

Slow rate of lexical replacement and deeper genetic relationships

**Workshop: Genealogical classification of
African languages beyond Greenberg**

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Genetic mutations vs. Linguistic « mutations »

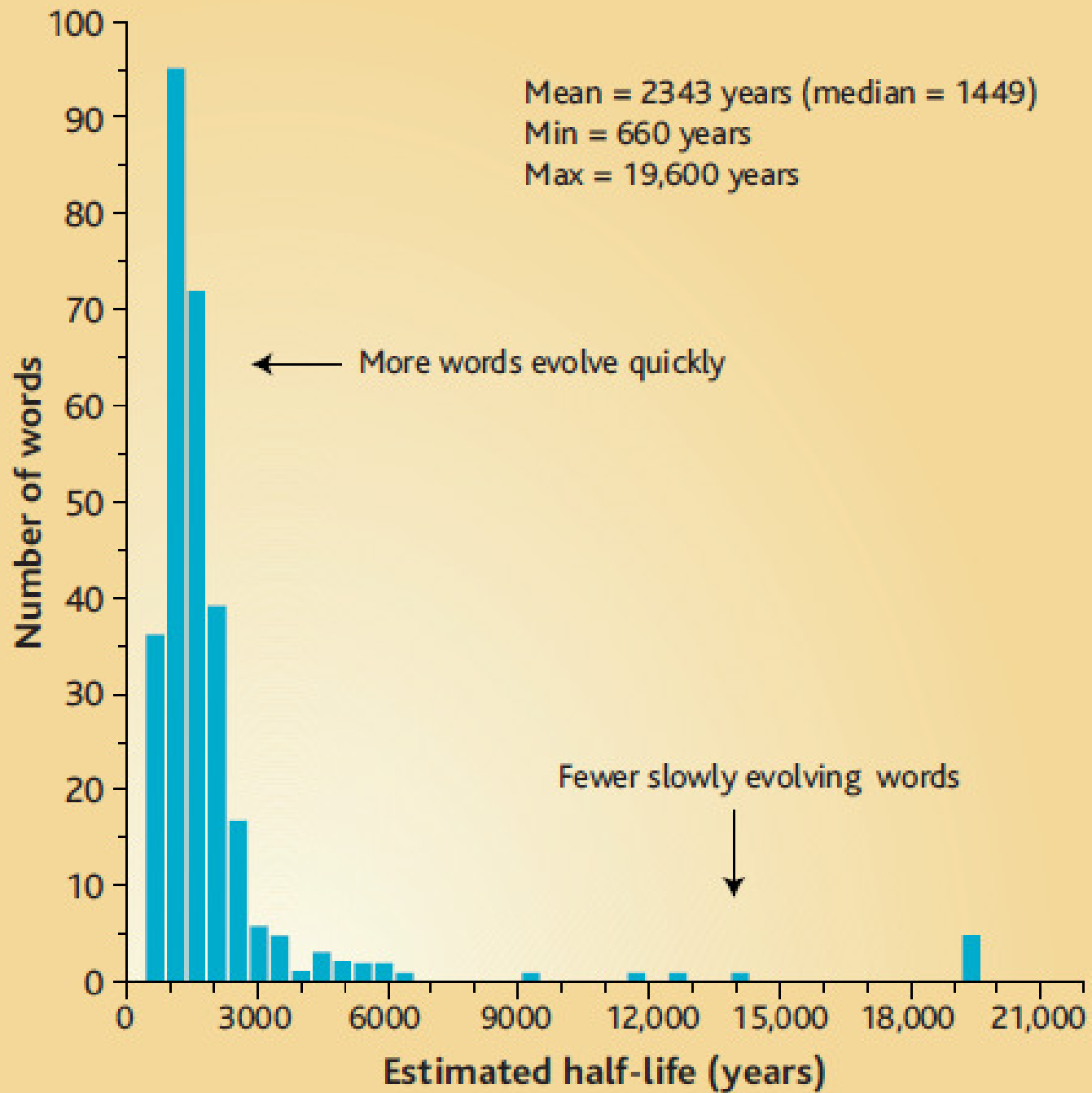
- Largest genetic diversity in Africa (study of human genome shows that early mutations of populations took place only in Africa)
- Slow mutations for deep grouping, fast mutations for recent divisions (subgrouping)
- Linguistic mutations (changes) do not allow to retrace the history from the « beginning »

