

Yan Kapranov / Bożena Iwanowska / Bolesław Cieślík

# **Diachronic Interpretation of the Nostratic Macrofamily**

A Comparative Study of Altaic, Afro-Asiatic, Dravidian,  
Eskimo-Aleut, Indo-European, Kartvelian, and Uralic  
Proto-Languages



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Yan Kapranov / Bożena Iwanowska /  
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## List of Abbreviations

VTK	Vertical Trajectory of Movement
GRZ	Horizontal Trajectory of Movement
DI	Diachronic Interpretation
DC	Divergent-Convergent Type of Affinity
DMI	Diachronic Morphophonological Interpretation
DSI	Diachronic Semantic Interpretation
DPI	Diachronic Phonological Interpretation
EN	Etymological Nest
CD	Convergent-Divergent Type of Affinity
STARLING	Global Lexicostatistical Database “Tower of Babel”

## Conventional Symbols and Their Explanations

- \* Asterisk, star, denoting a reconstructed form – archetype / etymon or vocalic and / or consonantal construct
- / Slash, denoting the preposition “or”
- > Right, closed angle bracket, denoting transition (divergent-convergent / convergent-divergent, phonological, morphophonological, semantic, etc.)
- <> Left, open angle bracket + right, closed angle bracket, denoting the interconnection / relationship of Nostratic quantities

## Nostratic Languages, Proto-Languages, Language Correspondences, Dialects, Dialectalisms

Alb	Albanian language
Alt	Altaic family, Altaic languages, Altaic proto-language, Altaic archetype / etymon
Afr	Afroasiatic family, Afroasiatic languages, Afroasiatic proto-language, Afroasiatic archetype / etymon

Balt	Baltic group, Baltic languages, Baltic proto-language, Baltic archetype / etymon
Greek dial.	Greek language, Greek archetype / etymon dialect, dialectal variant
Drav	Dravidian family, Dravidian languages, Dravidian proto-language, Dravidian archetype / etymon
West-Sem.	Western Semitic group, Western Semitic languages, Western Semitic proto-language, Western Semitic archetype / etymon
EA	Eskimo-Aleut family, Eskimo-Aleut languages, Eskimo-Aleut proto-language, Eskimo-Aleut archetype / etymon
IE	Indo-European family, Indo-European languages, Indo-European proto-language, Indo-European archetype / etymon
Inup	Inupiaq group, Inupiaq languages, Inupiaq proto-language, Inupiaq archetype / etymon
Kartv	Kartvelian family, Kartvelian languages, Kartvelian proto-language, Kartvelian archetype / etymon
Celt	Celtic group, Celtic languages, Celtic proto-language, Celtic archetype / etymon
Kor	Korean language, Korean proto-language, Korean archetype / etymon
Mong	Mongolian group, Mongolian languages, Mongolian proto-language, Mongolian archetype / etymon
Nostr	Nostratic family / macrofamily, Nostratic languages, Nostratic proto-language, Nostratic archetype / etymon
SD	South Dravidian group, South Dravidian languages, South Dravidian proto-language, South Dravidian archetype / etymon
ND	North Dravidian group, North Dravidian languages, North Dravidian proto-language, North Dravidian archetype / etymon
Sem	Semitic proto-language, Semitic archetype / etymon
Slav	Slavic group, Slavic languages, Slavic proto-language, Slavic archetype / etymon
TM	Tungusic-Manchu group, Tungusic-Manchu languages, Tungusic-Manchu proto-language, Tungusic-Manchu archetype / etymon
Toch	Tocharian group, Tocharian languages, Tocharian proto-language, Tocharian archetype / etymon
Turkish	Turkish language
Turk	Turkic group, Turkic languages, Turkic proto-language, Turkic archetype / etymon
Ural	Uralic family, Uralic languages, Uralic archetype / etymon
CentrChad	Central Chadic proto-language, Central Chadic archetype / etymon
Yupik	Yupik group, Yupik languages, Yupik proto-language, Yupik archetype / etymon
Japan	Japanese language, Japanese proto-language, Japanese archetype / etymon

## Phonological (Phonetic) Indicators

### Vocalism (V – vocalic construct)

L	process of labialization (labialization)
L / D	processes of labialization (labialization) / delabialization (de-labialization)
P	rise / shift vertically
per	front row
R	row / shift horizontally
PPV	phonological (phonetic) processes of vocalism

