

# Remnants of Neolithic typology in Ancient Languages, Enclaves and Isolates

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## Abstract

It has long been recognised that Sumerian and Hurrian, two languages spoken in the third millennium BCE in the Near East, diverge from that of the rest of the known ancient languages in the same area. We explore the proposition that the special typology of Sumerian and Hurrian reflects a distribution that predates the large agriculturally-driven language spreads in Eurasia. If this is the case, we expect enclave and isolate languages in Eurasia today to exhibit some similarities in their structural features to those found in Sumerian and Hurrian. We examine four possible features that may have had a broader distribution in antiquity than they do today: morphological optative, ergative alignment, high levels of verbal synthesis, and no gender distinction in independent personal pronouns. Each of these are characteristic of Sumerian and Hurrian but not other ancient languages of the Near East.

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## 1 Introduction

Sumerian and Hurrian exhibit a different typological profile than the rest of their contemporary neighbors in the Ancient Near East as well as from present day languages. For example, both languages have an ergative alignment which is uncommon in the rest of the ancient and present day languages of the area. Sumerian was spoken in Southern Mesopotamia and is documented for a period of around three millennia beginning at the end of the fourth millennium BCE. It was the official language of the early Sumerian city-states and the Akkadian Empire. On the other geographical end of the Ancient Near East, Hurrian was recorded from the late third millennium BCE and attested for more than a millennium. It was spoken in the Armenian highlands and spread to northern Mesopotamia and southeast Anatolia as the official language of the Mittani kingdom.

A few centuries after its record ceased, another language, Urartian, is attested to the north. Urartian appears lexically related to Hurrian, but not as a daughter language of Hurrian. However, its record is too sparse to supply us with a full grammatical analysis of the language.

Here we explore the possibility that the typological profile of Sumerian and Hurrian reflects a distribution that predates the large agriculturally-driven language spreads in the Old World (Eurasia and Africa). If this is true, we predict a typological affinity between Sumerian and Hurrian and other languages that have arguably escaped the Neolithic language spreads. The prime candidates for this are what has been called the enclaves in the Caucasus and Himalaya (Bickel & Nichols 2005b,a), and language isolates. These languages are suspected to preserve structures that were more common in the past than today but that have been generally wiped out in the rest of the Old World as a result of the language spreads and the extinctions of diversity they entailed.

The similarities between Sumerian and Hurrian and the languages of the Caucasus have been noticed since the nineteenth century where they were proposed to form one language family along with other unclassified ancient languages such as Elamite and Kassite (Hommel 1884). More recently, a language family that includes Hurro-Urartian and the Northeast Caucasian languages was proposed (Diakonoff & Starostin 1986; Diakonoff 1995). These proposals have not been widely accepted (Smeets 1989; Tuite 2008; Zimansky 2011). They have been criticised for their lack of rigorous examination of the possible origins of the similarities beyond shared inheritance, such as expected sound changes or chance, as well as failing to present any shared morphological paradigms that would point to a shared genealogical history (Nichols 2003b). We will advance the argument that the structural similarities between these languages are better conceived as part of an ancient typological profile, and not as direct, shared inheritance.

Because there are only a handful of isolates and enclave languages, the evidence to test this hypothesis is difficult to quantify, and much is still missing in the way of reconstructing extinction rates and extinction patterns. Instead, in this paper we approach the problem in a purely qualitative, hypothesis-generating manner. We propose four features as candidates for persistent, possible ancient signals, which are shared by Sumerian and Hurrian and present day isolates and enclave languages. Before assessing the evidence we briefly review the Neolithic language spreads, the hypothesis of how enclaves and isolates might have escaped these spreads, and the scenario by which the relevant typological signals might be recoverable from the typological record.

