

Ultraconserved words and Eurasiatic? The “faces in the fire” of language prehistory

Pagel et al. (1) claim support for a putative “Eurasiatic” macrofamily of languages and a dispersal ~14,450 BP. Yet their “data”—claimed reconstructions of Proto-Eurasiatic wordforms in the Languages of the World Etymological Database (LWED)—are not actually data in any sense that either the natural sciences or mainstream linguistics would recognize. They are subjective interpretations, not amenable to independent validation or replication, and widely rejected as vacuous by specialists in language reconstruction (2).

Moreover, the paper’s founding assumption is invalid: if, within a set of subjective interpretations, a given nonrandom pattern emerges, then that of itself constitutes proof that those interpretations cannot be mistaken. Such reasoning seems far removed from scientific method and practice.

Linguistic science has known for decades of certain “stable” meanings in which originally cognate words are replaced relatively slowly through time (due *in part* to frequent use). More cognates thus survive, from which ancestral (proto-)forms can be reconstructed more successfully for such meanings. So in the proto-lexicon for any language family—e.g., Indo-European or Uralic—more frequent/stable meanings are necessarily overrepresented.

That LWED’s further Eurasiatic interpretations show a similar bias is no surprise, but an expected, inherited artifact of what those interpretations were based on in the first place: proto-lexicons for Proto-Indo-European, Proto-Uralic, etc. Those are already

the outputs of cumulative reconstruction and thus inherently “stability heavy,” a correlation that automatically carries through to LWED. In short, this is a case of correlation in, correlation out—and proof of nothing.

Moreover, the Moscow LWED school has long recognized (3) that its Eurasiatic hypothesis must “find” proto-forms above all in more stable meanings. For mainstream linguistics, that only tilts LWED’s subjective interpretations toward seeing cognate “faces in the fire” in just these meanings where Eurasiatic most needs them to exist.

“Ultraconserved words” are invalidated by several basic principles of linguistics: the relationship between sound and meaning is essentially arbitrary; change proceeds largely independently on each level; and in sound, changes generally apply without exception, irrespective of words’ meanings. Stability in meaning is powerless against instability in sound. Even if cognacy may survive for tens of millennia, the ability to detect it at all depends on sound, whose decay clock ticks far faster (witness *water*: Latin [ak^wam] to French [o] in just two millennia). This is the limitation that Pagel et al. should test: whether enough phonetic signal survives to judge cognacy reliably back to 14,450 BP—let alone 70 millennia (4), analogous to trying to radiocarbon date back ~300,000 y.

Pagel et al.’s dating is based on just two calibration points, and neither is historically known; rather, they are just hypothetical matches with archaeology. Moreover, the

methodology used is far from probative, and yields errors such as a Portuguese-Spanish split far too late, centered on AD 1500 (5). Also, Eurasiatic’s supposed “fit” with the usual suspect, the retreat of the glaciers, is only in (their) chronology. It is no explanation of why Eurasiatic should exist at all. Why should changing climate have favored just one language lineage, out of a single homeland, to dominate Eurasia, rather than a generalized advance of multiple, independent groups right across the continent?

Paul Heggarty¹

Department of Linguistics, Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, 04103 Leipzig, Germany

1 Pagel M, Atkinson QD, Calude AS, Meade A (2013) Ultraconserved words point to deep language ancestry across Eurasia. *Proc Natl Acad Sci USA* 110(21):8471–8476.

2 Dixon RMW (1997). *The Rise and Fall of Languages* (Cambridge Univ Press, Cambridge), pp 37–44.

3 Starostin SA (1991) *Altaiskaia problema i proiskhozhdenie iaponskogo iazyka* [The Altaic Problem and the Origin of the Japanese Language]. (Nauka, Glavnaia Redaktsiia Vostochnoi Literatury, Moscow), pp 59–60.

4 Pagel M (2009) Human language as a culturally transmitted replicator. *Nat Rev Genet* 10(6):405–415.

5 Bouckaert R, et al. (2012) Mapping the origins and expansion of the Indo-European language family. *Science*, 337(6096): 957–960, figures S1 and S2.

Author contributions: P.H. wrote the paper.

The author declares no conflict of interest.

¹E-mail: Paul.Heggarty@gmail.com.