### Consonantism (C – consonantal construct)

Abrupt	abruptive
Alveol	alveolar
Approx	approximants
Afric	affricates
Bilab	bilabial
Vel	velar
Vibr	vibrants
Glott	glottal
Gut	guttural
Dent	dental
Dors	dorsal
Lab	labial
Labiodent	labiodental
Lat. approx	lateral approximants
Lat. afr.	lateral affricates
Lat. fric	lateral fricatives
MT	place of articulation
Supraglott	supraglottal
Naz	nasal
Palat	palatal
Preling	prelingual
Post-alveol	postalveolar
Pror	plosive
Retroph	retroflex
Uvul	uvular
Phar	pharyngeal
Flep	flaps
FPK	phonological (phonetic) processes of consonantism
Fric	fricatives

## Morphophonological Indicators

2	law of two-element structure of the etymon
3	law of three-element structure of the etymon
4	law of four-element structure of the etymon
OS	law of the open syllable
AFC	additional formal category
GMS	general morphemic structure
MFC	main formal category
L	preformant
R	postformant

## Semantic Indicators

ARCH	archiseme
LSV	lexical-semantic variant(-s)
LSG	lexical-semantic group(-s)

## Introduction

This monograph focuses on the diachronic analysis of the Nostratic proto-language, particularly within the linguistic realms of the Altaic, Afroasiatic, Dravidian, Eskimo-Aleut, Indo-European, Kartvelian, and Uralic families. It delves into the intricate process of tracing phonological, morphological, and semantic transitions and correspondences within their etymons, thereby shedding light on the evolutionary linguistics of these diverse language groups.

*The Nostratic hypothesis*, a significant linguistic theory of the 20th century as termed by T. M. Garipov, continues to undergo rigorous examination. This theory, championed by scholars such as V. A. Dybo, A. B. Dolgopolsky, and V. M. Illich-Svitych, is evaluated in light of new developments in Cognitive Macro-comparative Linguistics, led by L. P. Dronova, Ya. V. Kapranov. Recently, this hypothesis has been expanded to include the oldest relict languages, notably the Sumerian language, as studied by researchers like A. R. Bomhard, Ya. V. Kapranov. This expansion has facilitated a reevaluation of the reconstruction results for individual language groups like the Baltic, Mongolian, and Slavic languages, as well as for larger language families such as Altaic, Dravidian, Indo-European, Kartvelian, and Uralic, thereby enriching the field with new insights and interpretations.

The pursuit of reconstructing proto-languages across various tiers has led linguists to explore affiliations beyond conventional language families. This includes research into macrofamilies like the Borean (also referred to as *Austic*, with contributions from J. D. Bengtson and W. Schmidt), *Amerind* (studied by J. Greenberg, M. Ruhlen, E. Sapir, M. Swadesh), *Afro-Asiatic* (I. M. Diakonov, V. Ya. Porkhomovsky, S. A. Starostin, J. Greenberg), Sino-Caucasian (S. A. Starostin, V. Shevoroshkin, M. Ruhlen, A. Trombetti), Nigero-Saharan (including Niger-Congo, researched by V. K. Babayev and G. S. Starostin, among others), and Nilo-Saharan (L. Bender, Ch. Ehret, J. Greenberg). These studies aim to delineate linguistic relationships that extend beyond the traditional scope of language family classifications.

The classification and recognition of certain macro- and hyper-families, including the *Australian* (researched by V. I. Belikov, S. Anderson, A. Capell), *Elarodian* (K. Ostir, A. Svanidze), *Basque-Iberian* (X. Balester, R. R. Jesús, E. B. Ferrer), *Vasconic* (D. H. Steinbauer, Th. Vennemann), *Indo-Pacific* (O. O. Leontyev, A. Abbi, T. Crowley, R. M. W. Dixon), *Indo-Uralic* (M. O. Zhivlov, O. S. Kasyan, G. S. Starostin, A. Kloekhorst, T. Pronk), *Khoisan* (N. V. Gromova, G. S. Starostin, J. F. Maho), and *Ural-Altaiic* (O. Ye. Anikin, M. Rasyanen, et al.), are subjects of ongoing debate within the linguistic community. Their status continues to be rigorously evaluated in light of new archaeological findings (R. E. Grine, J. Schultz, et al.). The resolution of these debates is essential for the accurate completion of the macro-genealogical classification of the world's languages.

This monograph endeavors to establish the degrees of language affinity within *the Nostratic macrofamily*. The term 'Nostratic' was initially coined by Danish linguist H. Pedersen in 1903 and was further developed by Italian linguist A. Trombetti. However, it gained significant traction in scholarly circles in the 1960s, notably through the efforts of V. M. Illich-Svitych from the Institute of Linguistics of the USSR Academy of Sciences. Illich-Svitych's seminal work, "An Attempt to Compare Nostratic Languages (Semitic-Hamitic, Kartvelian, Indo-European, Uralic, Dravidian, Altaic)" (published between 1971 and 1984), played a pivotal role in advancing the Nostratic theory. Subsequent extensive discussions led to a refined definition of *the Nostratic macrofamily* and posited the extensive affinity among six major language families of Eurasia and Africa: Indo-European, Kartvelian, Afroasiatic, Uralic, Altaic, and Dravidian, as hypothesized by V. A. Dybo.

