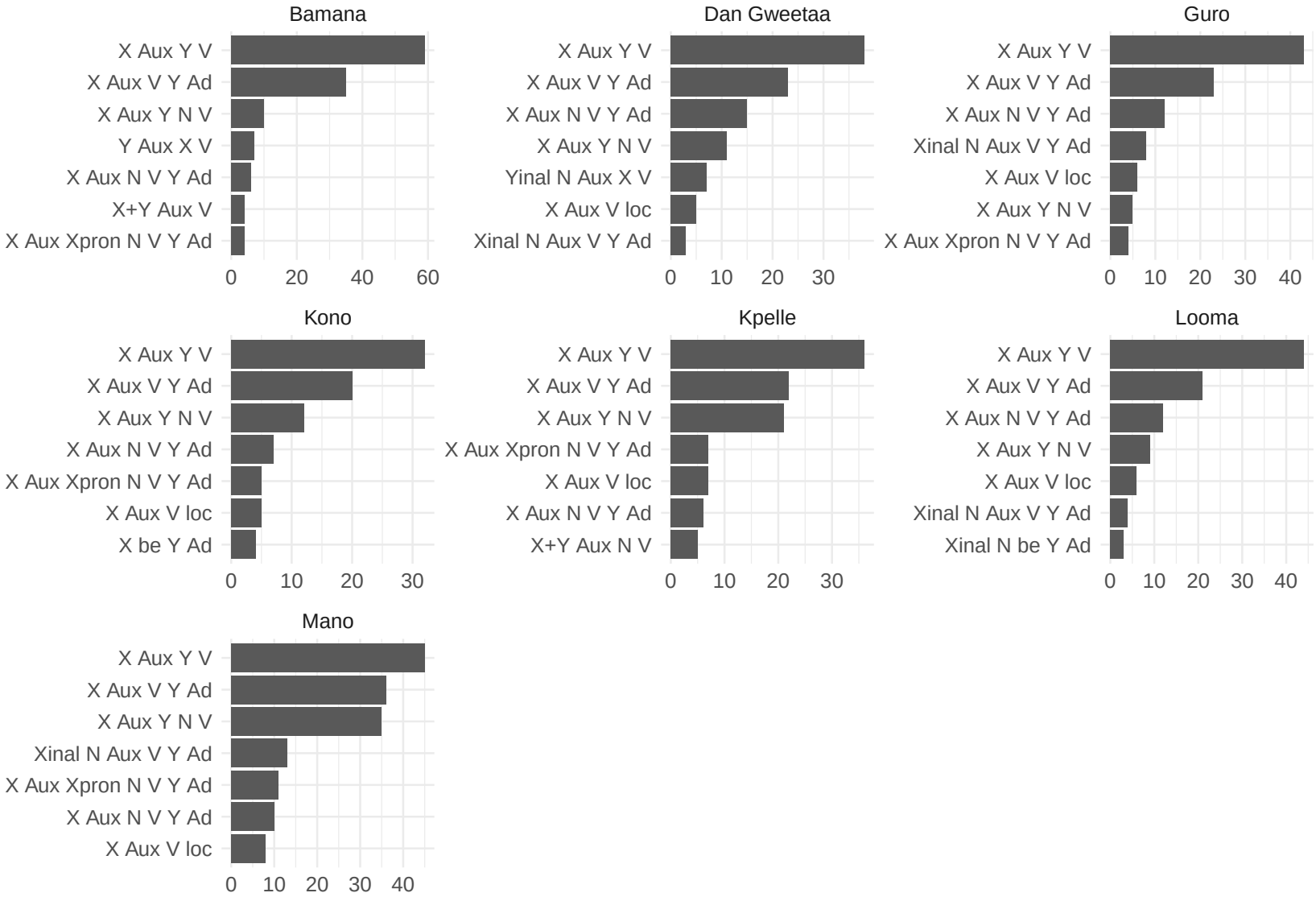
	Bamana	Dan Gweetaa	Guro	Kono	Kpelle	Looma
Dan Gweetaa	0.8333333					
Guro	1.0000000	0.8333333				
Kono	1.0000000	1.0000000	1.0000000			
Kpelle	1.0000000	1.0000000	1.0000000	0.0000000		
Looma	1.0000000	0.8333333	0.0000000	1.0000000	1.0000000	
Mano	1.0000000	0.8571429	0.5000000	0.5000000	0.5000000	0.5000000

