

PARALLELS AND PARADOXES:
COMPARING THE GENETIC AND
LINGUISTIC
RELATIONSHIPS OF URALIC LANGUAGES
AND URALIC SPEAKING POPULATIONS

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ONLINE









Content

- ❑ The relationship between demographic and linguistic processes
- ❑ Langene diagrams
- ❑ Who was the „youngest” man whose descendants can be found among every Uralic speaking population?
- ❑ Where and when this man lived?
- ❑ Demographic and linguistic processes from Uralic point of view
- ❑ Nameplaces, vegetation, migration routes
- ❑ Summary

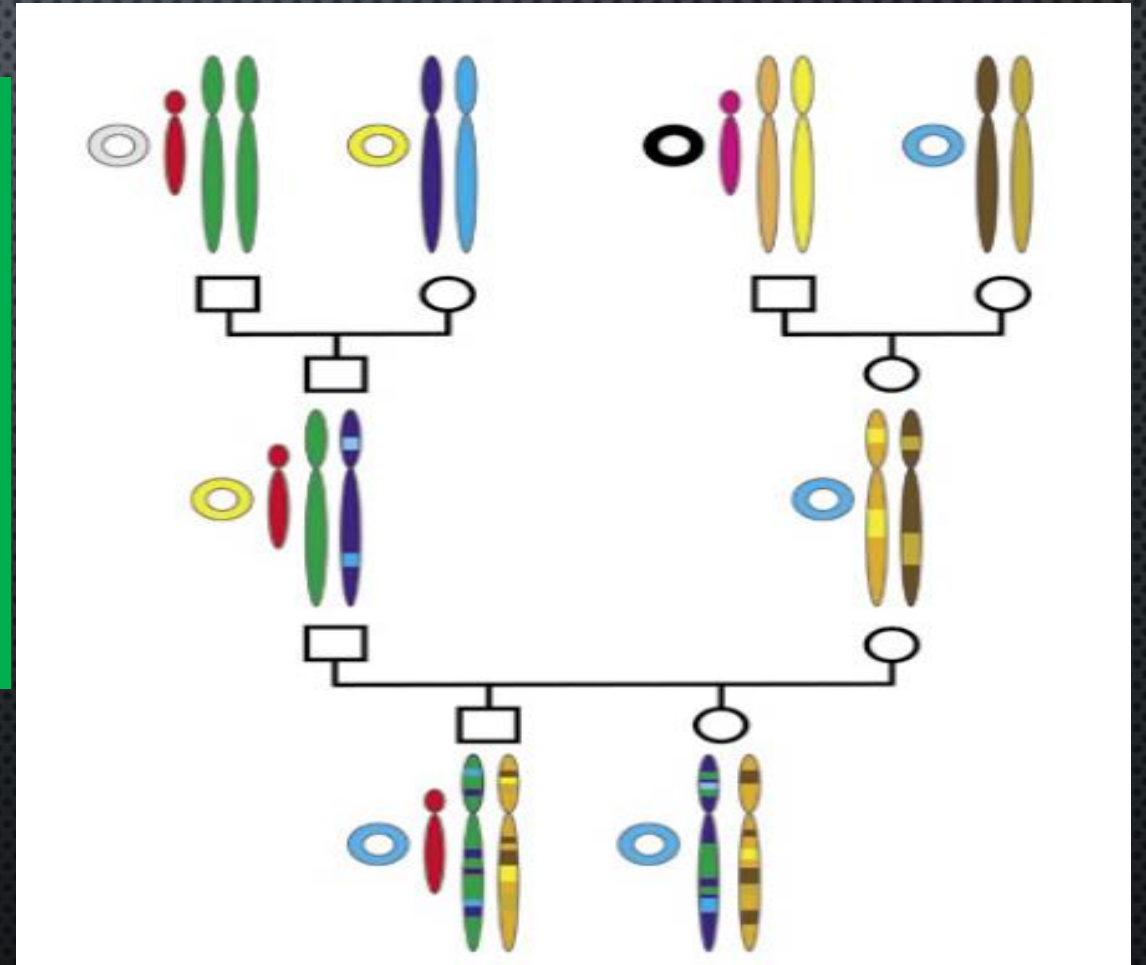
WHAT IS POPULATION GENETICS GOOD FOR

- ❑ Following a single paternal or maternal lines back into the past
- ❑ Reconstruction of migration routes of a single genetic component
- ❑ Detecting of splits in a single component and its timing of a single component
- ❑ Detecting of demographic extension and its timing of a single component
- ❑ Admixture analysis based on autosomal markers

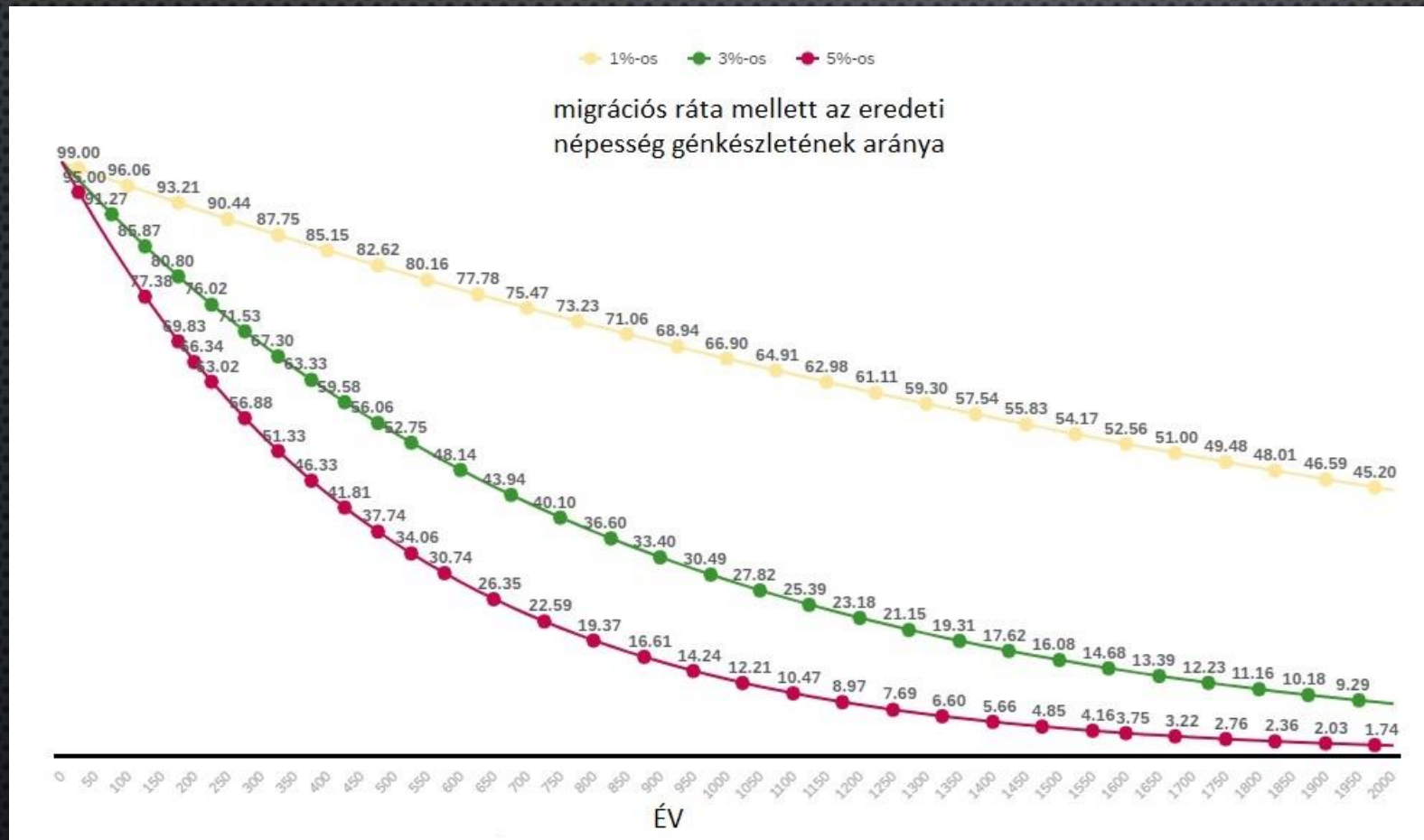
Uniparental markers

- FATHERS: 
- MOTHERS: 
- PATERNAL LINES (Y-KROMOSZÓMA)  
- MATERNAL LINES (MTDNS)    
- RECOMBINATIONS MARKED WITH COLOURS

Kayser, 2007, Uni-parental markers in human identity testing including forensic DNA analysis