Ongoing research in this domain has seen significant advancements, notably with the expansion of the Nostratic macrofamily in 1995. This expansion was spearheaded by American linguist A. R. Bomhard and his colleague J. C. Kerns, who authored "The Nostratic Macrofamily: A Study in Distant Linguistic Relationship". In this seminal work, Nostratic etymologies were elaborated upon, drawing upon materials from an extended range of seven language families: Afroasiatic, Altaic, Dravidian, Indo-European, Kartvelian, Uralic, and Finno-Ugric. Furthermore, the study included etymological analyses of several ancient languages, namely Sumerian and Etruscan, as well as linguistic entities such as the Elamo-Dravidian language group.

Nostratic linguistics currently employs findings from a range of etymological analyses of various Nostratic interpretations. Key contributions to this field are documented in seminal works and projects, including O. S. Melnichuk's "On the Universal Affinity of Languages", V. M. Illich-Svitych's "An Attempt to Compare Nostratic Languages (Semitic-Hamitic, Kartvelian, Indo-European, Uralic, Dravidian, Altaic)", "The Nostratic Macrofamily: A Study in Distant Linguistic Re-

lationship” by A. R. Bomhard and J. C. Kerns, the “Nostratic Dictionary” by A. B. Dolgopolsky, S. A. Starostin’s international online project “Global Lexicostatistical Database “Tower of Babel””, and “A Comprehensive Introduction to Nostratic Comparative Linguistics with Special Reference to Indo-European” by A. R. Bomhard, among others. These resources represent a significant corpus of research, providing a foundational framework for ongoing studies in the field of Nostratic linguistics.

A paramount and critical issue in the field of Nostratics necessitates further intellectual engagement: the formulation of novel theoretical and methodological principles. These principles are essential for systematizing the evolutionary laws governing the development of Nostratic languages from a singular origin, the Nostratic proto-language. Esteemed contributors to this discourse include V. A. Dybo, A. B. Dolgopolsky, Ya. V. Kapranov, I. I. Peyros, S. A. Starostin, A. R. Bomhard, and V. Blažek. Their work lays the groundwork for a more cohesive understanding of the Nostratic linguistic lineage.

The conceptual framing of this problem during the latter half of the 20th century led scholars in Nostratic linguistics to reassess fundamental principles concerning *language affinity* (as discussed in Tsereteli 1968), culminating in the proposition of an altered *research methodology for examining the extensive affinity among languages*. This approach, characterized by G. S. Starostin, J. Greenberg, P. Newman, and D. Ringe as “*diachronic interpretation*”, was initially conceptualized by O. Semereny in “Introduction to Comparative Linguistics” (1980). O. Semereny, along with his disciples like L. P. Dronova and G. A. Klimov, envisioned this as an advanced phase in etymon reconstruction. This phase focuses on incorporating “pre-proto-languages”, referring to proto-language stages that precede even the familial etymon, thereby delving into deeper chronological layers of linguistic evolution (Klimov 1988).

The concept of “diachronic interpretation” is currently evolving in its scientific scope, as noted by V. M. Mokiyenko. Throughout its validation phase, macro-comparativists like D. C. Holt and L. Zawadowski have utilized various terminological equivalents, such as “distant reconstruction”, “further analysis” (German “weitere Analyse”) as mentioned by G. A. Klimov, “reconstructive analysis” as per I. Dyen, “pre-reconstruction” (German *Prärekonstruktion*) as described by H. Penzl, and “explanatory model” as proposed by B. Schlerath. However, “diachronic interpretation” emerges as the most fitting descriptor for establishing Nostratic linguistic affinity. This approach diverges from traditional comparative-historical methods which rely on tangible linguistic substrates for family-level reconstructions. Instead, it engages with archetypes across diverse language families, as identified by V. P. Neroznak. The primary objective is to enhance the depth of diachronic research by delving into more chronologically remote proto-language periods.



The monograph introduces a working definition of “**diachronic interpretation**” to articulate a theoretical and methodological process (or procedure) aimed at substantiating the extensive affinity among Nostratic languages. This involves the validation (through explanatory interpretation) of phonological (phonetic), morphonological, and semantic laws. The scope of this verification extends not only to the genetic material presented by etymologists for multi-level reconstructions but also encompasses the chronologically distant proto-language states at the Nostratic level. This definition thereby encapsulates a comprehensive approach to understanding and demonstrating the interconnectedness of Nostratic languages through a diachronic lens.