Speed of lexical replacement

- 20% of change in basic vocabulary/1000 years
- Percentages of cognates
 - After 1.000 years : 64%
 - After 2.000 years : 41%
 - After 10.000 years : 1%
- Very little hope for detecting deep linguistic relationships between 2 languages

Stability of lexical items

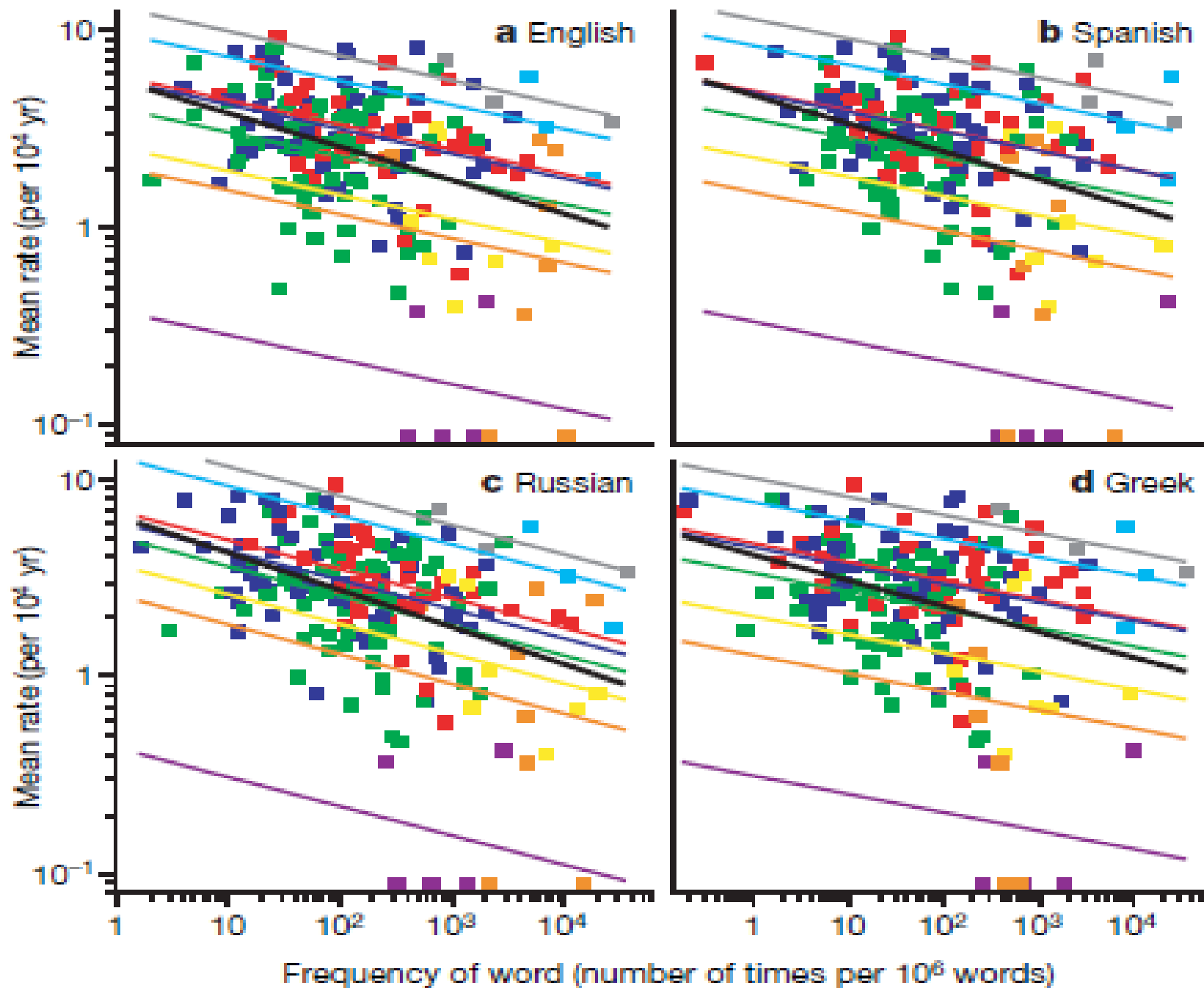
- Variable rate of change
- Use of basic vocabulary
- Variable rate of change in basic vocabulary