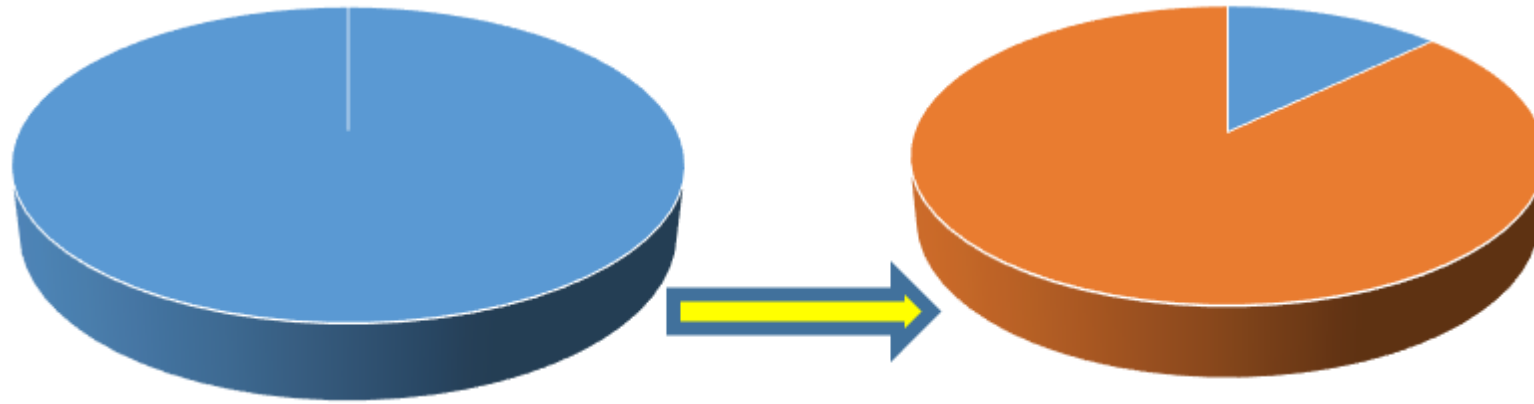


Dinamics of gene-flow per generation based on migration rate



Cavalli-Sforza és mt sai, 1994

Example: 40 generation, 5% migration rate



40 generáció (1000 év)
5%-os bevándorlási ráta
generációnként

COMPARING DEMOGRAPHIC AND LINGUISTIC PROCESSES

DEMOGRAPHIC

- INTEGRATIVE

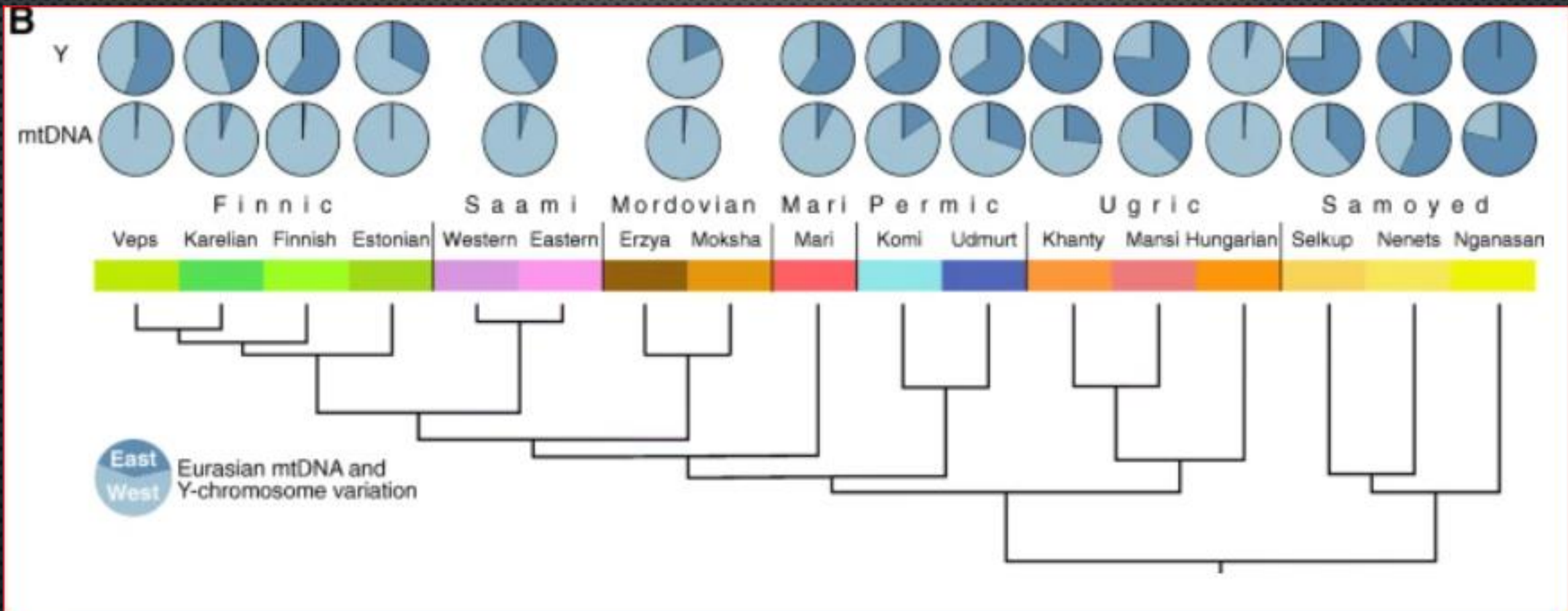


LINGUISTIC

- DOMINANT

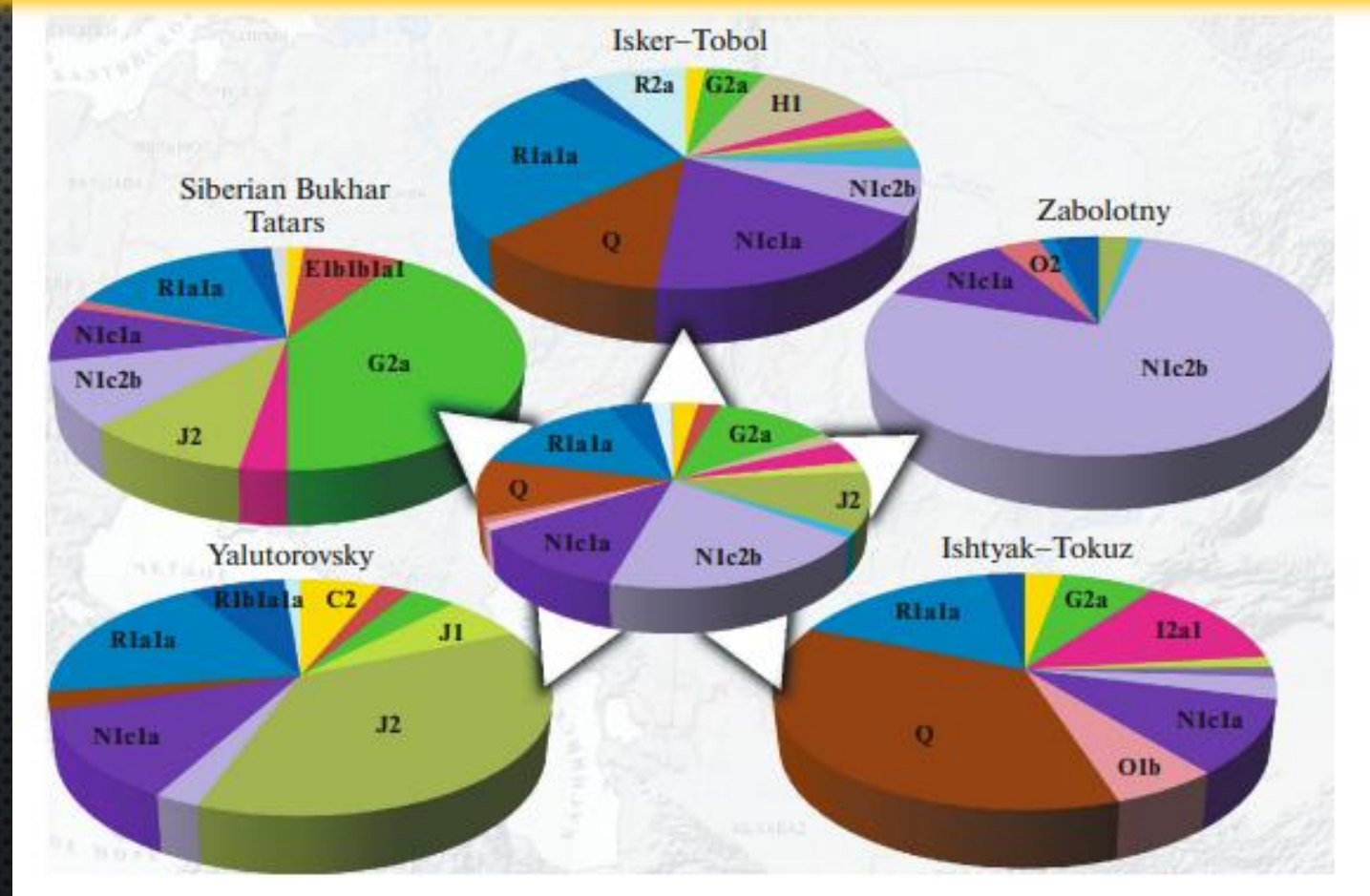