Some languages have more equivalents than others

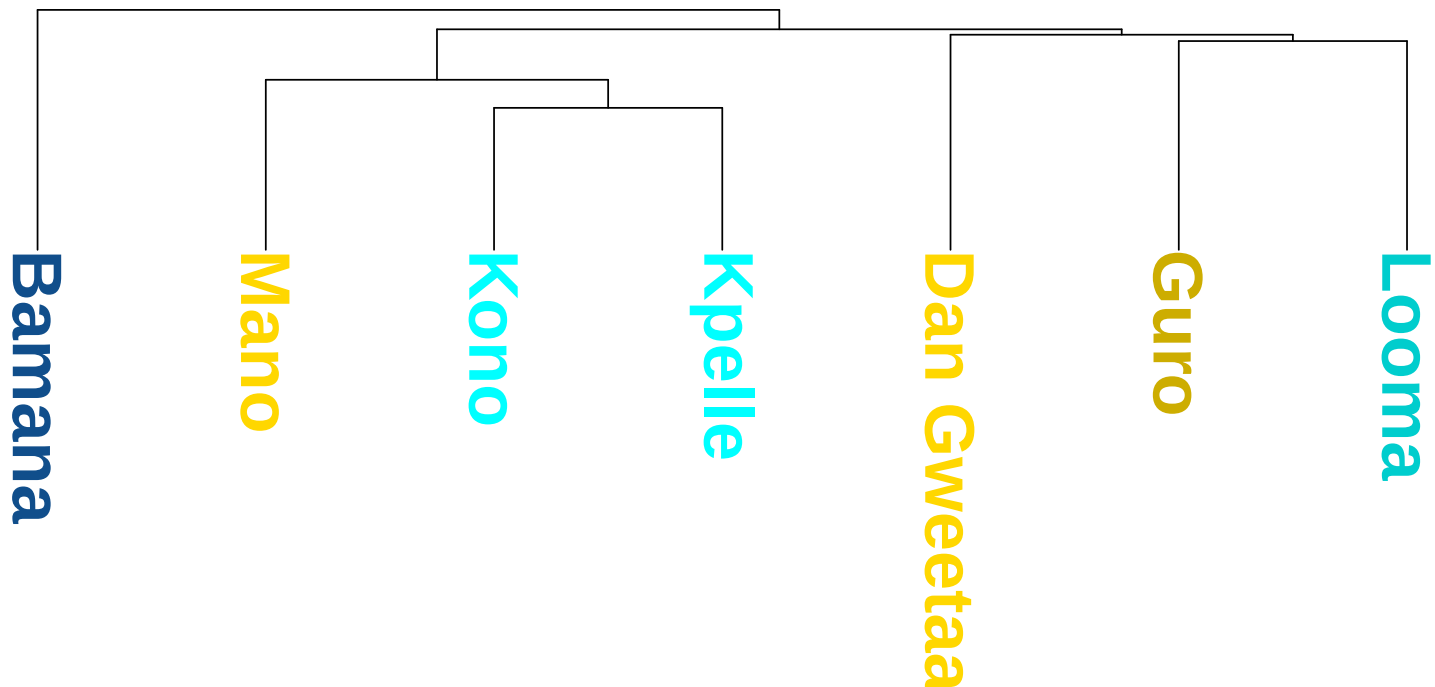
- Comparison with all stimuli
- Comparison with common stimuli (84 out of 125)
- Comparison with common stimuli and random equivalents