Resistant lexical items

- IE : 87 languages, Swadesh 200 wordlist
- One to 46 cognates/meaning
- Slow changing items : five, I, one, two, who
- Frequency play a major role : frequently used words evolve at slower rates

Pagel, Atkinson and Meade (2007), Nature



Rank	Item	Category
1	FIVE	Number
1	I	Pronoun
1	THREE	Number
1	TWO	Number
1	WHO	Pronoun
6	FOUR	Number
6	ONE	Number
6	WE	Pronoun
9	HOW	Adv.
10	NAME	Noun
10	TONGUE	Noun
12	NEW	Adj.
12	WHAT	Adv.
14	EAR	Noun
14	NIGHT	Noun
14	THOU	Pronoun
17	TO GIVE	Verb
17	NOT	Adv.
17	STAR	Noun
17	TOOTH (FRONT)	Noun
17	WHERE	Adv.

Rank	Item	Category
22	TO DIE	Verb
22	EYE	Noun
22	HAND	Noun
22	SUN	Noun
22	WATER	Adj.
27	FATHER	Pronoun
28	DAY (NOT NIGHT)	Noun
28	TO LIVE	Verb
28	MOTHER	Pronoun
28	SALT	Noun
28	WHEN	Adv.
33	FISH	Noun
33	HE	Pronoun
33	TO SIT	Verb
33	SMOKE	Noun
33	SNOW	Noun
38	TO DRINK	Verb
38	FOOT	Noun
38	IN	Prep.
38	LONG	Adj.
38	LOUSE	Noun
43	BONE	Noun

