

Localizing Yiddish and non-Yiddish speaking Ashkenazic Jews to primeval villages in ancient Ashkenaz lands

Eran Elhaik¹, Ranajit Das², Mehdi Pirooznia³, and Paul Wexler⁴

¹Department of Animal and Plant Sciences, University of Sheffield, Sheffield, UK, ²Manipal Centre for Natural Sciences (MCNS), Manipal University, Manipal, Karnataka, India, ³Department of Psychiatry and Behavioral Sciences, Johns Hopkins University, ⁴Department of Linguistics, Tel Aviv University, Tel-Aviv, Israel

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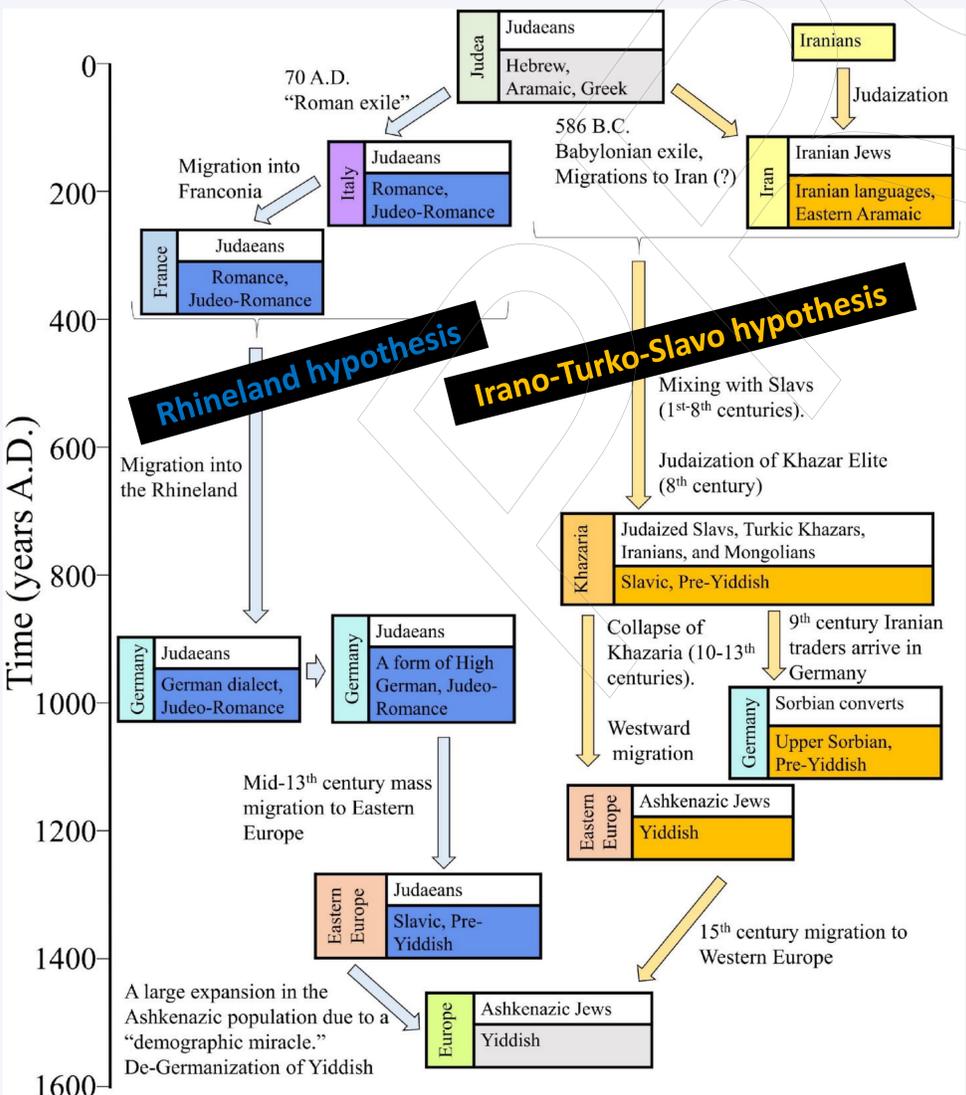
Abstract