Results

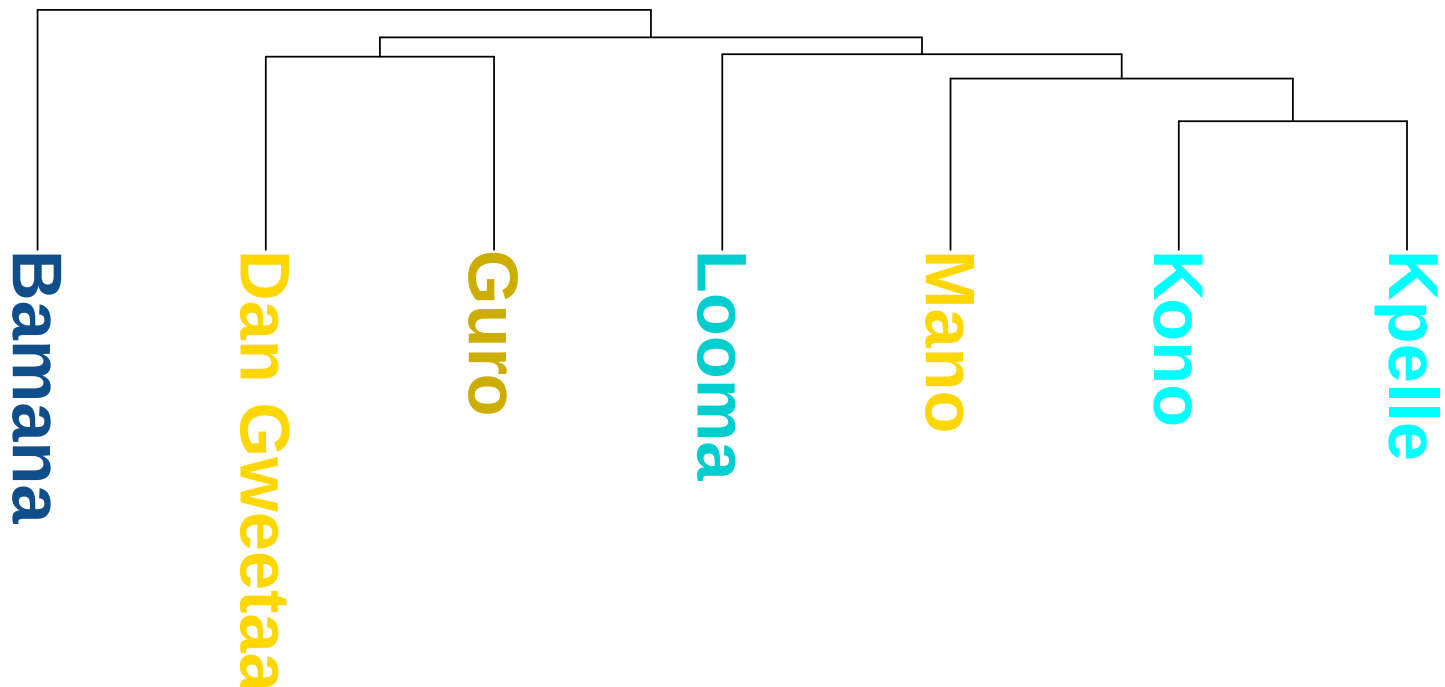
Construction type



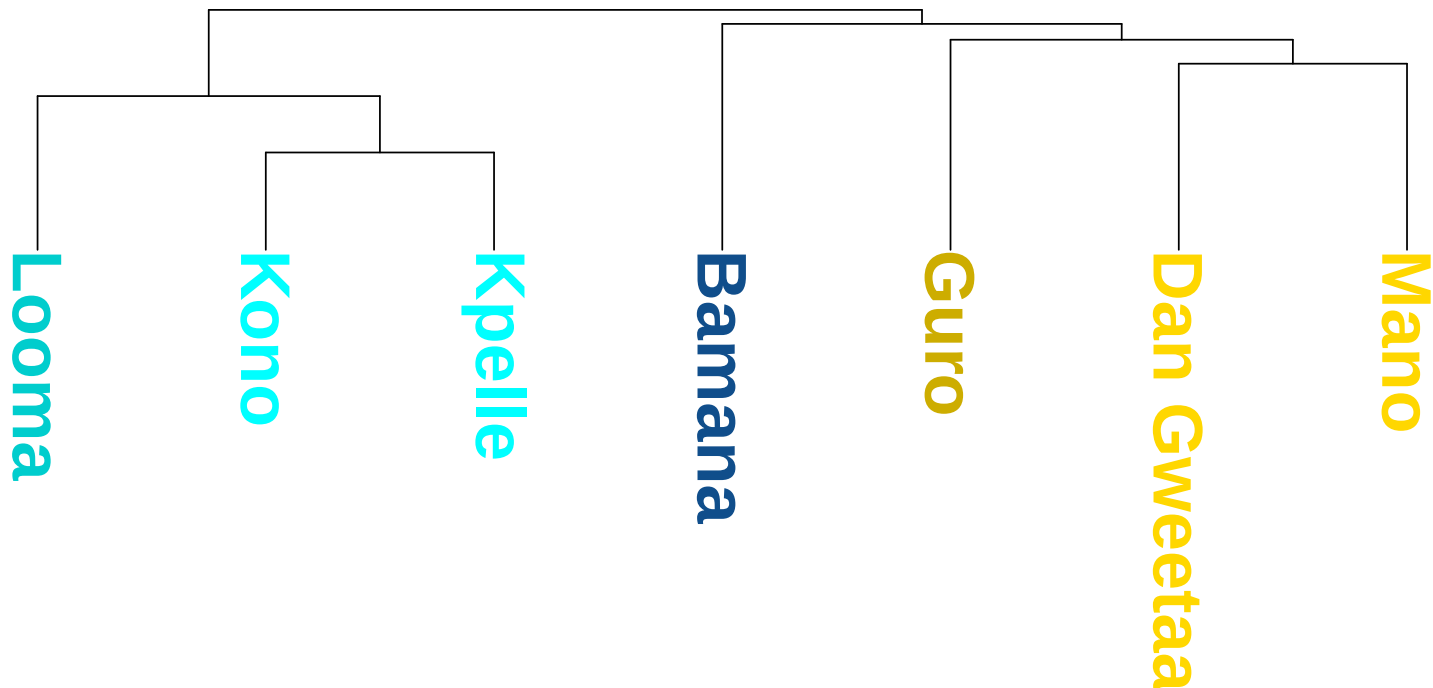