Loanword Typology Project

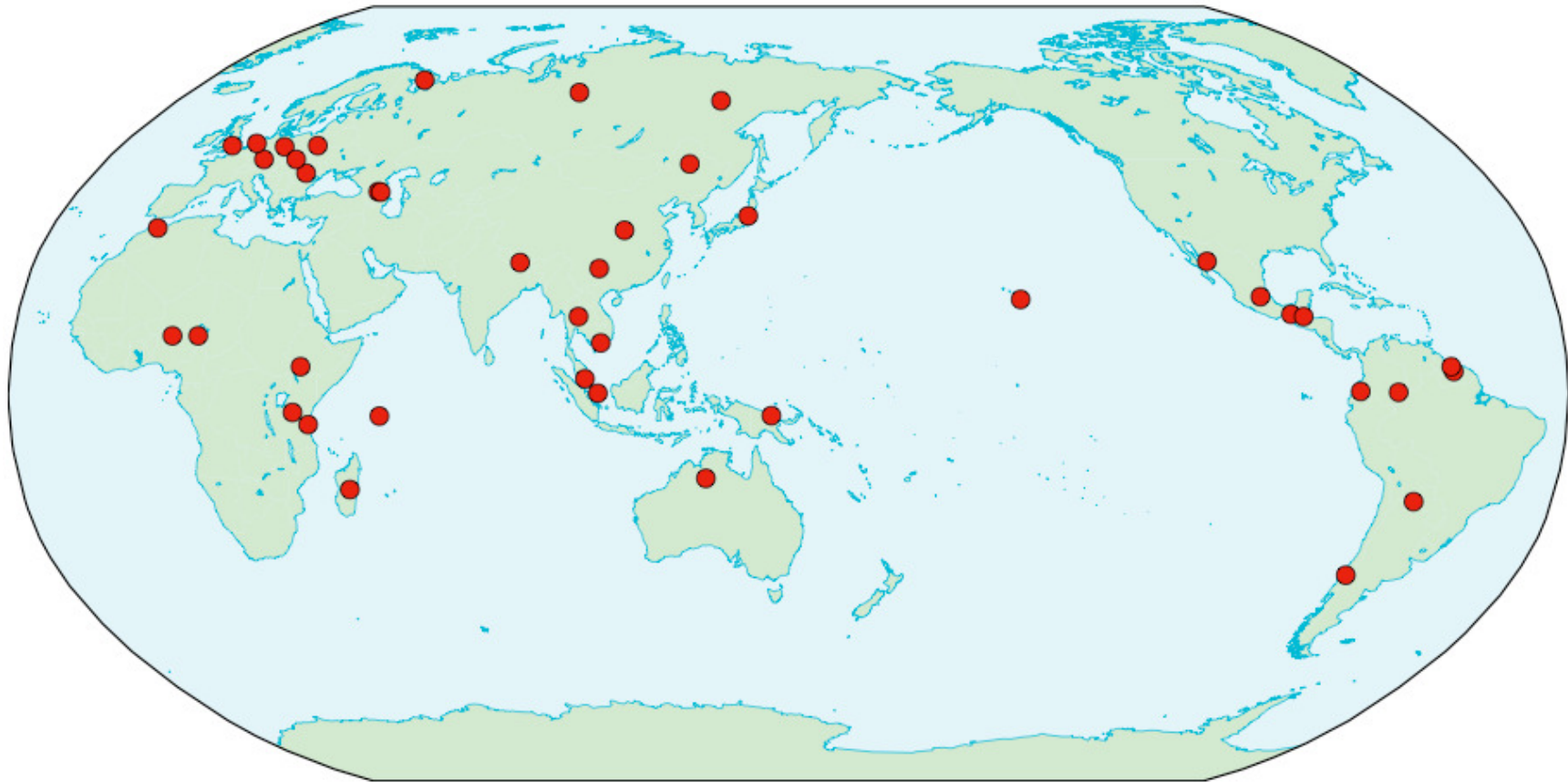


Table 5: LWT meanings ranked by borrowability score (top 25)