The Yiddish language is over one thousand years old and incorporates German, Slavic, and Hebrew elements and one of the last European languages whose linguistic and geographical classifications remain unclear even after three centuries. The prevalent view claims Yiddish has a German origin, whereas the opposing view posits a Slavic origin with strong Iranian and weak Turkic substrata. The strong relationship between geography, genetics, and languages prompted us to investigate the geographical origin of 393 Yiddish and non-Yiddish speaking Ashkenazic Jews (AJs), Iranian, mountain Jews and over 600 non-Jewish genomes. **The Geographic Population Structure (GPS)** (Elhaik et al. 2014. *Nature communications*. PMID: PMC4007635) localized most AJs along major primeval trade routes in adjacent to four villages with names that may be derived from "Ashkenaz." These are the only placenames in the world derived from this ethnonym. AJs clustered adjacently to Iranian and mountain ("Sephardic") Jews in support of a common Iranian origin. Loss of maternal haplogroups was evident in non-Yiddish speaking AJs compared to Yiddish speakers. Our results are compatible with linguistic evidence suggesting that Yiddish has multiple origins including German, Slavic, and Hebrew. This is the first study that analyzes genetic data of Yiddish speakers.

The challenges of any hypothesis aims to explain the origin of Yiddish

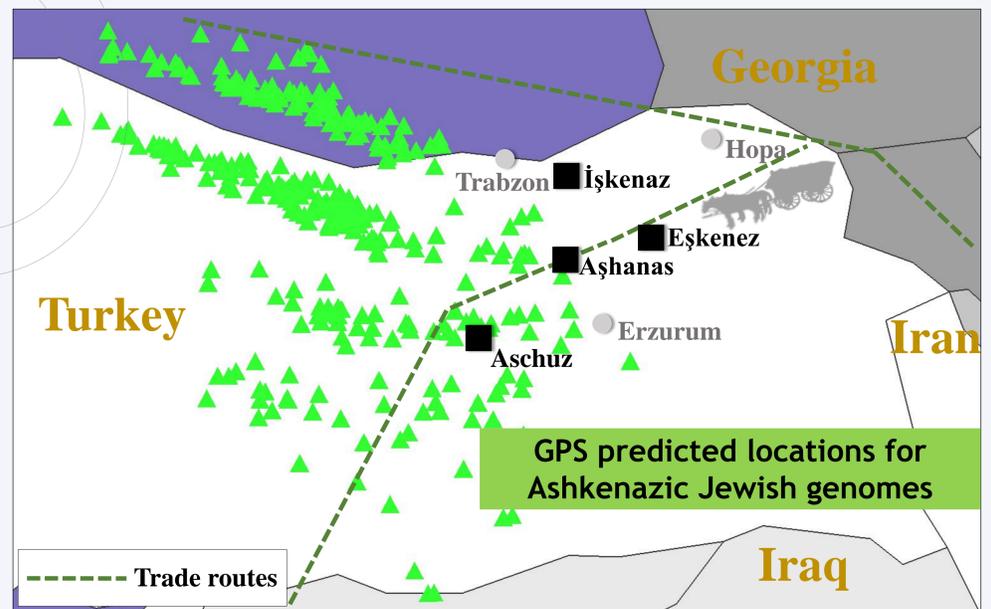
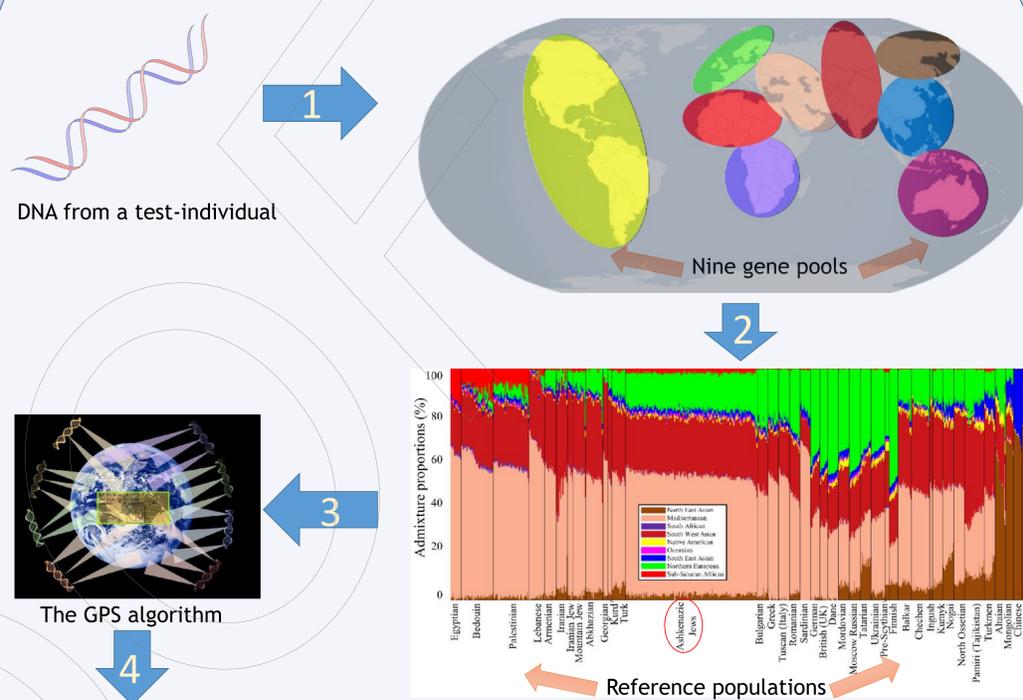
- What is the meaning of the word "Ashkenaz"?
- Why did Yiddish emerge in the 9th century?
- What is the origin of the five million Jews in Eastern European (19th century)?