Construction type: all stimuli



Construction type: common stimuli



Simple verb etymologies: all stimuli



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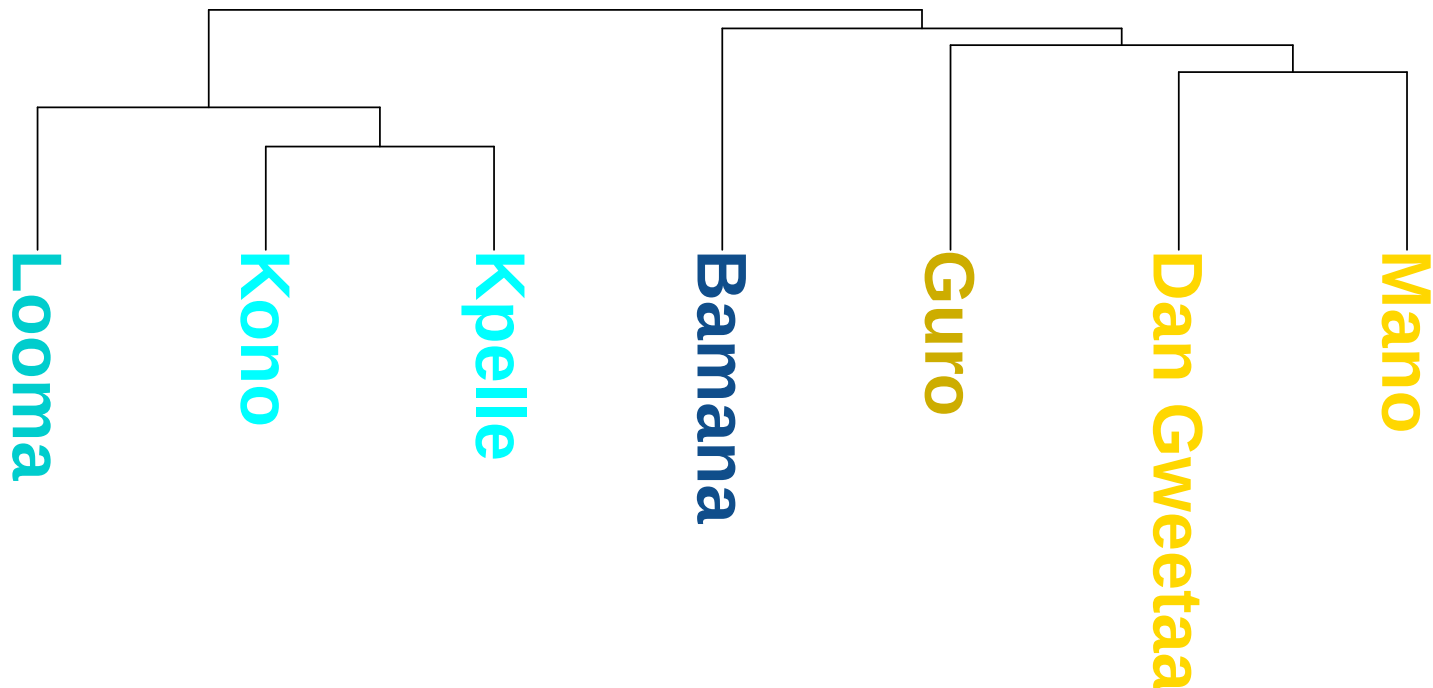