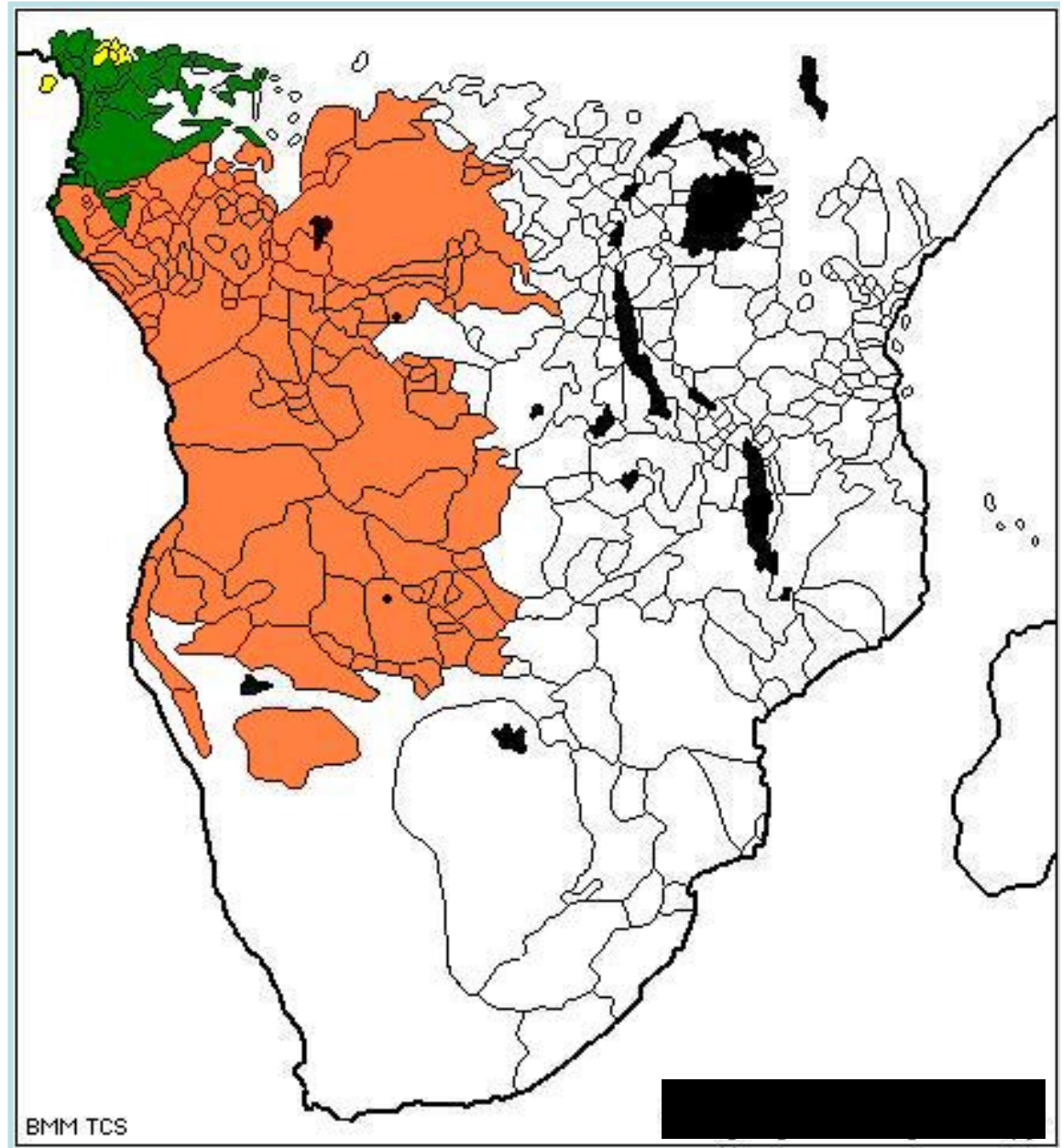
	LWT label	Borrowed score
1	<i>he/she/it</i>	1.00
1	<i>we (inclusive)</i>	1.00
1	<i>we (exclusive)</i>	1.00
1	<i>up</i>	1.00
1	<i>this</i>	1.00
6	<i>where?</i>	0.997
7	<i>why?</i>	0.995
8	<i>which?</i>	0.994
9	<i>we</i>	0.991
10	<i>married woman</i>	0.990
11	<i>younger sister</i>	0.989
11	<i>rise</i>	0.989
13	<i>day after tomorrow</i>	0.987
13	<i>spin</i>	0.987
15	<i>stinking</i>	0.982
15	<i>bring</i>	0.982
17	<i>day before yesterday</i>	0.981
17	<i>there</i>	0.981
17	<i>lie down</i>	0.981
17	<i>stand</i>	0.981
17	<i>here</i>	0.981
22	<i>how?</i>	0.980
23	<i>run</i>	0.976
24	<i>behind</i>	0.975
24	<i>bitter</i>	0.975

natural phenomena	<i>water, fire, night, wind, rain, smoke, stone/rock, salt, sand, soil, ash, shade/shadow, star</i>
human body parts	<i>nose, mouth, tongue, eye, tooth, hair, ear, arm/hand, neck, breast, navel, liver, back, leg/foot, thigh, knee, skin/hide, flesh/meat, bone, blood</i>
animal and plant parts	<i>wing, horn, tail, egg, root, leaf, wood</i>
humans and animals	<i>child (descendant), fish, bird, dog, ant, fly, head louse</i>
cultural items	<i>house, name, rope</i>
properties	<i>old, new, big, small, long, wide, far, thick, good, red, black, heavy, sweet, bitter, hard</i>
actions	<i>go, come, run, fall, carry, take, eat, drink, cry/weep, tie, laugh, suck, hide, stand, bite, hit/beat, do/make, burn (intr.), blow, know, see, hear, give, say, crush/grind</i>
deictic/grammatical	<i>1SG pronoun, 2SG pronoun, 3SG pronoun, who?, what?, this, one, not, yesterday, in</i>