**The significance of this monograph** lies in its engagement with one of the most contentious subjects in the evolution of linguistic science: the substantiation of the Nostratic status of certain language families. These families are characterized by a consistent set of phonological, morphonological, and semantic processes within their respective languages, providing evidence for varying degrees of affinity among them. A pivotal task within the monogenetic theory framework is to determine these affinity degrees among Nostratic languages. Successfully addressing this challenge will uncover the underlying mechanisms and evolutionary patterns (whether divergent-convergent or convergent-divergent) of these languages. Consequently, this research contributes significantly to advancing modern cognitive macro-comparativism, moving it towards a more nuanced understanding of the origins of human language and the emergence of individual languages as its distinct manifestations.

*The central hypothesis of this monograph* posits that phonological, morphonological, and semantic laws play a crucial role in establishing the affinity degrees among Nostratic languages. These laws serve as indicators for tracing the languages’ evolution, which may follow either a divergent-convergent or convergent-divergent trajectory from their common origin in the Nostratic proto-language. To validate this hypothesis, an analysis of five Nostratic etymons, as listed in M. Swadesh’s foundational index, is deemed sufficient. These etymons encapsulate universal notions held by speakers of the Nostratic linguistic community, encompassing concepts like “body part”, “feature”, and “natural elements”. This approach underscores the deep-rooted and shared cognitive frameworks within the Nostratic language family.

**The monograph aims** to execute a comprehensive diachronic interpretation of phonological, morphonological, and semantic shifts and alignments within the Nostratic etymons \*HuḲa, \*wol[a], and \*wete. This in-depth analysis is a precursor to determining the affinity levels among seven language families: Altaic (Alt), Afroasiatic (Afr), Dravidian (Drav), Eskimo-Aleut (EA), Indo-European (IE), Kartvelian (Kart), and Uralic (Ural). By meticulously tracing these linguistic elements across various language families, the monograph seeks to illuminate the

intricate web of relationships that underpin the evolution and divergence of these language groups from a shared Nostratic lineage.

To achieve its objectives, the monograph addresses several critical **tasks**:

- To articulate the theoretical foundations of Nostratic theory, affirm the status of Nostratic languages, and establish the terminological and methodological framework essential for Nostratic linguistic research.
- To refine the conceptual understanding of “degree of affinity” among Nostratic languages, ensuring it serves as an effective descriptor for their interrelationships.
- To devise a methodological approach for the diachronic interpretation of the divergent-convergent and convergent-divergent phonological, morphonological, and semantic transitions and parallels within the Nostratic etymons \*HuḲa, \*wol[a], and \*wete.
- To propose hypothetical models illustrating the divergent-convergent and convergent-divergent evolutionary patterns of these Nostratic etymons.
- To develop a universal, hypothetical grapho-analytical network that maps the complex web of divergent-convergent and convergent-divergent relationships among Nostratic language families.

The research focuses on specific Nostratic etymons as its primary *object of study*: \*HuḲa, signifying “eye”, as identified by V. M. Illich-Svitych; \*wol[a], meaning “big”, as per S. A. Starostin; and \*wete, translating to “water”, as recorded by A. B. Dolgopolsky. These etymons are foundational elements within the corpus of Nostratic etymologies.

*The subject of this study* encompasses the intricate diachronic processes, both divergent-convergent and convergent-divergent, evident in the phonological, morphonological, and semantic evolutions and alignments within these Nostratic etymons. Additionally, the research delves into the grapho-analytical methods employed to visually represent and elucidate the degrees of affinity among Nostratic language families, thereby providing a clearer understanding of their interconnected linguistic relationships.

The monograph’s findings hold **significant practical value**, particularly with the development of a universal, hypothetical grapho-analytical network for the divergent-convergent and convergent-divergent evolution of Nostratic languages. This network’s comprehensive vertical and horizontal relational configurations offer a framework that can be extrapolated for further exploration and interpretation of additional Nostratic etymons, as well as those from other hyper- and macro-language families. These innovative contributions can be instrumental for etymologists and macro-comparativists in creating global etymological resources. Moreover, these findings can enrich academic curricula in disciplines such as “General Linguistics” (focusing on “Synchrony and Dia-

chrony”, “The Development and Functioning of Languages across Historical Epochs”, and “Lexicography”), “Comparative-Historical and Typological Linguistics” (particularly in the context of “The Problem of the Origin of Language”), and “Cognitive Linguistic and Macrocomparative Studies”. This integration into educational programs underscores the broader applicability and influence of the research in advancing linguistic scholarship.

