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Langage, Langues et

**Llaccan**

Cultures d'Afrique

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# Partial Cognate Comparison

A Pre-Settlement History of the Dogon Ethno-linguistic Group

Abbie Hantgan



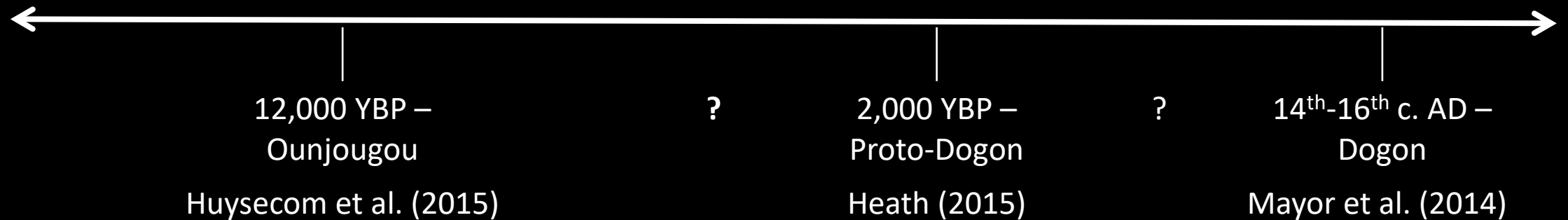
# Research Questions

1. How can automatic partial cognate recognition patterns impact phylogeny?
2. How do computational historical methods measure up to traditional ones?



# Background

Historical timeline



# Dogon Classification

Family: Dogon   

## Classification

?

- ▼ Dogon (20)
  - ▶ Escarpment Dogon (3) 
  - ▶ Nangan Dogon (3) 
  - ▶ North Plateau Dogon (5) 
  - ▶ Plains Dogon (4) 
  - ▶ West Dogon (5) 

## Family membership references


- [Hochstetler, J. Lee and Durieux, J. A. and Durieux-Boon, E. I. K. 2004](#)
- [Bendor-Samuel, John and Olsen, Elizabeth J. and White, Ann R. 1989](#)

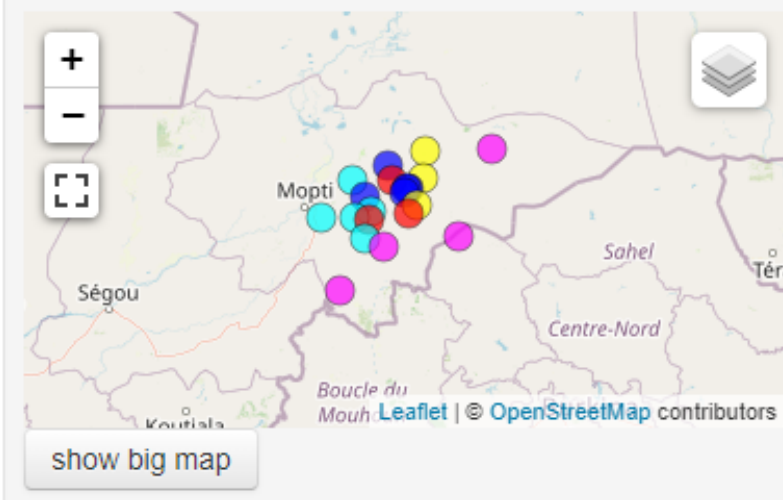
## Comments on family membership

Dogon has not yet been shown to contain systematic sound correspondences, noun class systems or verbal extensions to Niger-Congo in some form. Bangi Me is taken out of Dogon in view of [Blench, Roger 2007](#) .

## Comments on subclassification

[Hochstetler, J. Lee and Durieux, J. A. and Durieux-Boon, E. I. K. 2004](#) , [Jeffrey Heath and Kirill Prokhorov 2010](#) [Steven Moran and Jelena Prokić 2013](#)

Glottocode:  dogo1299



## Links

 [Wikipedia](#)

 [Wikidata](#)



# Methodology

1. Data collection
2. Data preparation
3. Data analysis



# Overview

- I. Data collection (Heath et al. 2015)
- II. Comparative lexical spreadsheet (Heath et al. 2015)
- III. Multimedia resources available at [www.dogonlanguages.org](http://www.dogonlanguages.org)
- IV. Lexicostatistical mappings of subgroupings (Prokhorov, Heath & Moran 2012; Moran & Prokić 2013; Heath 2015)
- V. Preliminary attempts at an internal phylogeny (Hantgan 2019)
- VI. Included as part of a larger interdisciplinary investigation of language isolate Bangime (Babiker et al. 2020; Hantgan & List 2018; Babiker, Hantgan, & List 2020)