Table 8: *Items on the Swadesh list but not on the Leipzig-Jakarta list*

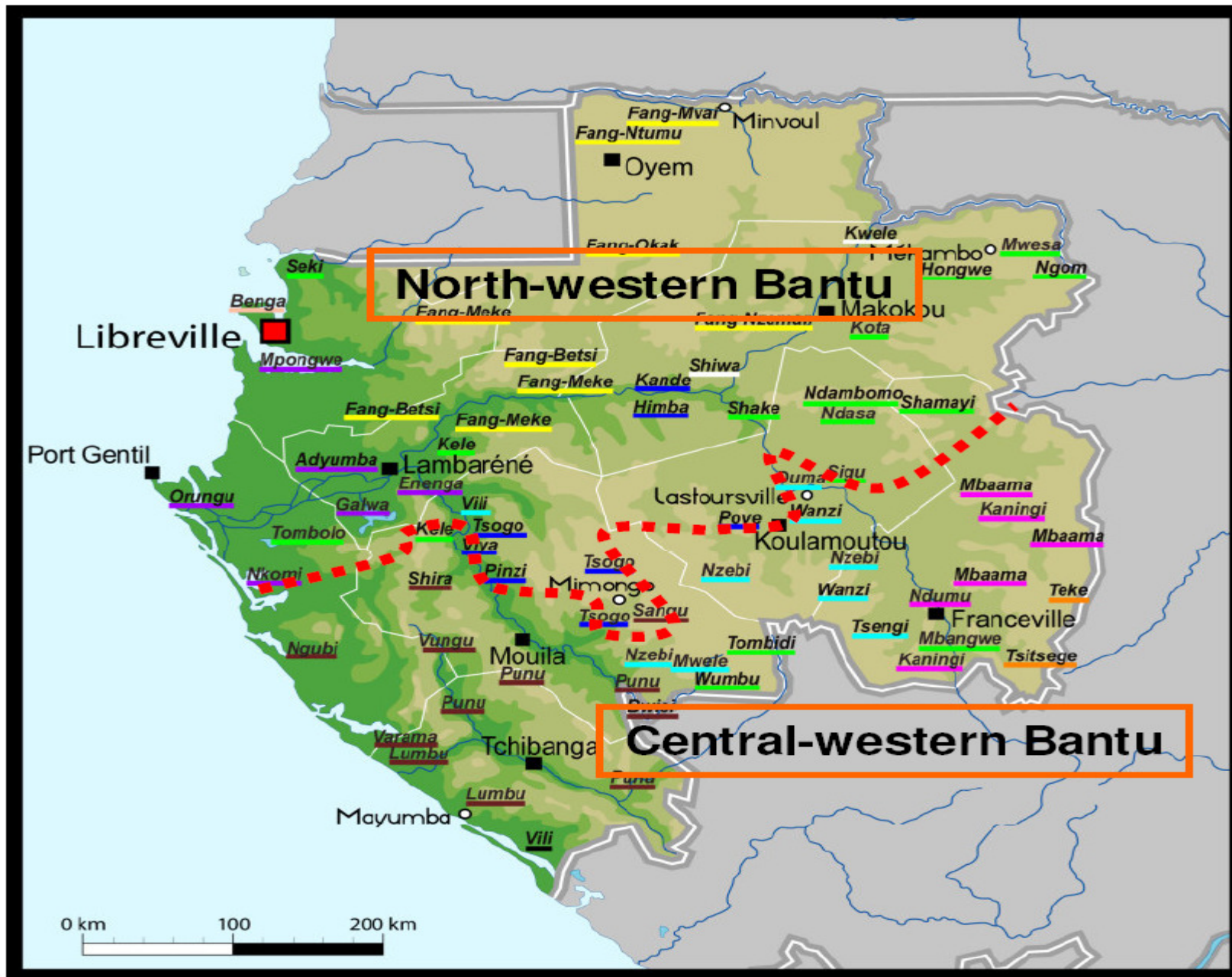
ITEM	OUR RANKING	ITEM	OUR RANKING	ITEM	OUR RANKING
<i>sit</i>	106	<i>sleep</i>	155	<i>bark</i>	301
<i>fingernail</i>	107	<i>white</i>	157	<i>walk</i>	321
<i>man</i>	115	<i>kill</i>	159	<i>swim</i>	322
<i>belly</i>	118	<i>many</i>	166	<i>seed</i>	327
<i>two</i>	119	<i>that</i>	174	<i>all</i>	338
<i>lie</i>	121	<i>sun</i>	178	<i>tree</i>	345
<i>cloud</i>	123	<i>woman</i>	183	<i>we</i>	347
<i>fly</i>	134	<i>dry</i>	192	<i>moon</i>	358
<i>head</i>	137	<i>grease</i>	219	<i>round</i>	376
<i>hot</i>	143	<i>heart</i>	220	<i>green</i>	412
<i>cold</i>	146	<i>yellow</i>	232	<i>person</i>	531
<i>feather</i>	147	<i>path</i>	271		
<i>full</i>	153	<i>die</i>	291		