Genetic distance is not an absolute measurement



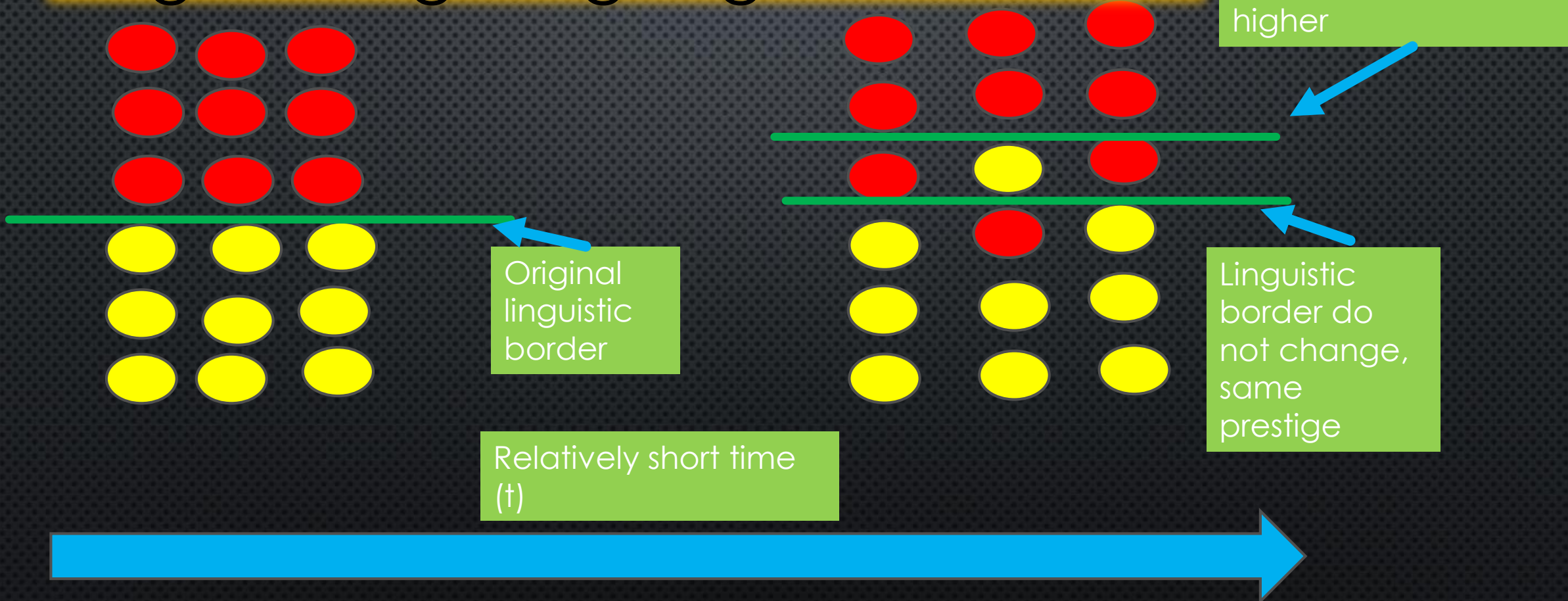
There are several different genetic distances focusing on different demographic processes

Example: regional differences in Siberian Tatars

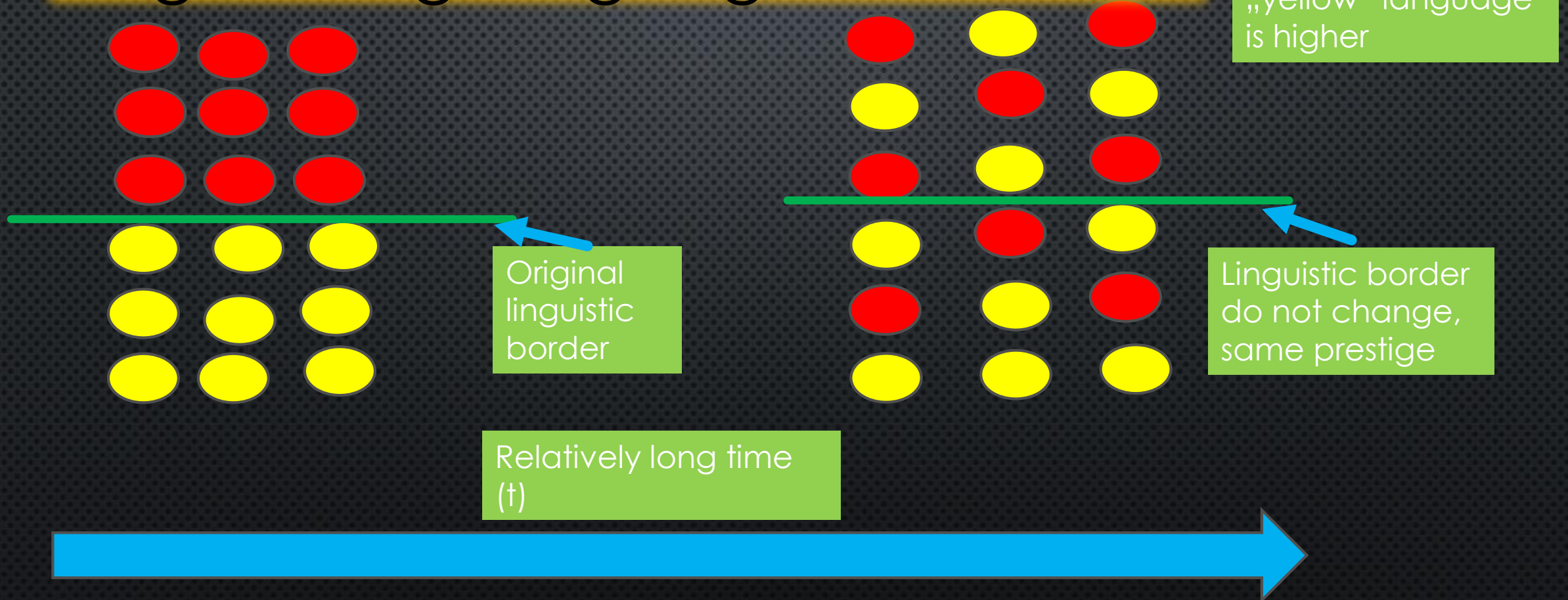


A. T. Agdzhoyan és mtsai, 2016

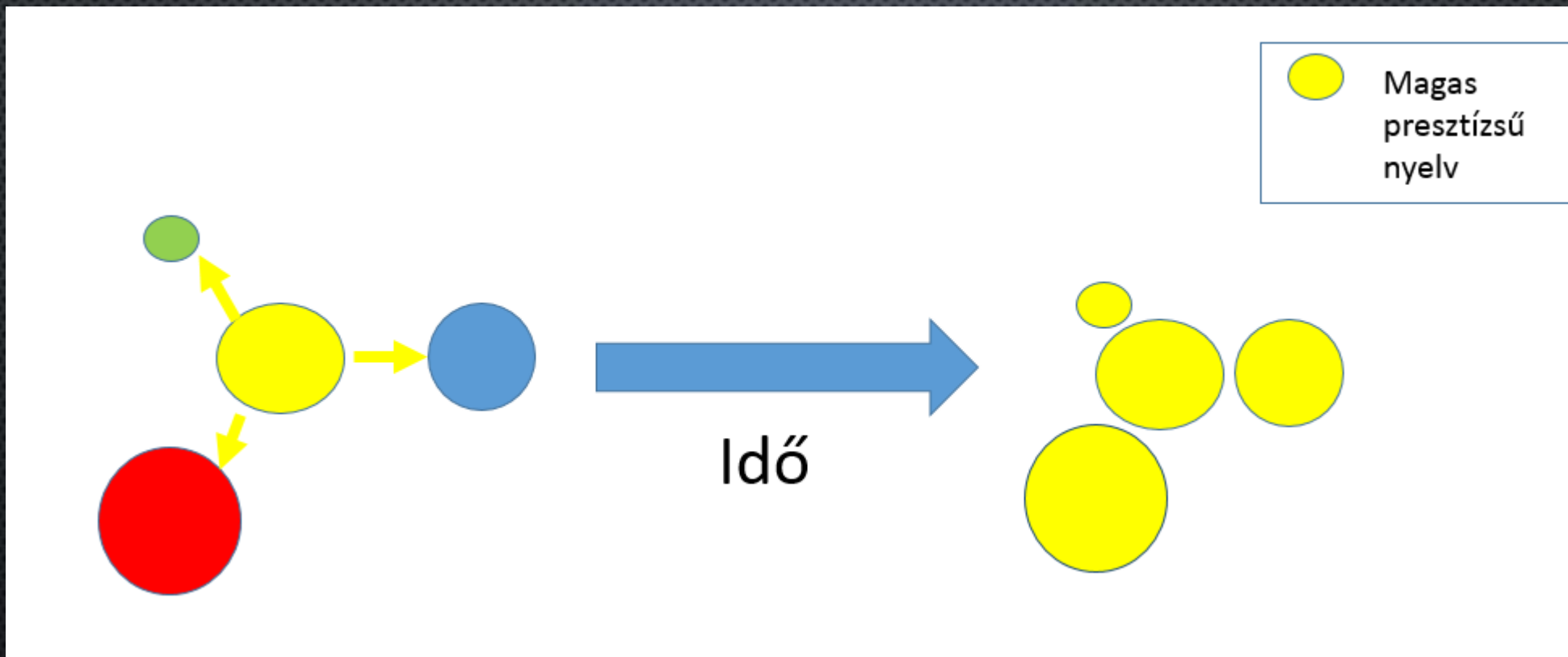
Change of linguistic border depending of prestige of the neighboring languages