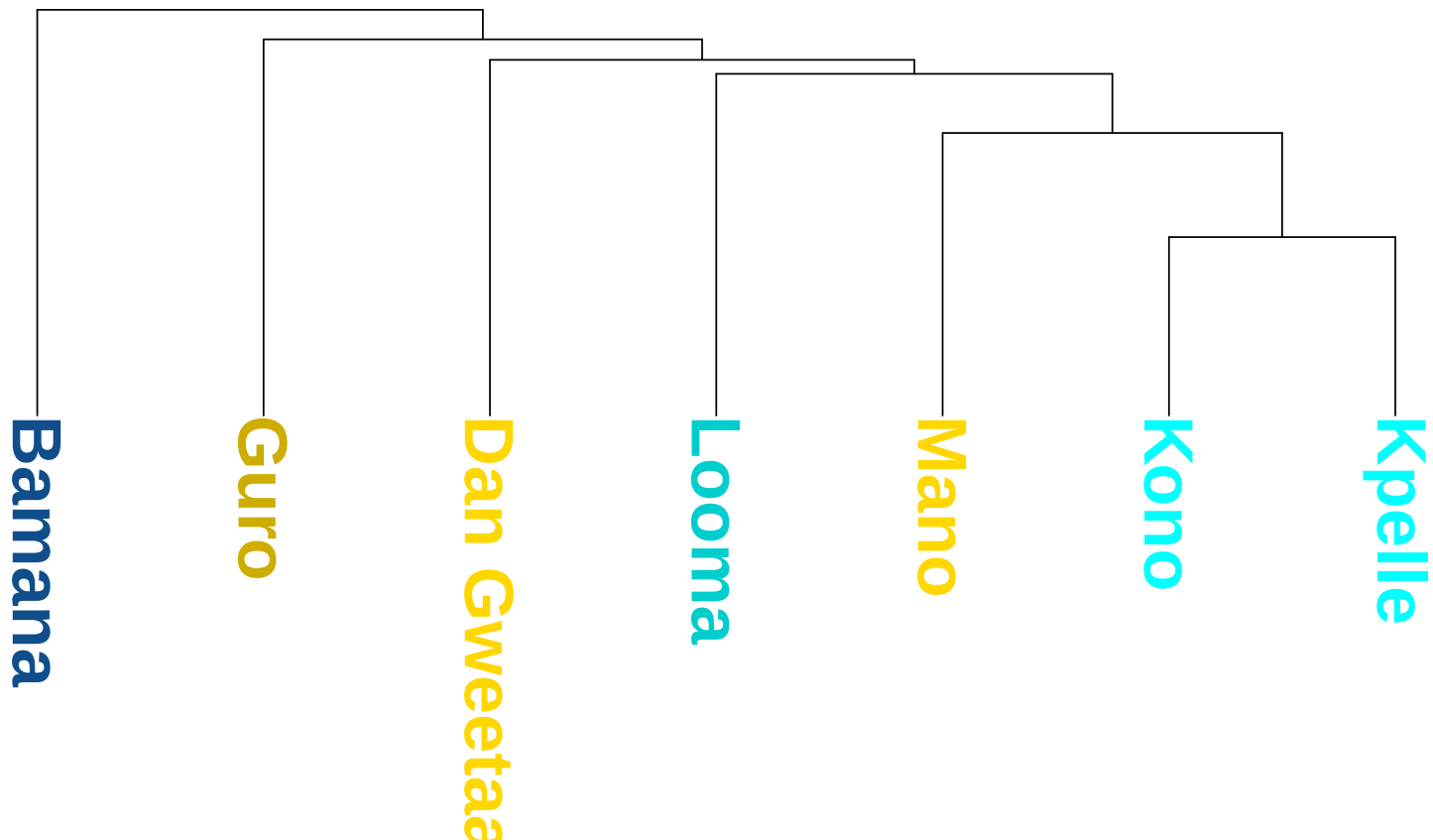
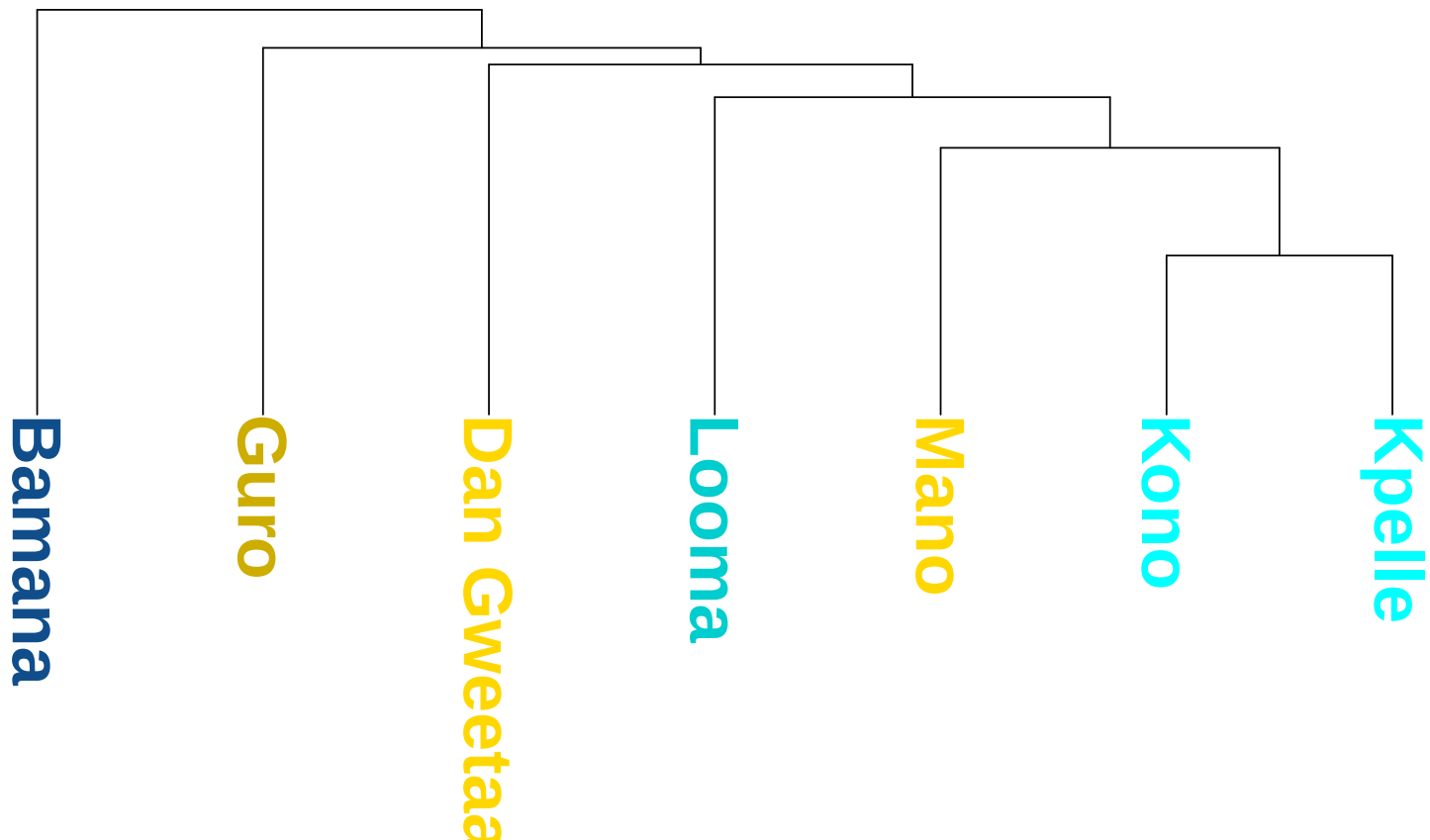