## **1.1 Agricultural language spreads**

Since the rise of agriculture in the Neolithic, human social conditions have changed in fundamental ways. Group sizes of agriculturalist societies soared and territory sizes shrank (Gignoux, Henn & Mountain 2011). The world's population is commonly estimated at only a few million on the brink of the agricultural revolution, in comparison to nearly eight billion today (US Census 2022). Hunter-gatherer societies were small bands of 500-1000 individuals (Moffett 2013) and required large territories for foraging with feeding capacity of only 0.05 people per km<sup>2</sup>, as opposed to 54 people per km<sup>2</sup> today (Bocquet-Appel 2011). Agriculturalist societies have high levels of specialization and are less self-sufficient. As such, they rely on intense networks and cooperations with other specialized societies that have different resources. Big groups with high levels of specialization forge new types of group dynamics and hierarchies that were absent from smaller, close-knit communities. These new arrangements create new within group communicative needs, as well as between group interactions. The size of

the community, the size of their territory and distance from other groups, the familiarity with all group members, as well as levels of group self-sufficiency, and the amount and type of language contact have drastically changed in the past millennia.

These developments have been linked to increase in language ranges and reduction in language diversity (Renfrew 1994). Agriculturalist societies increased their ranges, and their populations spread to new areas, bringing their technology and languages with them and eroding the diversity that was previously present. In the Eurasian steppe, for example, the spreads of Iranian, Turkic and Mongolic have erased nearly all of the indigenous languages of Europe (Basque being the only one remaining), the languages of the Tripolye-Cucuteni culture, Avar (known by name only), languages of the North Caucasian plain, the languages of the Bactria-Margiana Archaeological complex, the Iranian Scythian, the Germanic Gothic, Hunnish (probably Bulgar Turkic), Kitan and other Para-Mongolic languages (Nichols 2011). In Africa, the spreads of Berber and Arabic in the north, and Bantu in Sub-Saharan Africa have caused many indigenous languages to go extinct as well as reduced the diversity within their families (Güldemann & Hammarström 2020). Language spreads are also documented in antiquity as in the Near East where Sumerian was replaced by Akkadian, which was later replaced by Aramaic, and that by Arabic, and the Italic spread which replaced the local languages such as Etruscan and Continental Celtic.

Language spreads may lead to the extinction of the local languages through language shift caused by the assimilation of the local population or through the dying out of the local population due to genocide and/or new diseases brought in with the spread (Diamond & Bellwood 2003). Language spreads drive the surviving indigenous languages into much reduced territories in the fringes of the spread zone. These fringes of the spread zone are known as residual zones or enclaves (Nichols 1992; Bickel & Nichols 2005a,b; Nichols 2020). Thus, whereas all other steppe Iranian languages were extinct in the spread of Turkic, Ossetic survived in the northern Caucasus as an enclave (Nichols 2011).

## 1.2 Enclaves

Enclaves are defined by genealogical and typological diversity, and typically lie on the borders of spread zones (Bickel & Nichols 2005a,b). The genealogical diversity is thought to be representative of an older state where many more languages and language families existed in the larger area, but were either completely wiped out or marginalized by spread events of other languages to smaller geographical areas, creating enclaves of high linguistic diversity. As such, enclaves are characterized by an assortment of language families and language isolates rather than one big language family.

The special geographic and social conditions of the enclaves, on the boundary of spread zones, allowed some of these languages to avoid major structural assimilation to the dominant type in the neighboring homogenized spread zone. Such enclaves will not necessarily exhibit compatible traits, but rather exhibit a different distribution than the one in the spread zone around them. When they do exhibit uniquely shared features, it is likely because these features were more broadly distributed in the past and were wiped out inside the spread zone (Nichols 2020). Thus, the enclave languages arguably preserve ancient features that were more prevalent in the larger region before the spread event marginalized them to the enclaves.

The areas we treat in our analysis as enclaves are the Caucasus and Himalaya, which have been argued to result from agriculturally-induced spreads in the Old World (Bickel & Nichols 2005a,b).

In addition to the enclaves, language isolates may also harbor ancient features. These languages are lone survivors in their families. They are created in the same family diversification process as any other language, but all their relatives have been wiped out by language shift, likely due to language spreads, or they have been in isolation for so long that they have diverged to an extent that no relatives can be detected anymore. Under either scenario, they descend from proto-languages different from larger families and their spreads. The language isolates in our analysis are taken from the classification in Glottolog 4.6 (Hammarström et al. 2022).

Isolate and enclave languages have been continuously spoken for centuries. Naturally, they are subject to language change as any other language. Yet, it is plausible to hypothesize that some isolates and enclave languages still retain features they inherited from a distant ancestor which they shared with now extinct relatives, especially for diachronically persistent features, which we will define in the next section.