# Tools

- LexStat (List 2014)
- Partial cognate detection (List et al. 2016)
- Regular sound correspondences
- Concepticon (List et al. 2020)
- Edictor visualization (List 2017)

Preliminary results



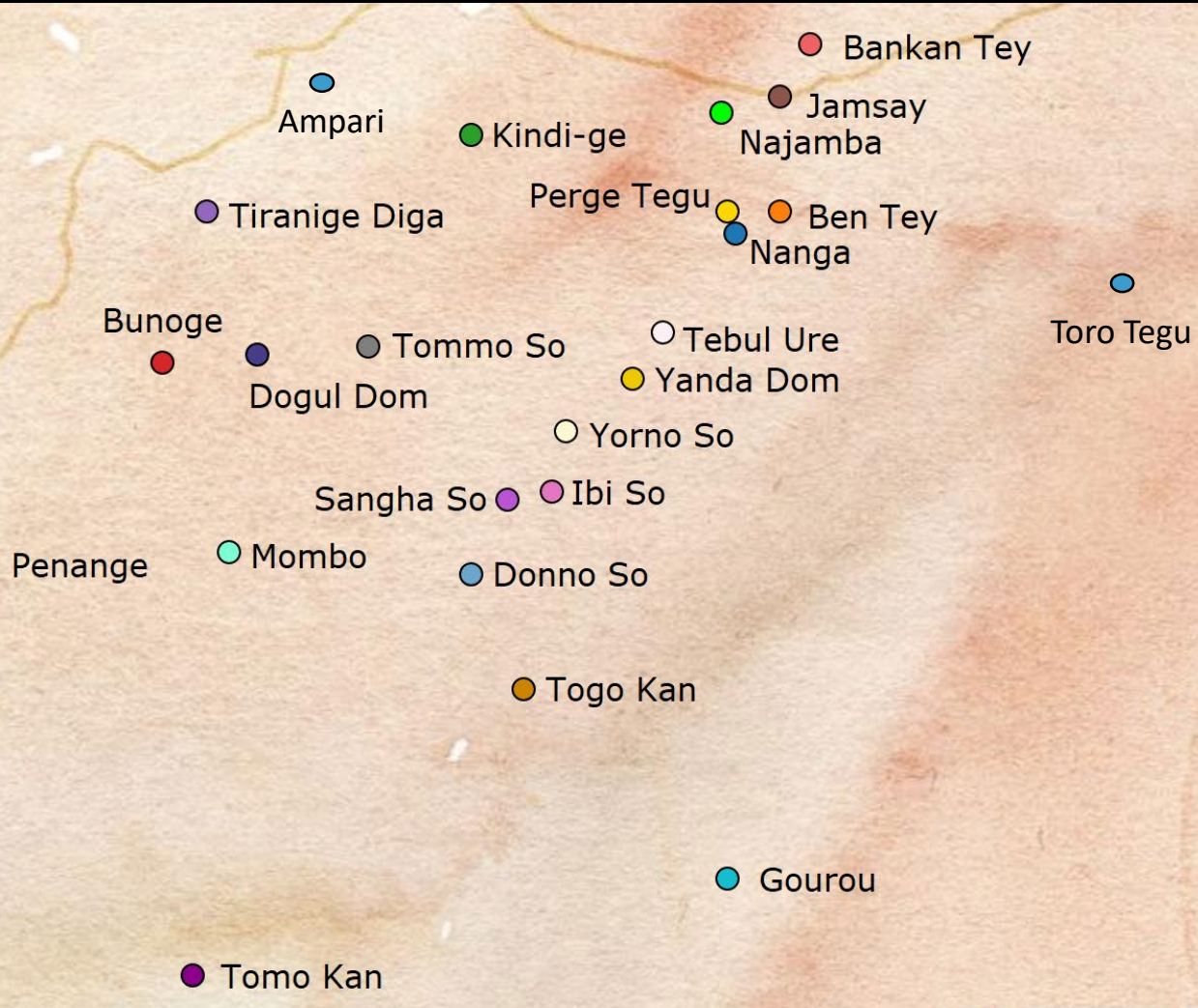


# Previous + current

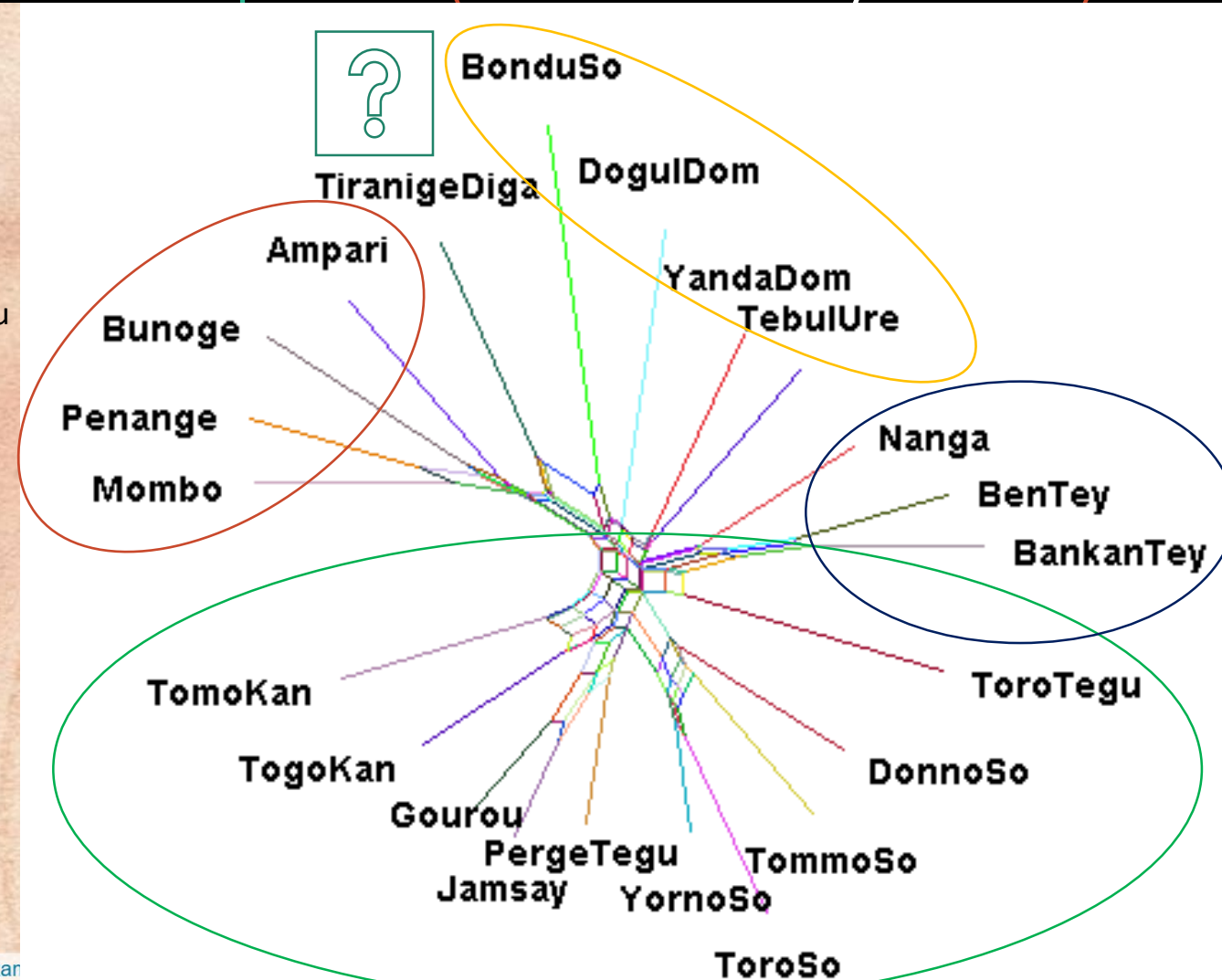
- I. Prokhorov, Heath & Moran (2012); Moran & Prokić (2013)
  - 21 Dogon languages and upwards of 60 dialects
  - Nominal morphology
  - Frozen noun class suffixes
  - Four geographic quadrants
  
- II. Hantgan & List (2018); Babiker, Hantgan, & List (2020)
  - 38 languages; 348 concepts
  - Hand-coded morpheme boundaries
  - Partial cognate detection

# Geographic and phylogenetic subgroups

Lingtypology (Moroz 2020)