Dr. Yan Kapranov

## Chapter 1. Nostratic Foundations of the Study. Theories of Mass Language Affinity in Macro-Comparative Studies

### 1.1. The Divergent Process in the Development of the Preverbal Proto-Language Among Representatives of the Genus *Homo*

At the current stage in the development of Linguistic Macro-Comparative Studies, the Nostratic language remains a crucial element in developing new concepts about the origins of human language. It is impossible to answer these and other questions using only linguistic data. Therefore, it is now not only necessary but also “obligatory” (as per L. S. Klein, 1966) to adopt an **inter-disciplinary approach**. This approach involves integrating various fields of knowledge, including *anthropology* (K. Kümen), *archaeology* (F. Grein, U. Jungers, I. Schultz), *gene-geography* (O. Balanovska, O. Balanovsky, O. Serebrovsky), and *cultural studies* (U. Jungers, I. Schultz). Such a comprehensive approach will aid global science, especially the humanities, in studying the evolution of the human mind (*Homo sapiens*).

In this context, it is pertinent to recall the views of anthropologist V. P. Alekseev, who stated, “[...] *the origin of language* (emphasis added) is an extra-linguistic issue that falls outside the purview of linguistic science. It is complex, requiring the efforts of various disciplines, and may not be solvable at all, not just at the current level of scientific development but also fundamentally” (Alekseev, 1974, p. 56). Indeed, this perspective might hold true in science studies. As Alekseev himself exemplifies, “The differences between the Indo-European and Dravidian peoples are morphologically as significant as they can be within the same type: they belong to different major racial divisions of modern humanity”. However, according to the hypothesis he supports, “these two subdivisions are part of a single original racial lineage, with their unity, as documented in paleo-anthropological sources, dating back to the Mousterian era” (Alekseev, 1990, p. 162).

Rethinking the hypotheses regarding the origins of language and humanity allows for the construction of a unified “history of prehistory”, complete with its

own “history of prehistoric culture (proto-culture)” (Bray and Trump, 1990, pp. 76, 201). This narrative fits into the triadic framework of “*origin – decay – development*” concerning a language or pre-language, in this instance, the Nostratic language. Primarily, it’s important to explore various theories about the geographical location and the time of origin of the Nostratic ancestral homeland, which is the cradle of primatological glottogenesis, ethnogenesis, and culturogenesis.

### 1.1.1. The Geographical Location of the “Cradle of Mankind” and the Ancestral Home of Nostratic

If we consider V. P. Nafikov’s proposition that “the total number of macrofamilies into which the world’s languages are currently categorized fluctuates around a dozen” (Nafikov, 2003, p. 36), then the once-expressed views of V. A. Dybo that “the affinity of macrofamilies is a problem for the future” (Dybo, 1996, pp. 76–77) have now gained relevance. This is evidenced by the ongoing debates surrounding the origins of *the Nostratic proto-language* as a hypothetical ancestor of *the Nostratic macrofamily* (see Dybo 1984, 1985; Malenkov, 2013; Rassokha, 2007; Yakhontov, 1991; Bomhard, 1995). Resolving these controversies will be instrumental in shaping new perspectives in the field of Linguistic Macrocomparative Studies, particularly in Nostratic linguistics, and in other related disciplines.

The question of the probable **location** and **time of origin of the Nostratic proto-language** remains unresolved, as indicated by the work of researchers like A. B. Dolgopolsky (1964), V. A. Dybo (1984, 1985), A. G. Malenkov (2013), V. F. Nafikov (2003), I. M. Rassokha (2007), V. A. Terentyev (1984), Ye. A. Helimsky (1984), and S. E. Yakhontov (1991), among others.

V. A. Dybo and V. A. Terentyev propose that “the most probable period is 11–12 thousand years BC” (Dybo & Terentyev, 1984, p. 14), dating the collapse of the Nostratic unity to **the late Mesolithic – early Neolithic era**, approximately 8 thousand years BC (Ibid., pp. 18–20). Consequently, they presented the following hypothesis: “If the age of the Nostratic macrofamily is about 15 thousand years, then, according to cultural and historical considerations, it is a little more than 11 thousand years” (Ibid., p. 14). S. Ye. Yakhontov considers the first estimate more likely than the second (Yakhontov, 1991, p. 13). Meanwhile, A. B. Dolgopolsky leans towards the later date of 8 thousand BC and posits that it could have been located in **West and South Asia** (Dolgopolsky, 1964). Ye. A. Helimsky proposes the earliest dating: “[!] this period is separated from us by more than a dozen millennia, its area was **the Southern Caspian Sea**” (Helimsky, 1984, p. 33). A. G. Malenkov, examining “the Nostratic vocabulary related to