### 1.3 Stability and persistence

For enclave and isolate languages to retain signals of pre-spread typology, the relevant features must be sufficiently stable over time. The prevailing way stability is addressed in the literature is in terms of genealogical stability, i.e. when a structural feature is faithfully transmitted from an ancestor language to (most of) its daughter languages (Dunn et al. 2005; Parkvall 2008; Dediu & Levinson 2012). For example, having an inclusive/exclusive distinction has been shown to be stable in language families and to hold for a time span of many thousands of years (Bickel & Nichols 2005a). In this sense, stability first and foremost means decreased rates of change, i.e. the relevant features would be expected to change less than other features in a given time frame.

However, a feature may also be areally stable (Nichols 1992; 2003a). Such a feature could still change at a relatively fast rate, but it will tend to re-adapt to a given areal profile. For example, the order of verb and object tends to change at a relatively fast pace in Indo-European (estimated with a mean of 1,500 years per change by Jing, Widmer & Bickel 2022) but the family falls into distinct areas, each defined by a fairly stable local preference for one or the other order (e.g. object-verb order in South Asia, verb-object order in Europe). Together, these observations suggest that word order in this case has repeatedly adapted to the local preference, i.e. it changed fast but preferring areally distinct directions.

These two types of stability interact. The genealogical stability of a feature can be reinforced by its areal stability (when the languages of a family are neighbors), or by its areal instability (when the languages of a family are in a heterogeneous environment). In the same way, the areal stability of a feature can be reinforced by its genealogical stability (when at least a few languages in the area are related), or by its genealogical instability (when it is easily replaced in different families to comply with the areal standard). Both kinds of stability, or any interaction between them, are of interest to tracking the distribution of typological features. We summarize them under the term *persistence*. Persistent features are those that persist over time because of either genealogical stability, areal stability or both.

## 2 Potentially ancient traits

A previous study (Efrat-Kowalsky et al. 2022) found that Sumerian and Hurrian do not fit today's post-Neolithic typological distribution, and suggested that they could be the remnants of a broader Neolithic, or even pre-Neolithic regional pattern. In what follows

we examine possible typological features that reflect this distribution and are therefore shared by Sumerian and Hurrian and enclave languages and isolates. We contrast these with data from thirty three other ancient language varieties from the Near East (third millennium BCE to the beginning of the first millennium CE) (Efrat-Kowalsky et al. 2022). We furthermore compare them to the languages of the Old World because this is the locus of the big Neolithic language spreads. The data for the modern languages is aggregated from WALS (Dryer & Haspelmath 2013) and AUTOTYP (Bickel et al. 2022).

In what follows we present four candidate features which we consider possible *ancient features*, i.e. representatives of an earlier (pre-)Neolithic feature distribution in Eurasia, on the basis of visual evaluation of the data’s geographical distributions. There are three possibilities for an ancient feature to persist over time and therefore to be detectable in typological data. First, we might find a feature that was frequent in the past but is rare today. The feature then will be shared by Sumerian and Hurrian and some of the enclave languages and isolates in Eurasia, but with nearly no other modern language (Section 2.1, 2.2). Second, a feature may have been more common in the past than today, though it was not necessarily very abundant in the past either (Section 2.3). These are *recessive* features, i.e. features which are easily lost, not readily borrowed and as such are nearly always inherited (Nichols 2003a). Because they are easily lost but not easily borrowed or innovated, it is likely that they may have been more prevalent in the past. A third possibility is that a feature that was common in the past may also be the most common feature today worldwide, except in the agricultural spread zones of the Old World. Such a feature will have a signal in Sumerian and Hurrian and the enclave languages and isolates in Eurasia, but not in the surrounding spread zones (Section 2.4).

## 2.1 Morphological optative

The first feature we consider as a possible ancient trait is the morphological optative. Morphological optative here refers to a language having a verbal inflectional category dedicated to the expression of the speaker’s wish or desire (Bybee 1985; Dobrushina, Auwera & Goussev 2013). It does not refer to other grammatical means of marking the speaker’s wish which are not inflectional, such as a modal verb (English *may*) or elliptical constructions as in Russian (Example 1).