Adpositional etymologies: all stimuli



Adpositional etymologies: common stimuli

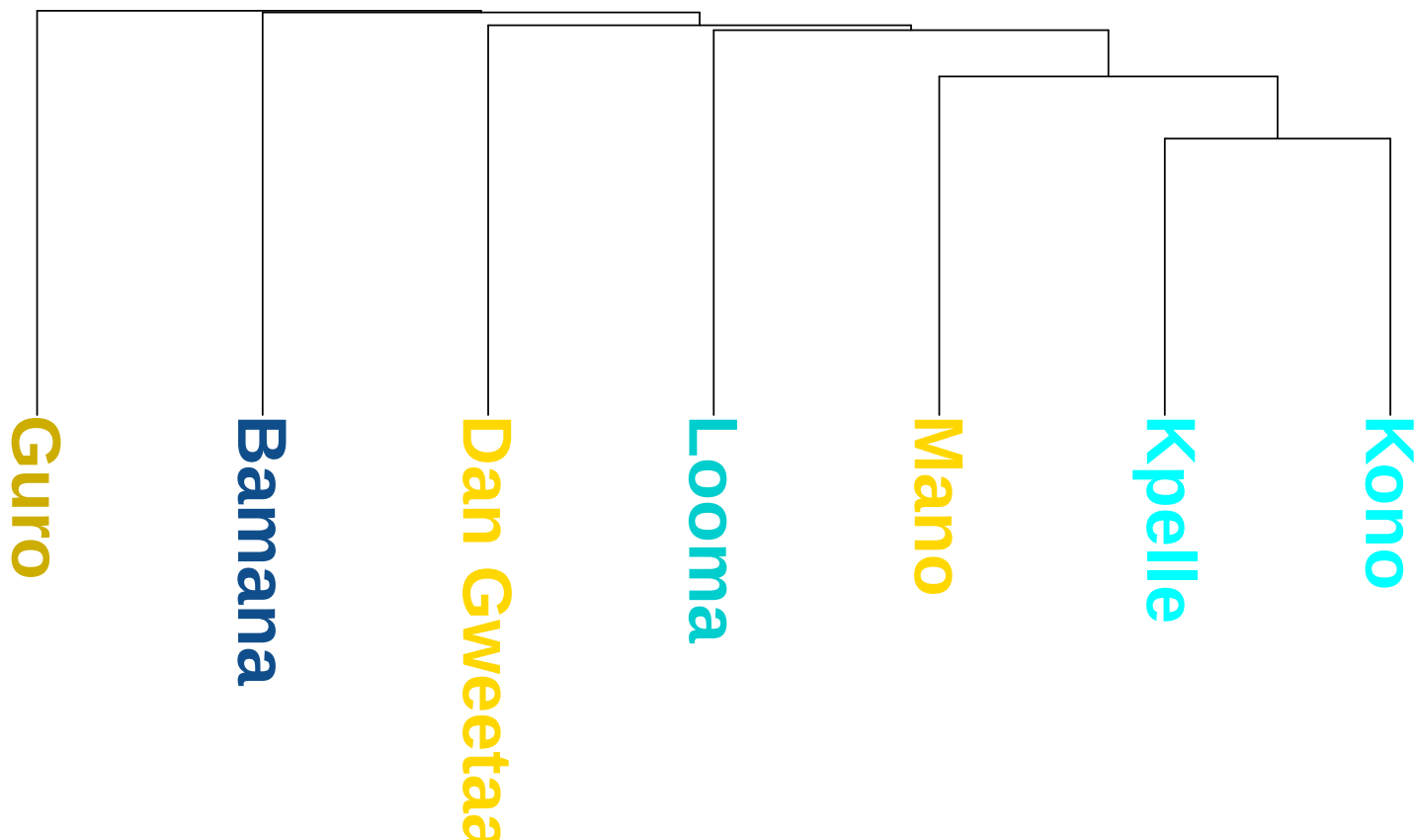


Complex verb semantics: example 20 'milk'