natural phenomena, flora, and fauna” (cited in Yakhontov, 1991, p. 15), developed his concept of the ancestral homeland of the Nostratic language speakers, corresponding to **the Iranian plateau and Anatolia**, characterized by a temperate-arid climate, without snowy winters, and generally subzero temperatures for extended periods (Malenkov, 2013, p. 45). This theory coincides with that of S. Ye. Yakhontov (see Yakhontov, 1991).

Presently, there is the perspective of I. M. Rassokha, who relied exclusively on archaeological data. He argues that “it is necessary to find archaeological retrospectives – the genetic roots of established specific archaeological cultures in earlier epochs” (Rassokha, 2007, p. 66). This approach led him to conclude that the ancestral homeland of the Nostratic people corresponds to **the Kukrek culture**. This culture is characteristic of the peoples of the Altai, Afrasian, Dravidian, Indo-European, Kartvelian, Uralic language families, as well as the Yukaghirs (Rassokha, 2007).

Researchers concur that the disintegration of Nostratic unity likely occurred in **the late Mesolithic to early Neolithic period**, yet opinions vary regarding its hypothetical location, ranging from **West and South Asia to the Southern Caspian Sea region**. It’s important to recognize that this era aligns with the Pleistocene epoch, particularly the Stone Age, traditionally divided into three phases: 1) **Paleolithic** (Old Stone Age: 1.5 million–12 thousand years BC), with the **Late or Upper period** spanning 40 thousand–12 thousand years BC; 2) **Mesolithic** (Middle Stone Age: 12–8–6 thousand years BC); 3) **Neolithic** (New Stone Age: 8–5–4 thousand years BC) (refer to works by L. L. Zalizniak (1999, 2007, 2009)). Our focus is on these three periods to ascertain the place and time of early human settlement. Following D. Beagan’s classification, which delineates three evolutionary stages (order *Primates* around 40 million years ago, family *Hominidae* circa 19 million years ago, and genus *Homo* approximately 6 million years ago) (Beagan, 2003), our discussion pertains to populations corresponding to the genus *Homo* stage, implying humanoid representatives potentially capable of using a primitive/initial language, presumably Nostratic.

S. Ye. Yakhontov observed that the proposed ancestral homelands of the six Nostratic families identified by V. M. Illich-Svitych are situated in such a way that the Uralic homeland lies entirely within its delineated area. The Indo-European, Kartvelian, and Altaic homelands are adjacent to its borders, whereas the ancestral homelands of Afrasian and Dravidian are notably shifted to the south (Yakhontov, 1991, p. 14). This spatial arrangement can be seen in the map included in the preface to V. M. Illich-Svitych’s dictionary (1971, p. 45). Additionally, we present a map illustrating the geographical expansion of Dolgopolsky’s language families (Fig. 1) for further reference.

Late 20th and early 21st-century anthropological and archaeological research (Anton et al., 2000; Bar-Joseph, 1997; Butovska, 1997; Eswaran et al., 2005; Tat-

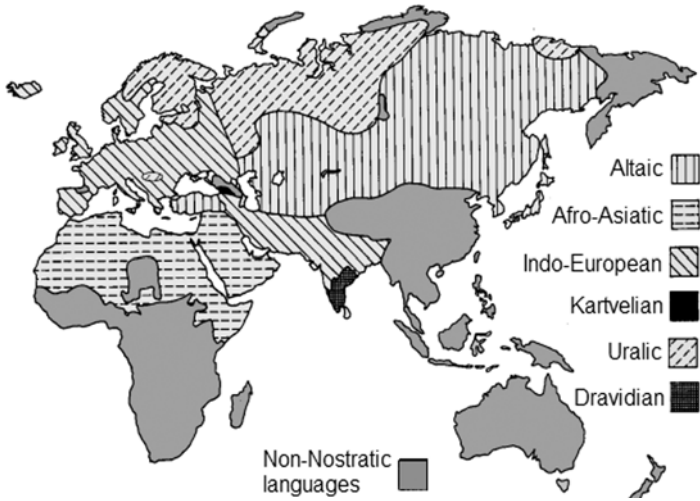


Figure 1. Geographical Expansion of the Nostratic Languages (According to A. B. Dolgopolsky).