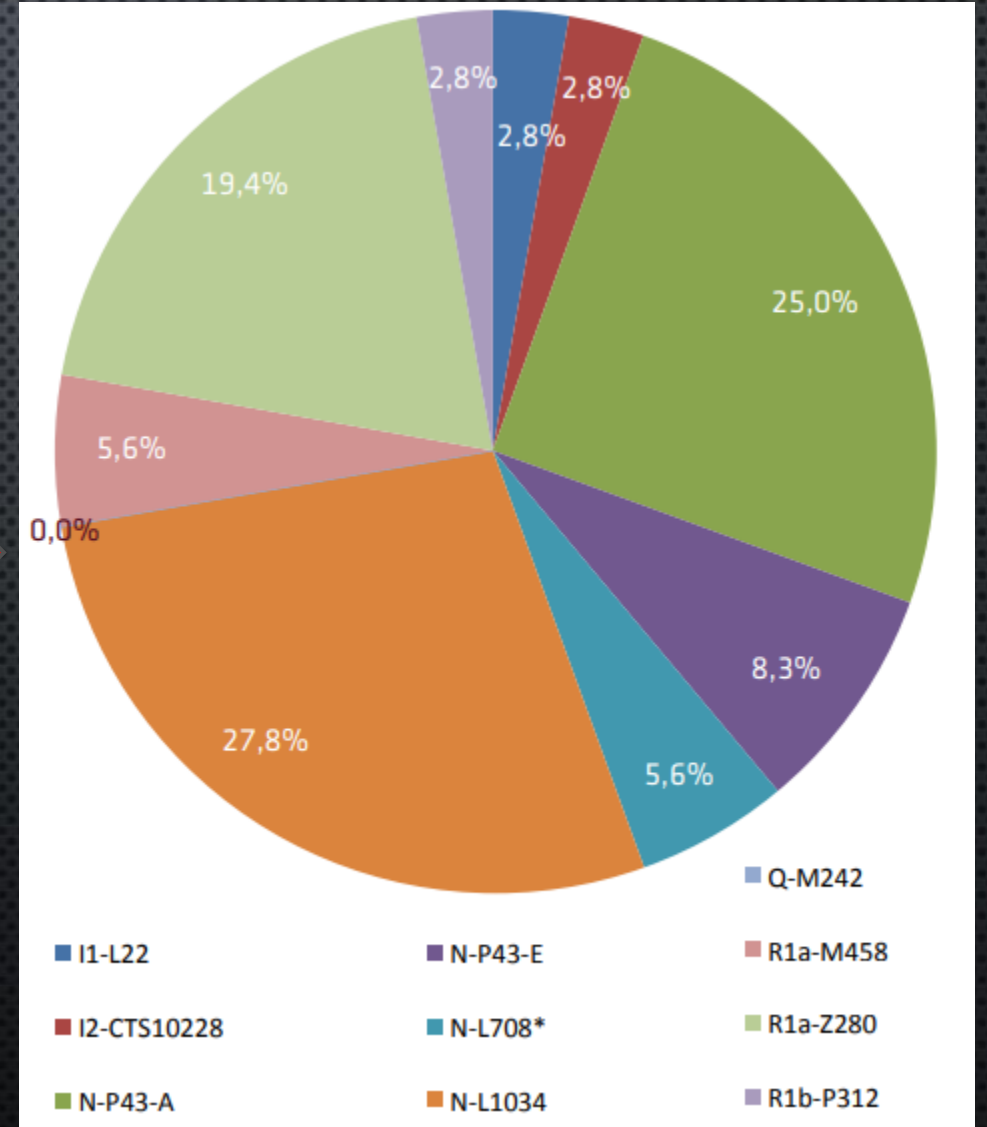
Change of linguistic border depending of prestige of the neighboring languages



„Lingua franca” model



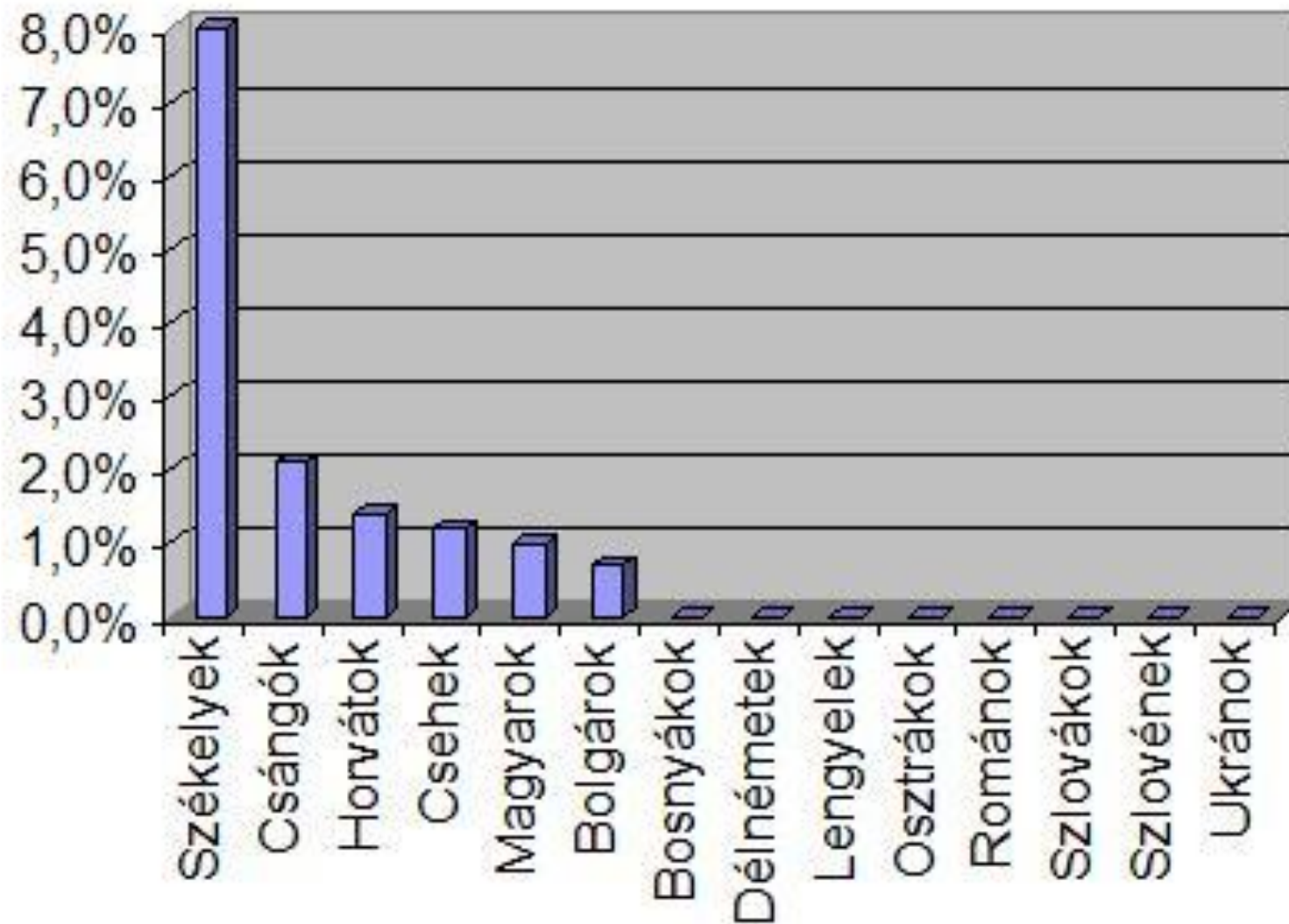
Haplogroup distribution is very mobile in time and by regions



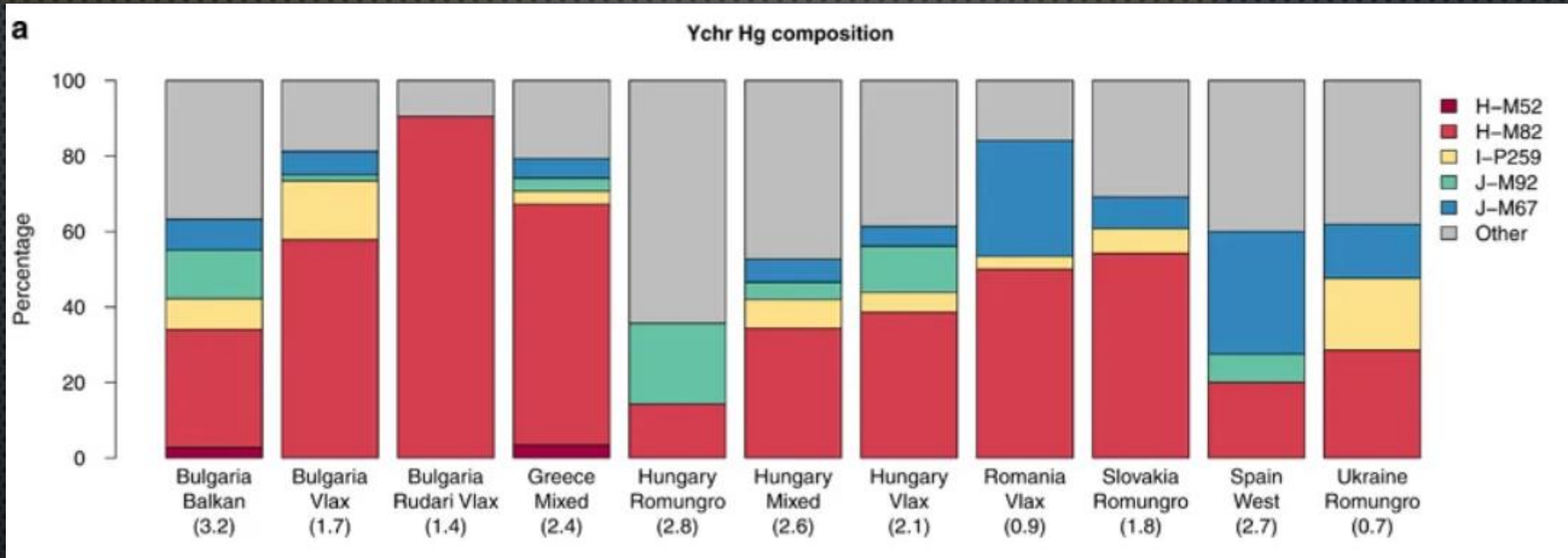
CONSEQUENCES OF LANGENE DIAGRAMS

- POPULATION OF HIGH AND AVERAGE PRESTIGE LANGUAGES WILL BE SIMILAR FAST TO THE NEIGHBORING POPULATIONS
- POPULATION OF LOW PRESTIGE LANGUAGES WILL PRESERVE BETTER THEIR ORIGINAL GENE POOL
- SPECIAL MARKERS OF A SINGLE POPULATION ARE MUCH MORE INFORMATIVE THAN THEIR OVERALL GENETIC LANDSCAPE
- IN URALIC SPEAKING POPULATION PATERNAL LINES ARE MUCH MORE INFORMATIVE THAN MATERNAL LINES AND IT SEEMS EVEN MORE INFORMATIVE THAN AUTOSOMAL MARKERS