Hypothesis	Lexicographical admixture	Meaning of "Ashkenaz"	Yiddish emergence	Origin of E. European Jewry
Rhineland	Slavic, Hebrew, German	Germany (since the Middle Ages)	Local German dialect	A "demographic miracle" acting on 50,000 German Jews
Irano-Turko-Slavic	Other Hebrew, German/Germanoid, Slavic	Scythian (Turko-Iranian people)	Secret language for trade	Judaized Khazars, Slavs, Turks, and a minority of Judeans



An illustrated timeline for the events comprised by the Rhineland (blue arrows) and the Irano-Turko-Slavic (orange arrows) hypotheses. The stages of Yiddish evolution according to each hypothesis are shown through landmark events for which the identity of the proto-Ashkenazic Jewish populations and their spoken languages are noted per region.

GPS inference of geographical origins from DNA data



1) Genotype the DNA of the test individual. 2) Calculate the genetic signature of the DNA, which is the proportion of SNPs associated with each of nine gene pools. Each gene pool consists of simulated DNA sequences that represent native individuals. 3) Repeat this process for the reference populations known to reside in a certain geographical region for a substantial period of time. 4) GPS will infer the geographical coordinates of the test individual by matching its admixture proportions with those of the closest ten reference populations and converting the genetic distance with geographic distances. For more details on GPS see (Elhaik et al. 2014. *Nature communications*. PMID: PMC4007635)

CONCLUSIONS

The origin of AJs and their language remain some of the most enigmatic and underexplored topics in history. Since the linguistic approaches utilized to answer this question have thus far provided inconclusive results, we analyzed the genomes of Yiddish and non-Yiddish speaking AJs in search for their geographical origins. We traced nearly all AJs to major primeval trade routes in northeastern Turkey adjacent to primeval villages, whose names may be derived from "Ashkenaz." We conclude that AJs probably originated during the first millennium when Iranian Jews Judaized Greco-Roman, Turk, Iranian, southern Caucasus, and Slavic populations inhabiting the lands of Ashkenaz in Turkey. Our findings imply that Yiddish was created by Slavo-Iranian Jewish merchants plying the Silk Roads between Germany, North Africa, and China as a secret language to gain advantage in trade.

CONTACT

For more information contact the corresponding author: Eran Elhaik e.elhaik@Sheffield.ac.uk or visit <http://www.eranelhaiklab.org/>