tersall, 1986) has enabled numerous scientists (including B. Blake, D. S. Johnson, D. Johanson, W. Kimball, and R. Walter) to propose theories about the likely place and time of the earliest human populations' origins and existence. O. O. Zubov, for instance, postulated that the first representatives of the genus *Homo*, dating back approximately 2.4 to 2.0 million years ago, originated in Africa (referencing works by F. Greine, K. Kühme, U. Jungers, and I. Schultz). This area, encompassing parts of present-day Kenya, Ethiopia, and Tanzania, was hypothesized as the “*Cradle of Humankind*” (Zubov, 2011, p. 22). Significant discoveries supporting this theory include a skull fragment from Kobi Fora, Kenya (KNM-ER 1470) (Leakey, 1967, pp. 7–9), a human mandible from Malawi, Kenya (UR 501) (Bromage et al., 1995, pp. 71–108), and a human upper jaw from the Hadar Formation, Kada Hadar, Ethiopia (AL 666–1) (Kimbél et al., 1996, pp. 549–561), among others. It is conceivable that the emergence and subsequent development of the first human population as speakers of a primitive language, possibly Nostratic, which maintained relative stability in this region for an extended period (approximately 2.4 to 2.0 million years) (Zubov, 2011, p. 22), corresponds to or predates the Paleolithic period.

The roots of the contemporary theory positing that modern humans originated in Africa can be traced back to Charles Darwin. In his seminal work “*The Descent of Man*”, Darwin speculated, “It may be considered probable that in the past Africa was inhabited by extinct monkeys allied to the gorilla and chimpanzee. As these two species are now man’s closest allies, it is somewhat more probable that our early progenitors lived on the **African continent** than else-

where” (Darwin, 1871, p. 191). This early hypothesis foreshadowed the modern understanding of human evolution and our ancestral connection to Africa.

Having meticulously analyzed the aforementioned discoveries, scientists such as T. O. Bromage, F. Schrenk, and F. Sonneveld support the theory that there was originally a single taxon, within which typical processes of particular differentiation occurred (Bromage et al., 1995, pp. 71–108; Prat et al., 2005). They argue that this taxon likely included *Homo habilis*, *Homo rudolfensis*, and *Homo erectus* (*ergaster*) as key representatives of the genus *Homo* (Sherwood et al., 2002, among others). This perspective is echoed in the works of numerous scientists, including the hypotheses of F. J. Fitch, J. A. Miller, J. O. Mitchell, and others. Each taxon possessed one or more anthropological, archaeological, and additional traits aligning with those of **Homo sapiens**.

O. O. Zubov boldly asserted that regardless of their specific identities, the subsequent evolution of these early human ancestors was intricately connected to the processes of adapting to the shifting natural conditions of their environment. This evolutionary journey took place in the context of the Plio-Pleistocene African “cradle”, where the entire physical and behavioral complex mirrored the struggle for survival (Zubov, 2011, pp. 22–23). Key processes in this evolutionary narrative included 1) the transition to bipedal locomotion; 2) the development of opposable thumbs; 3) alterations in the childbearing process; 4) the loss of extensive body hair; 5) further evolution of the digestive system, leading to the innervation of intercostal muscles; 6) the reduction of pronounced canines, the formation of a bent vocal tract, and 7) the refinement of musculature, as detailed by V. P. Alekseev (1974).

O. O. Zubov proposes three critical hypotheses that likely played a significant role in the diversification and evolution of different species within the genus *Homo*, particularly in terms of adaptation in Eastern Africa: the first hypothesis suggests a drastic shift in dietary habits and nutritional strategies; the second emphasizes the enhancement of locomotion, building upon the bipedalism developed by hominids; and the third hypothesis focuses on the onset of systematic stone tool usage and technological advancements (Zubov, 2011, p. 23). These evolutionary developments were instrumental in the survival success of the genus *Homo* (Ibid.), driven by *the evolution of the cerebral cortex*. This cerebral development led to the emergence of *cognitive abilities* (*thinking*) and the creation of a *second signaling system* (*language*), which eventually facilitated the spread of human populations both within and beyond the African continent.



### 1.1.2. The Anthropogenic Triad of “Brain – Thinking – Second Signaling System” as a Crucial Set of Interconnected Developments in Representatives of the Genus *Homo*

We concur with V. P. Nafikov’s view that **the Nostratic theory concerning the origins of languages**, as one of the plausible explanations for human evolution, “has resonated in several related disciplines: anthropology, archaeology, etc.” (Nafikov, 2003, p. 33). Moreover, the emergence of the Nostratic proto-language likely coincides with the period in which the anthropogenetic triad of “brain – thinking – language” developed within representatives of the genus *Homo*. We will delve into each component of this triad in the sections that follow.