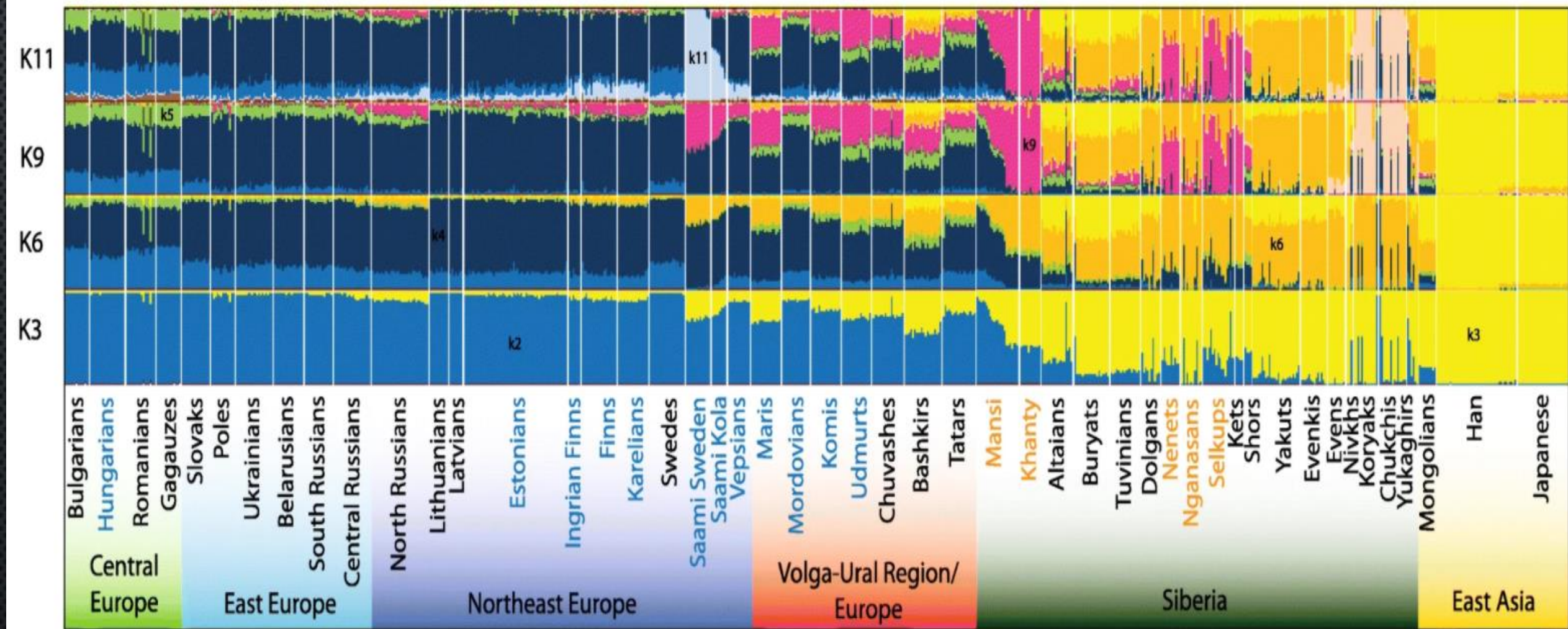
Eastern-Eurasian mtDNA elements in C-Europe



Special markers: european roma population



The uralic component based on admixture analysis



MOST IMPORTANT 4 N SUBHAPLOGROUPS IN URALIC SPEAKING POPULATIONS

- N-B478 (POTENTIAL SAMOYED MIGRATION MARKER),
- N-Y9022 (POTENTIAL PERMIC MIGRATION MARKER),
- N-VL29 (POTENTIAL BALTI-FINNIC MIGRATION MARKER),
- N-B539 (POTENTIAL UGRIC MIGRATION MARKER).
- N-B478 SEEMS TO BE RESPONSIBLE FOR A SUBSTRATE EFFECT IN SAMOYED LANGUAGES