**Major Bantu subdivisions
(from lexico-statistical data,
Bastin and Piron 1999)**



Bantu languages of Gabon

- 52 languages
- 150 words
- Algab project



<u>A30</u>	<u>A80</u>	<u>B20</u>	<u>B40</u>	<u>B60</u>	<u>H12b</u>
<u>A70</u>	<u>B10</u>	<u>B30</u>	<u>B50</u>	<u>B70</u>	

Meaning	Leipzig-Jakarta	Algab	Nb of roots
<i>fire</i>	1	45	6
<i>nose</i>	2	35	5
<i>to go</i>	3		
<i>water</i>	4	35	5
<i>mouth</i>	5	22	4
<i>tongue</i>	6	22	4
<i>bone</i>	7	5	2
<i>blood</i>	7	45	6
<i>(root, small)</i>	9	5	2
<i>root (big)</i>	9	35	5
<i>2SG pronoun</i>	9		
<i>to come</i>	11	35	5
<i>breast</i>	12	1	1
<i>(breast, chest)</i>	12	22	4
<i>rain</i>	13	9	3
<i>1SG pronoun</i>	14		
<i>louse</i>	15	9	3
<i>name</i>	15	9	3
<i>wing</i>	17	5	2
<i>flesh/meat</i>	18		

Meaning	Leipzig-Jakarta	Algab	Nb of roots
<i>arm/hand</i>	19	9	3
<i>night</i>	20	61	8
<i>fly</i>	20		
<i>ear</i>	22	9	3
<i>neck</i>	23	45	6
<i>far</i>	23		
<i>to do/make</i>	25		
<i>house</i>	26	22	4
<i>stone/rock</i>	27	22	4
<i>tooth</i>	28	9	3
<i>to say</i>	28	61	8
<i>bitter</i>	28		
<i>hair</i>	31	22	4
<i>one</i>	32	22	4
<i>big</i>	32	35	5
<i>who?</i>	34	9	3
<i>3SG pronoun</i>	34		
<i>to hit/beat</i>	36	61	8
<i>leg/foot</i>	37	68	10
<i>fish</i>	38	5	2

Conclusion

- Not convinced...

BUT

- Need comparable data from different linguistic zones in Africa
- Could be interesting for areal studies

- Thank you