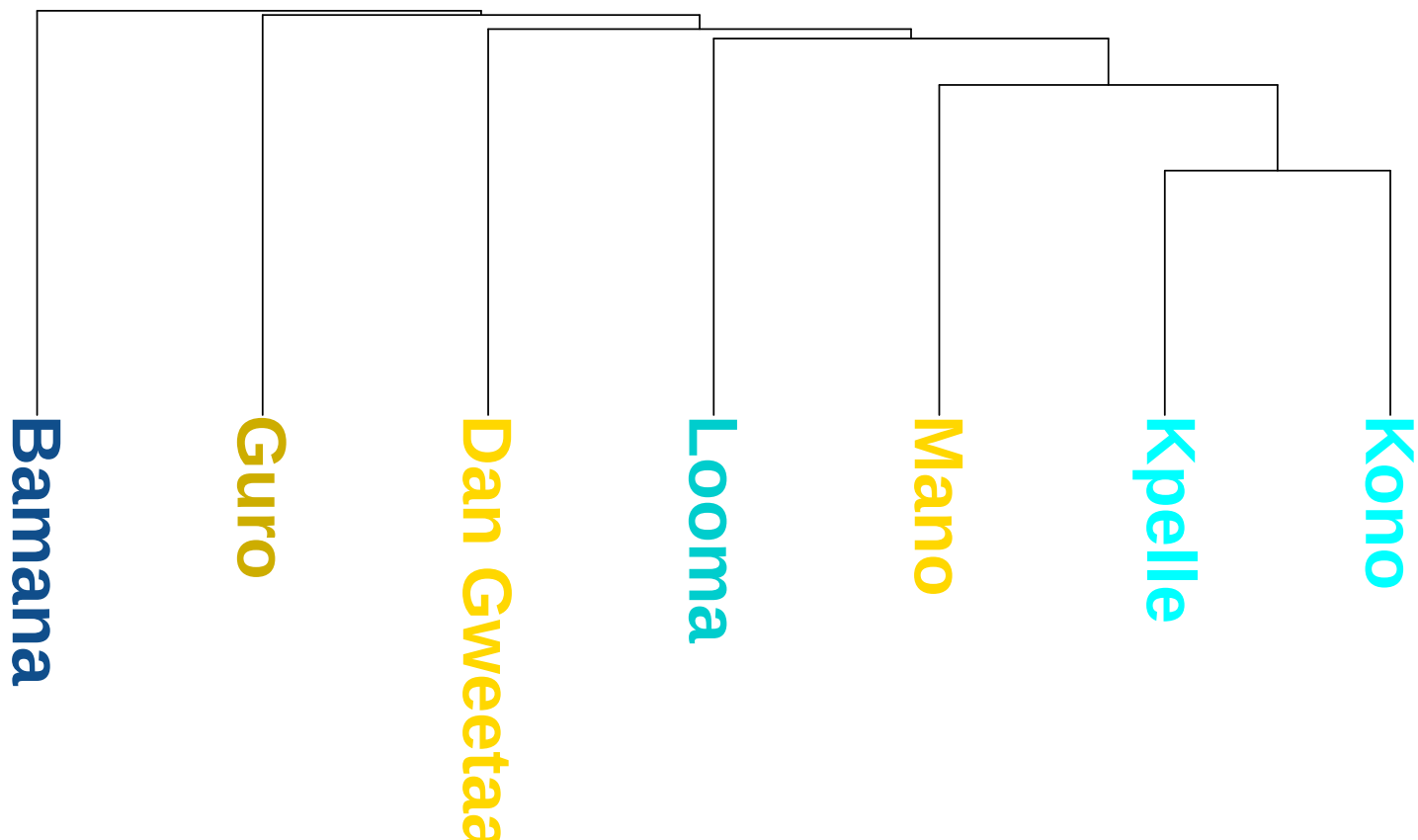
language	Verb meaning
Bamana	
Guro	
Kono	breast milk remove
Kpelle	breast milk remove
Looma	breast cold remove
Mano	milk remove

Number	Verb meaning	Bamana	Guro	Dan Gweetaa	Mano	Kpelle	Kono	Looma
20	breast	0	0	0	0	1	1	1
20	milk	0	0	0	1	1	1	0
20	remove	0	0	0	1	1	1	1
20	cold	0	0	0	0	0	0	1

Complex verb semantics: all stimuli



Complex verb semantics: common stimuli



Conclussions

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- construction type: contact plays a greater role
- verb etymology: inheritance plays a greater role
- adpositional etymology: contact plays a greater role
- complex verb: contact plays a greater role

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- construction type: contact plays a greater role
- verb etymology: inheritance plays a greater role
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- complex verb: contact plays a greater role

- Can number of tokens play any role?
- It is possible that if the procedure of data collection was more unified the result was slightly different.

Conclussions

Typical valency pattern types (such as “transitive” and “intransitive” are known to be prone to contact influence [Say, 2018, Shagal and Blinova, 2020]. Although we use more fine-grained distinctions of construction types than “transitive” and “intransitive”, our observations present evidence of a comparable kind.

The choice of adposition is arguably prone to contact influence and pattern-borrowing, not unlike case marking [Seržant, 2015, Meakins et al., 2020].

Finally, the structure of complex verbs is also highly borrowable as it can be compared to calquing in lexicon [Thomason and Kaufman, 2001] which, in fact, often accompanies grammatical pattern-borrowing [Ross, 2007].

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