40°

60°

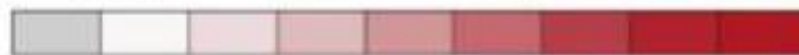
80°

240°

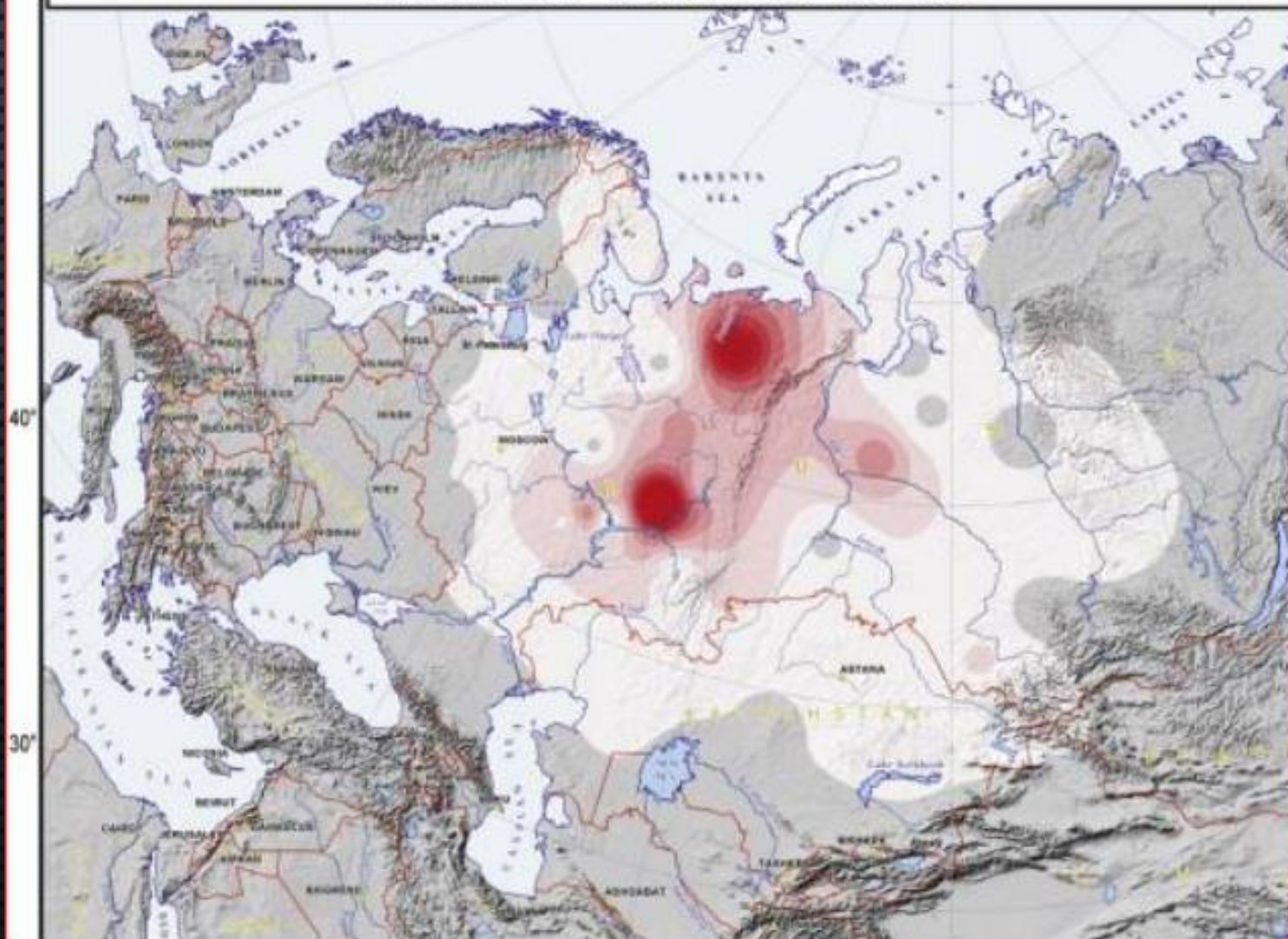
220°

200°

N3a1



0.01 0.06 0.11 0.16 0.21 0.26 0.31 0.36



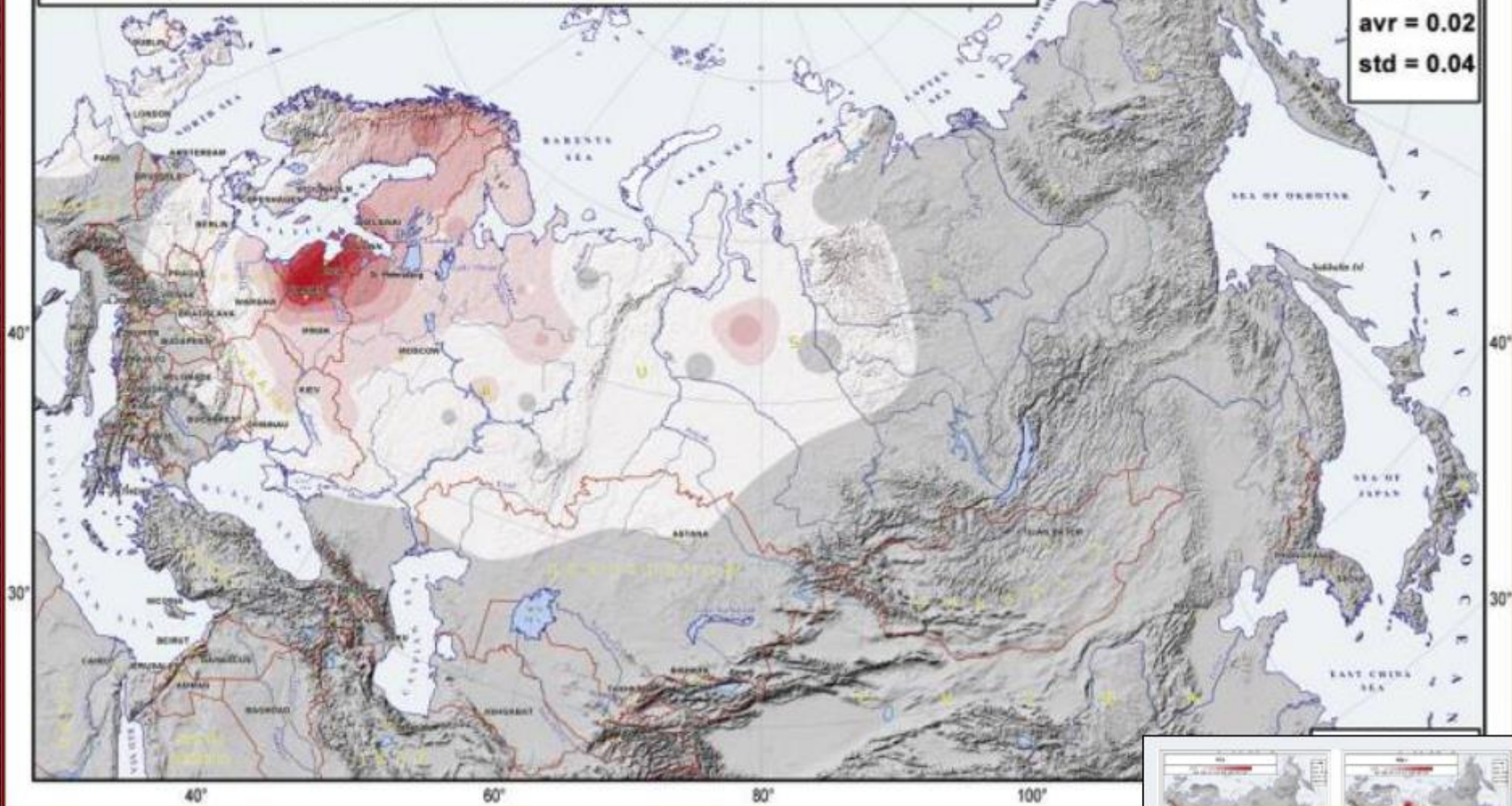
40° 60° 80° 240° 220° 200°

N3a3



0.01 0.06 0.11 0.16 0.21 0.26 0.31 0.36

K = 183
min = 0
max = 0.4
avr = 0.02
std = 0.04



Z1936

a)



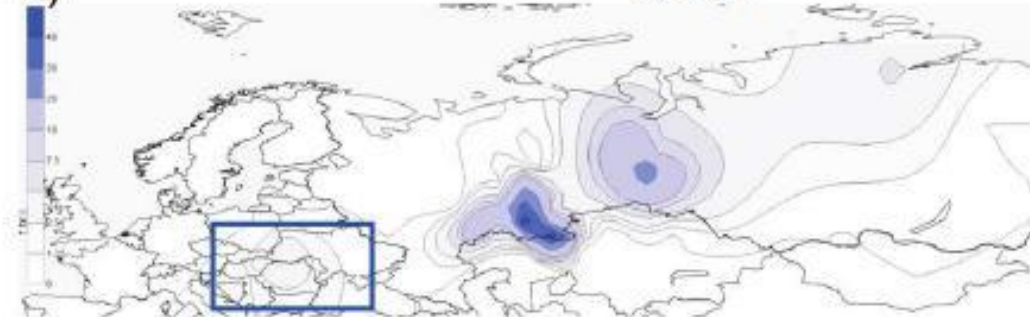
b)

B535



c)

B539



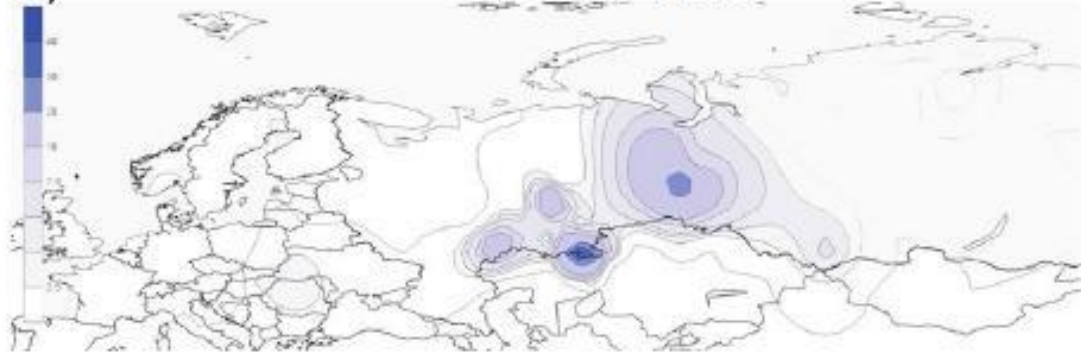
d)

B539

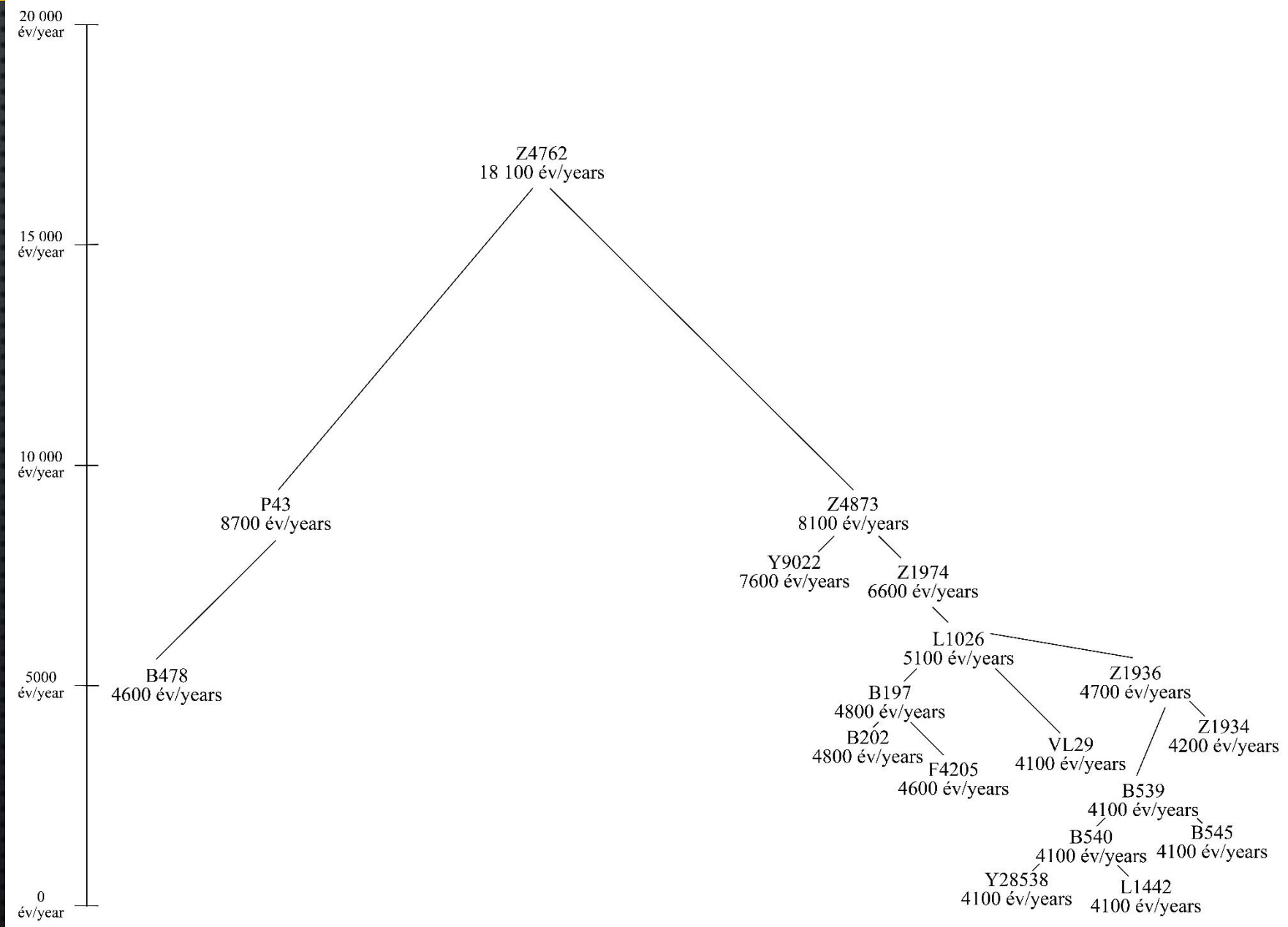


e)