Splitstree (Huson and D. Bryant 2006)





Examples

# Comparative forms for concept GUEST OR STRANGER

ID	Doculect	Singular	(Plural)	COGID	COGIDS	Singular Suffix	BORID
8	BenTey	lòòsú-m	lòòsú	899	4 5	-m	0
9	BankanTey	̀̀ndòsú-m	̀̀ndòsú	899	4 5	-m	0
10	Nanga	lòòsí		899	4		0
11	PergeTegu	lòòsú-n		899	4 5	-n	0
20	Bunoge	dóóndzì		899	4		0
26	ToroTegu	lòsù-řu		899	4 21	-řu	0
18	YandaDom	nò nòòzù	nòòzù-mù	908	22 4		0
19	BonduSo	bèmbàá	bèmbà-mbó	901	6		0
22	TiranigeDiga	bíímá		901	6		0
23	Penange	bìimbà		901	6		0
13	TogoKan	jérǐ		902	7 5	~	0
12	Gourou	jérí-n		902	7 5	-n	0
25	Jamsay	jérí-n		902	7 5	-n	0
14	YornoSo	jér-né	jérú-m	902	7 10	-né	0
16	DogulDom	jàrù-wúl		902	7 8	-wúl	0
15	TommoSo	jòùndzì-né	jòùndzǔ-m	903	4 10	-né	0
21	DonnoSo	wò̀ndzù-nó		903	4 10	-nó	0
24	Mombo	gilà gílí		904	13 14		0
17	TebulUre	lògò-déé	lògòdù-mbó	906	4 19	-déé	0



# Frozen suffixes

CONCEPT	FORM	VALUE
GUEST OR STRANGER	lògòdé:\\lògòdù-mbó	lògò-dé:
HONEY	ìdé	ì-dé
BIRD	àdé	à-dé
SHEEP	péddè	péd-dè
FOAM	yúbdá	yúb-dá
COTTON	cèmdé	cèm-dé
SCALE	cébdé	céb-dé
MILK	émné	ém-né
DONKEY	zàmdílè	zàmdí-lè

# Visualization

Analyze and edit the morphology of doculects:

BonduSo m OK WORD FAMILY GRAPH

ANALYSIS:  AUTOMATIC  MANUAL VIEW:  INSPECT  EDIT MODE:  FULL  PART

ID	CONCEPT	TOKENS	COLEXIFICATIONS
1160	CARVE	s i j a + m	FACE <sup>2/2</sup> , FAR <sup>2/2</sup> , GRASS <sup>2/2</sup> , NI...
2579	FACE	g l i r o + m + b u l a:	CARVE <sup>2/2</sup> , FAR <sup>2/2</sup> , GRASS <sup>2/2</sup> , ...
2650	FAR	w a g u + m	CARVE <sup>2/2</sup> , FACE <sup>2/2</sup> , GRASS <sup>2/2</sup> ...
3801	GRASS	s i c: + m	CARVE <sup>2/2</sup> , FACE <sup>2/2</sup> , FAR <sup>2/2</sup> , NI...
5778	NIGHT	n a + m	NIGHT <sup>1/1</sup> , CARVE <sup>2/2</sup> , FACE <sup>2/2</sup> , ...
5941	NURSE	a r a + m	CARVE <sup>2/2</sup> , FACE <sup>2/2</sup> , FAR <sup>2/2</sup> , G...

Word family graph for BonduSo s i j a + m «CARVE»:

The graph shows a central node 'm' with arrows pointing to various morphological forms. The forms are: s<sup>5</sup>/ij<sup>5</sup>/a, w<sup>1</sup>/ag<sup>1</sup>/u, s<sup>5</sup>/ij<sup>5</sup>/a+m «CARVE», w<sup>1</sup>/ag<sup>1</sup>/u+m «FAR», s<sup>15</sup>/c:;15/c:+m «GRASS», n<sup>5</sup>/a+m «NIGHT», n<sup>5</sup>/a, 5/ar<sup>5</sup>/a+m «NURSE», 5/ar<sup>5</sup>/a, g<sup>1</sup>/ir<sup>1</sup>/o+m+b<sup>1</sup>/ul<sup>15</sup>/a: «FACE», b<sup>1</sup>/ul<sup>15</sup>/a:, and g<sup>1</sup>/ir<sup>1</sup>/o.