The first element of the triad involves *the evolution of the cerebral cortex*, hereafter referred to as the brain. Archaeological findings indicate that *Homo habilis* possessed a brain volume ranging from 500–800 cm<sup>3</sup>, averaging around 650 cm<sup>3</sup>. Comparable brain sizes were observed in *Homo rudolfensis* (approximately 775 cm<sup>3</sup>) and *Homo erectus (ergaster)* (ranging from 750–1250 cm<sup>3</sup>, averaging around 880 cm<sup>3</sup>). In contrast, *Homo neanderthalensis* exhibited a brain volume of about 1400–1600 cm<sup>3</sup>, which is slightly more than the average size found in *Homo sapiens* (1350–1400 cm<sup>3</sup>).

O. O. Zubov posits that the ability of *Homo habilis* to create stone tools was a result of having a *highly developed brain* (Zubov, 2011, pp. 28–29). In this context, it’s pertinent to reference A. Turner’s observation. He noted that biologically, humans were not highly specialized during their evolutionary period. According to him, “this was due to a unique form of evolution that likely allowed for maintaining a degree of morphophysiological “neutrality”, with the stone industry playing a significant role in this process” (Turner, 1997, pp. 7–21).

The aforementioned points indicate that the biological evolution of the representatives of the genus *Homo*, as described by I. P. Merkulov, primarily occurred in the form of *neuroevolution*. This term refers to the evolution of the brain’s neural systems, wherein natural selection acts upon the cognitive functions of the brain. The selective advantages derived from this process [...] play a crucial role in facilitating adaptation and survival in humans. Neuroevolution is intricately linked with the cognitive evolution of human populations. This encompasses the evolution of their cognitive abilities, adaptively beneficial changes in cognitive system functions, processes of cognitive information processing, and the predominant cognitive thinking types (Merkulov, 2005, p. 12).

It can be confidently stated that the second component of the triad, cognitive (thinking) abilities, was already present in *Homo habilis* and related taxa. This is evidenced by the increasingly sophisticated and labor-intensive stone tools associated with the evolution of the genus *Homo*, beginning with *Homo habilis*. For instance, while an Olduvai chopper can be fashioned with about ten strokes, an

Acheulean chopper requires around 60 strokes, and the creation of Upper Paleolithic tools necessitates more than two hundred strokes, divided into 10–11 distinct operations. According to S. Burlak, this growing reliance on community cooperation indicates a significant advancement in the communication system (Burlak, 2011, p. 106). Interestingly, archaeologist N. Toy notes, “the fact that many Olduvai tool forms aren’t necessarily linked to “models of thinking” was evidenced in experiments involving untrained individuals creating stone tools” (N. Toy). Even monkeys were able to produce these tools under experimental conditions (Burlak, 2011, p. 119).

Between the second and third components of the triad, an intermediate stage is identified, where, according to R. Foley, **three preverbal proto-languages** based on perceptual cognition could have existed: 1) Articulation practices using hands (or the creation and utilization of tools); 2) Social organization, or the language of social interaction, often referred to as social or emotional intelligence; 3) Verbal communication, which entailed the use of specific signals through hand movements, facial expressions, gestures, and prosodic vocalization, collectively termed mimetic communication (Foley, 1994). Each of these proto-languages constituted a primitive form of communication and information processing, serving as a “cognitive laboratory” where communicative abilities were intensively honed. These forms of proto-language, which taxa were taught, are viewed by researchers as preliminary adaptations for subsequent language activities.

The third component of the triad, the second signaling system (language), might have already been present among representatives of *Homo habilis*, which, according to V. Dublinsky, “became the principal form of communication”. This assertion is supported by the research of speech physiology experts. They have analyzed muscle attachment traces on the skulls of these taxa (such as the skull of KNM-ER 1470) and reconstructed the morphology of their jaws. The findings suggest that *Homo habilis* had a massive tongue, with lips that did not completely touch, thereby likely enabling the pronunciation of vowels like ‘i’, ‘a’, ‘u’, as well as all phonetic variations of the sounds ‘z’ and ‘t’ (V. Dublinsky). Such a language, though probably primitive and not fully developed in terms of phonetics, phonology, or grammar, could have evolved in parallel with the development of complex activities, including the use of stone tools (Calvin, 1993; Deacon, 1997), as mentioned in the second link of the triad. While the relationship between speech and work has transformed from a philosophical postulate into a scientific fact, largely due to the contributions of numerous authors, the brain centers controlling speech and movements of the dominant hand have morphologically converged during anthropogenesis (Kimura, 1979). Currently, scientists continue to debate which categories of animal sounds made at rest and which