L1034



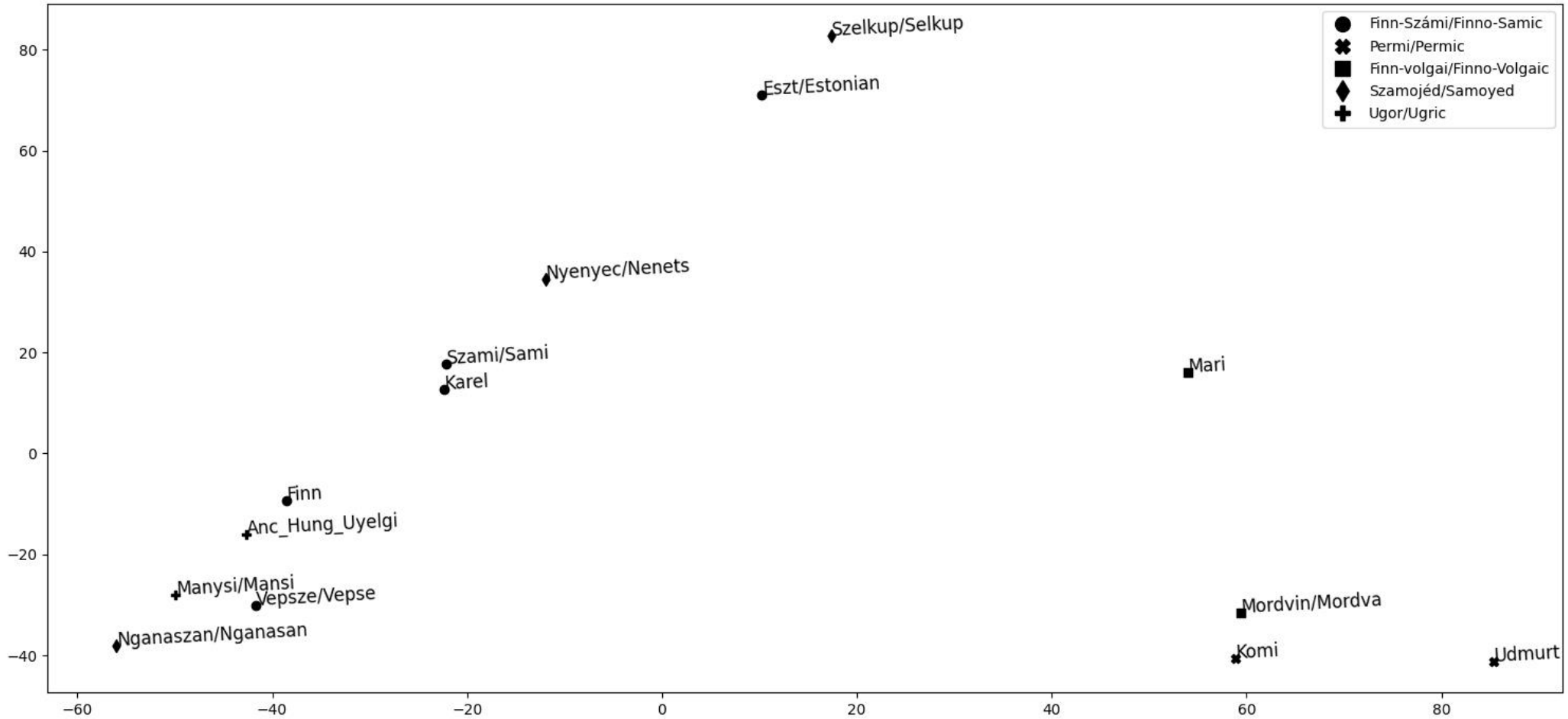
THE PHYLOGENETIC TREE OF THE MOST IMPORTANT N SUBHAPLOGROUPS IN TERMS OF THE URALIC SPEAKING POPULATIONS



THE TRCMA AND FORMATION OF THE MOST IMPORTANT NMARKERS IN TERMS OF THE URALIC SPEAKING POPULATIONS

Marker – Marker	Marker keletkezése (1000 év)	TMRCA (1000 év)	Feltételezett nyelvi kapcsolat
F43	8,7	4,6	Paleosibériai – Paleosiberian
Z4863	8,1	7,6	Uráli – uralic
Z4863>>Y9022	7,6	4,0	Permi – Permian, Mari, Mordvin – Mordva
Z4863>>Z1974	6,6	6,3	Balti-finn, Ugor – Ugric, Szamojéd – Samoyed, Altaji, Csukcs – Chukchi, Jukagír – Yukaghir, Mari, Mordvin – Mordva
F43>>VL67>>B478	4,6	3,4	Szamojéd – Samoyed, Altaji Türk – Turk, Tunguz, ongol
Z4863>>Z1974>>L1026	5,1	4,7	Balti-finn, Ugor – Ugric, Mari, Mordvin – Mordva, Altaji, Csukcs – Chukchi, Eszkimó – Eskimo, Korják – Koryak
Z4863>>Z1974>>L1026>>B197>>B202	4,8	2,6	Csukcs, Eszkimó – Eskimo, Korják – Koryak
Z4863>>Z1974>>L1026>>B197>>F4205	4,6	2,3	Burját – Buryat, avar, Mongol, Türk – Turk
Z4863>>Z1974>>L1026>>VL29	4,1	3,6	Balti-finn, Mari, Szamojéd – Samoyed
Z4863>>Z1974>>L1026>>Z1936	4,7	4,2	Ugor – Ugric, Vepsze – Veps,
Z4863>>Z1974>>L1026>>Z1936>>Z1934	4,2	4,1	Karél – Karél, Finn, Számi – Sami, Szamojéd – Samoyed Vepsze – Veps, Karél – Karel,
Z4863>>Z1974>>L1026>>Z1936>>Z1936>>B539	4,1	4,1	Finn, Szám – Sami Ugor – Ugric
Z4863>>Z1974>>L1026>>Z1936>>B539>>B540>>Y28538	4,1	3,6	Obi-ugor – Ob-Ugric
Z4863>>Z1974>>L1026>>Z1936>>B539>>B540>>L1442	4,1	2,8	Magyar – Hungarian
Z4863>>Z1974>>L1026>>Z1936>>B539>>B545	4,1	2,8	Magyar – Hungarian

PCA BASED ON THE RELATIVE RATIO OF THE 3 MOST IMPORTANT SUBGROUPS (N-Y9022, N-VL29, N-Z1936) IN URALIC SPEAKING POPULATIONS



REMARKS, PARADOXONES, ANOMALIES

- THERE IS NOTHING REALLY SPECIAL IN SAMOYED POPULATION FROM POPULATION GENETIC POINT OF VIEW.
- THE N-B478 DISJUNCTION IS SO OLD THAT IT IS VERY UNLIKELY THAT N-B478 AFFILIATES SOMEHOW WITH URALIC LANGUAGES
- THE MOST STRIKING PARADOXON FROM POPULATION GENETIC POINT OF VIEW: PERMIC LEFT EARLIER THAN SAMOYEDES
- SAMIS AND FINNIC SPEAKING POPULATIONS SEEMS TO BE ADMUXTURE OF UGRIC AND BALTI-FINNIC POPULATIONS
- THERE IS NO SPECIAL VOLGA-URALIC MARKER. MARIS SEEMS TO BE THE ADMIXTURE OF BALTI-FINNIC AND PERMIC POPULATIONS.
- THE YOUNGEST N-Z4873 FOREFATHER MUST HAVE LIVED IN UPPER-YENISEI AROUND 7600 YEARS AGO
- THE YOUNGEST N-L1026 FOREFATHER MUST HAVE LIVED IN MIDDLE-YENISEI AROUND 4700 YEARS AGO
- ONE OF THESE TWO FOREFATHER COULD HAVE BEEN THE URALIC ADAM, LIVING IN A RELATIVLY SMALL POPULATION SPEAKING THE PROTOURALIC LANGUAGES

RETHINKING HAJDÚ' APPROACH ON URALIC HOMELAND

- SZILFA IS NOT URALIC ORIGIN. IT COMES FROM INDOEUROPEAN LANGUAGES AND MEANS WILLOW. THE WILLOW IS SALIX EVEN IN LATIN.
- LOSING SZILFA IN DETERMINING THE URALIC HOMELAND WE LOST THE EAST-WEST ORIENTATION OF THE URALIC HOMELAND
- HOWEVER THE NORTH-WEST ORIENTATION REMAINED STILL VALID
- THERE ARE ONLY 3 TREE SPECIES WHICH CAN BE FOUND AT LEAST 2 DIFFERENT AREAS (WEST-SIBERIAN, VOLGA-URAL): PICEA, PINUS, ABIES.
- LARIX CAN BE FOUND ONLY IN THE WEST-SIBERIAN AREA
- THE COMBINATION OF THE PICEA, PINUS, ABIES SPECIES DETERMINES THE SO-CALLED DARK TAIGA VEGETATION TYPE.
- TODAY THE DARK TAIGA CAN BE FOUND BETWEEN 50. AND 60. LATITUDE
- THE NEW POLLEN ANALYSIS RESULTS CAN PROVIDE NEW INSIGHTS WHERE WERE THE VEGETATION BORDERS 5000 AND 7500 YEARS AGO

RIVERS AND NAMEPLACES

- CASTRÉN FOUND POTENTIAL URALIC ORIGIN RIVERNAMES IN YENISEI-BASIN LIKE: KEM, SYM, OJA, JAGA, IJA, ETC.
- KEM IS THE LARGEST RIVER IN MIDDLE-SIBERIA, CALLED YENISEI, KEMI JOKI IS THE LARGEST RIVER IN SUOMI.
- SYM IS ONE OF THE MOST IMPORTANT RIVER ROUTE TO WEST FROM YENISEI REGION.
- KEM IS VERY FREQUENT RIVER NAME IN TUVA:
[HTTPS://WWW.ACADEMIA.EDU/34439610/THE LEXEME KEM IN SIBERIAN PLACE-NAMES AND BEYOND.PDF](https://www.academia.edu/34439610/The_Lexeme_Kem_in_Siberian_Place-Names_and_Beyond.pdf).
THERE ARE 70 RIVERNAMES IN TUVA WITH KEM, AND THE ORIGIN OF THIS NAMING CONVENTION SEEMS TO BE THE TODZHA-BASIN
- CASTRÉN'S ASSUMPTIONS ARE REJECTED AS THESE NAMEPLACES ARE VERY SIMILIAR TO PRESENT BALTI-FINNIC FORMS. THE EXPECTATION IS THAT THESE RIVERNAMES SHOULD HAVE BEEN REFLECT ON 5000 YEARS LINGUISTIC SITUATION.
- THE RIVER BASINS WERE THE MOST IMPORTANT LIVING PLACES, TRAFFIC AND MIGRATION ROUTES INSIDE THE CONTINENTS IN THE EARLY HISTORY. IT IS ESPECIALLY TRUE IN DENSE FORESTS LIKE IN SIBERIAN TAIGA.