OK

# Full and partial cognate recognition

## ANIMAL

Bondu So

Dogul Dom

dúmé-ηgó

bélègù

## BITTER

gàlí-jè

gállà-ḥ

## BLOOD

gěn-gé

gìηè-né

## BODY

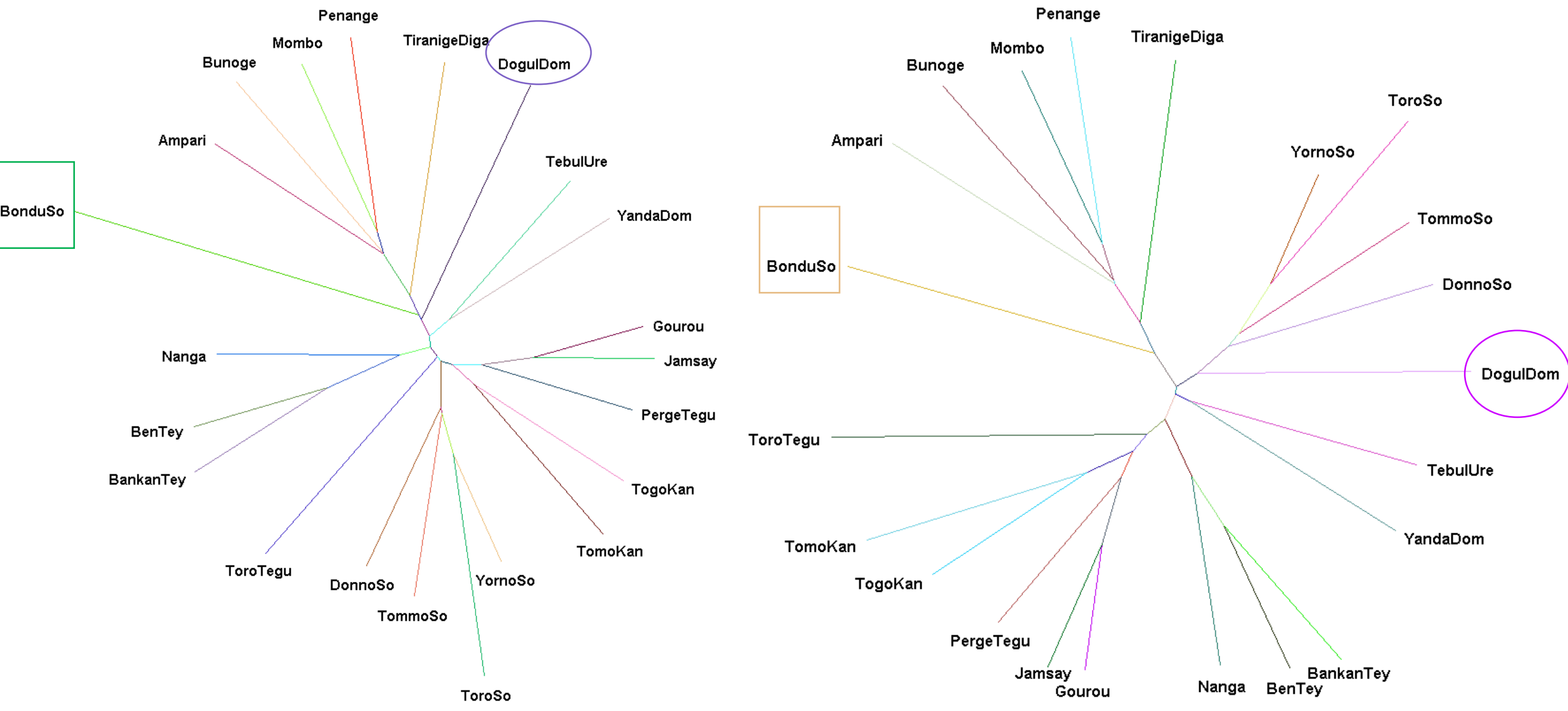
gòjí-ηgé

gòzògó

Pre-settlement history

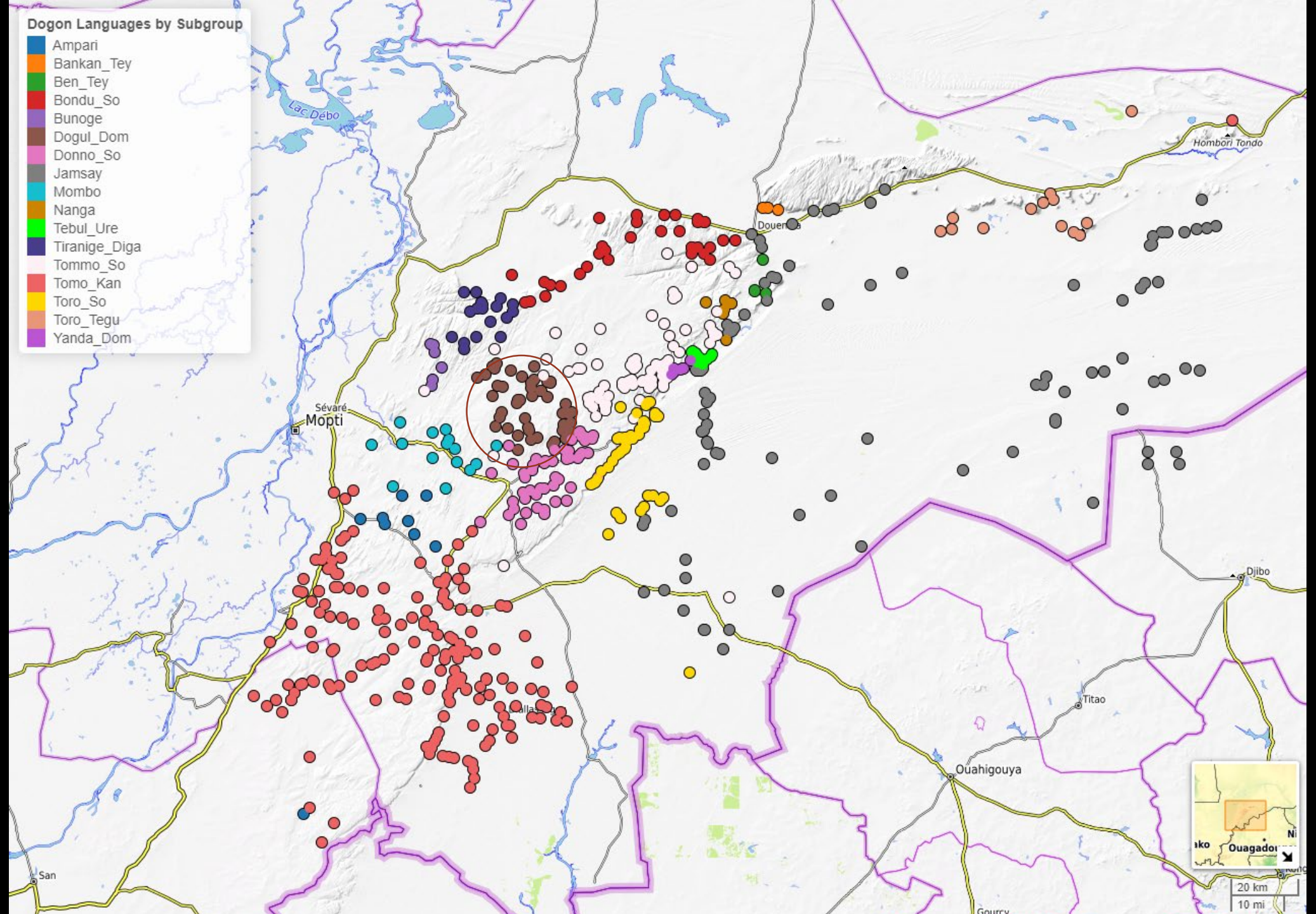


# Partial vs Full Cognates



### Dogon Languages by Subgroup

- Ampari
- Bankan\_Tey
- Ben\_Tey
- Bondu\_So
- Bunoge
- Dogul\_Dom
- Donno\_So
- Jamsay
- Mombo
- Nanga
- Tebul\_Ure
- Tiranige\_Diga
- Tommo\_So
- Tomo\_Kan
- Toro\_So
- Toro\_Tegu
- Yanda\_Dom





# Future Research

- Plural marking
- Frozen suffixes
- Agreement on adjectives and numerals
- “Vowel mutation”

# Selected References

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- List, Johann-Mattis, Simon Greenhill, Tiago Tresoldi & Robert Forkel. 2019. *LingPy. A Python library for quantitative tasks in historical linguistics. Version 2.6.5*. Jena: Max Planck Institute for the Science of Human History. <http://lingpy.org>.

Thank you!



Dogon and Bangime Linguistics



DEPT. OF LINGUISTIC AND CULTURAL EVOLUTION