MOST IMPORTANT RIVER ROUTES IN NORTH-EURASIA



„DARK TAIGA” ALSO CAN NARROW DOWN THE LOCALIZATION OF THE URALIC HOMELAND – EXAMPLE FROM THE PRESENT MIDDLE-SIBERIA

E.-D. Schulze et al.: Larix dominance in Siberia

1407

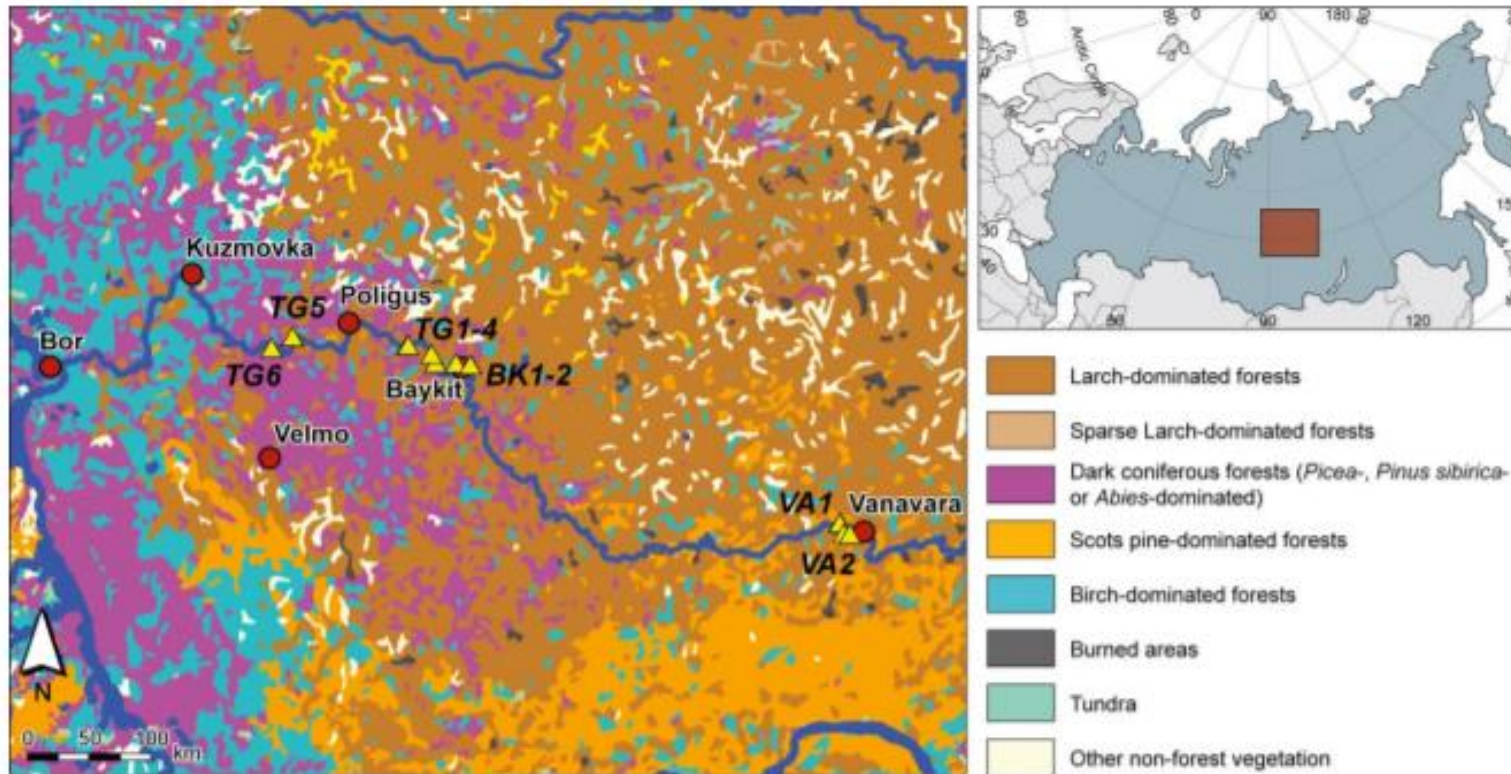


Fig. 1. Vegetation map (Isaev, 1990) and study sites at 60° N and east of 90° E as determined from satellite images (see site; chapter site selection). The main settlements are Bor, Kuzmovka, Velmo, Poligus, Baykit and Vanavara. The latter 4 settlements also served meteorological stations (see Table 1). The study sites are indicated as VA (Vanavara), BK (Baikit) and TG (Tunguska).

SUMMARY

- THE POSSIBLE URALIC ADAM, THE „NEOLIT ALAIN DELON” LIVED AROUND 7600 YEARS AGO AROUND UPPER JENISEY IN TUVA, OR AROUND 4700 YEARS AGO IN MIDDLE-YENISEI BASIN IN SOUTH-KRASNOYARSK.
- BASED ON NAMEPLACES THE TODZHA-BASIN IS A POSSIBLE HOMELAND IN UPPER-YENISEI AREA
- MIGRATION MIGHT HAVE BEEN TO BETWEEN SYM AND TUBA RIVER IN SOUTH-KRASNOYARSK REGION AROUND YENISEI RIVER ABOUT 7000-5000 YEARS AGO
- RIVER BASINS ARE THE MOST IMPORTANT CANDIDATES FOR HOMELANDS AND MIGRATION ROUTES
- POPULATION GENETICS, NAMEPLACES, AND THE MOST EASTERN URALIC PEOPLE TOGETHER TOGETHER MAKES PLAUSIBLE TO REDISCOVER AND REDISCUSS CASTRÉN'S ARGUMENTS ON URALIC HOMELAND
- NAMEPLACES FOUND BY CASTRÉN IN YENISEI-BASIN SHOULD BE RECHECKED
- THE EXOGAMIA MUST HAVE PLAYED AN IMPORTANT ROLE AMONG URALIC PEOPLE
- THE POPULATION GENETIC SUPPORTS A GEOGRAPHICALLY SMALL AND COMPACT URALIC HOMELAND, WHERE FROM THE URALIC LANGUAGES ARE SPREAD WITH MIGRATION, ASSIMILATION AND DEMOGRAPHIC EXTENSION
- THERE ARE SEVERAL IMPORTANT RIVER ROUTES FROM JENISEI BASIN TO CENTER OF WEST-SIBERIA. ONE OF THESE IMPORTANT ROUTES BELONGS TO RIVER SYM.
- BASED ON HAJDÚ'S APPROACH THE URALIC HOMELAND COULD HAVE BEEN IN THE SO-CALLED DARK TAIGA VEGETATION TYPE

SUMMARY

- THERE WERE AT LEAST 3 DIFFERENT URALIC MIGRATION TO EUROPE
- IN VOLGA-URAL REGION AND IN SUOMI DIFFERENT URALIC SPEAKING POPULATION MIGHT HAVE ADMIXTURED RESULTING IN CHALLENGE OF THE FAMILY TREE MODEL
- BASED ON OUR MODEL EARLY YUKAGHIR, CHUKCHI AND ALTAIC PEOPLE ASSIMILATED URALIC SPEAKING POPULATIONS
- THE MOST STRIKING PARADOX IS THE CHRONOLOGY OF THE SPLIT OF PERMIC PEOPLE. BASED ON POPULATION GENETICS PERMIC PEOPLE ARE THE EARLIEST LEAVERS, NOT THE SAMOYEDS. THERE ARE 3 POSSIBLE SOLUTIONS TO THAT ANOMALIES:
 - THE PROTO-URALIC LANGUAGE IS MUCH OLDER THAN WE THOUGHT
 - SAMOYEDS LEFT THE COMMUNITY IN AN EARLY PHASE, AROUND THE TIME OF UGRIC AND BALTI-FINNIC DISJUNCTION, BUT A STRONG SUBSTRATE EFFECT MIGHT HAVE RESULTED IN A TORSION WHICH COULD HAVE BEEN UNDERSTOOD AS SAMOYEDS DISJUNCTION OCCURRED EARLIER
 - THE PERMIC POPULATIONS WENT THROUGH A LANGUAGE CHANGE FROM A PREURALIC LANGUAGE

Thanks for your
attention!