- (1) *Jesli by ona vernu-l-a-s’!*  
 if SBJV she return-PST-F-REFL  
 ‘If only she came back!’ (Dobrushina, Auwera & Goussev 2013)

In certain terminological traditions, it is customary to label as optative inflectional categories which do not fall under the definition given here. First person imperative or hortative are an example of a distinctive semantic category which is not limited to the expression of the speaker’s wish but is nevertheless commonly referred to in some traditions as optative (Fortescue 1984). In addition to the speaker’s wish, imperative and hortative also imply an appeal to the addressee to make the wish true.

Both Sumerian and Hurrian had an inflectional optative in the sense discussed here. Sumerian marks the optative with the modal prefix *ha-* (Example 2a) (Jagersma 2010). In addition to expressing the speaker’s wishes, the morpheme *ha-* has another function to indicate a command. Along side this secondary use of *ha-*, Sumerian also has a designated form for the imperative which has a nominative alignment (in differentiation from the usual ergative alignment for perfective verbs (Section 2.3) and the verbal root and prefix chain are inverted, and in the second person plural the pronominal suffix *-enzen* is added (Thomsen 2001), as well as a cohortative prefix *ga-* (Civil 2000). Even

though the modal prefix *ḥa-* can be used to denote both optative and imperative, the optative use is formally distinctive from the imperative use, and thus fits the definition followed here.

Hurrian marks the optative with the suffix *-i-(e)ž* or *-o-(e)ž* (Example 2b) (Campbell 2007). The optative paradigm (Table 1), which contains all persons and numbers, is distinct from the suppletive imperative paradigm which contains the imperative (second person), jussive (third person) and hortative (first person). The Hurrian optative is marked on the verb inflectionally with a suffix, and is semantically distinct from other modals such as the imperative or hortative, and therefore satisfies Dobrushina, Auwera & Goussev's (2013) definition of optative.

Table 1: Hurrian Inflectional optative paradigm (Campbell 2007: 151)

	Singular	Plural
1st person	-o-(e)ž	-i-(e)ž
2nd person	-i-(e)ž	-i-(e)ž
3rd person	-i-(e)ž / -o-(e)ž	-i-(e)ž / -o-(e)ž

(2) a. Sumerian

*ḥa-ma-ti*

*ḥa-Ø-ma-ti.l-Ø*

MOD-VP-1SG.G-live-3SG.S/DO

'May he live for me!' (DP 192 4:9; L; 24; Jagersma 2010: 558)

b. Hurrian

*šēn(a)-iffē-n*

*tād-ugār-i-(e)žšû-ra*

brother-1SG.POSS-ØABS+CONN love-RECP-ACT-OPT-1SG

'May my brother share love with me!' (Mitt. ii 93; Campbell 2007: 172)

Inflectional optatives are rare in the languages of Africa and Eurasia today (Figure 1). In addition to Hurrian and Sumerian, morphological optatives seem clustered in the enclave languages. Morphological optatives are also abundant in the rest of the ancient Near Eastern languages such as Egyptian, Akkadian, Hebrew and Ugaritic. Other contemporary ancient languages in neighboring regions also had inflectional optative, such as Ancient Greek (van Emde Boas et al. 2019), Old Iranian (Skjærvø 2007: Old Persian and Avestan), and Vedic Sanskrit (Macdonell 1910).

Morphological optative has been a common feature in the languages of the past and disappeared with time. Most ancient languages of the Indo-European family, for example, have a morphological optative, as just noted. Albanian is the only modern Indo-European language that retains both the category and morphological material, whereas most other branches preserve morphological vestiges in various modal categories (Italo-Celtic, Balto-Slavic, Germanic). Anatolian, the earliest branch to split off, is the only branch that lacks any traces of the optative. It is controversial whether the optative was innovated after Anatolian branched off or Anatolian lost it, but ultimately, the optative reconstructs well to the last common ancestor of the family.

Most modern successors of the ancient languages with inflectional optative lost it, and there is reason to believe that inflectional optative may have been common in the past, reinforced by biases in language families that have died off since, and by areal pressures. Since the extinction of major lineages carrying that feature, the presence

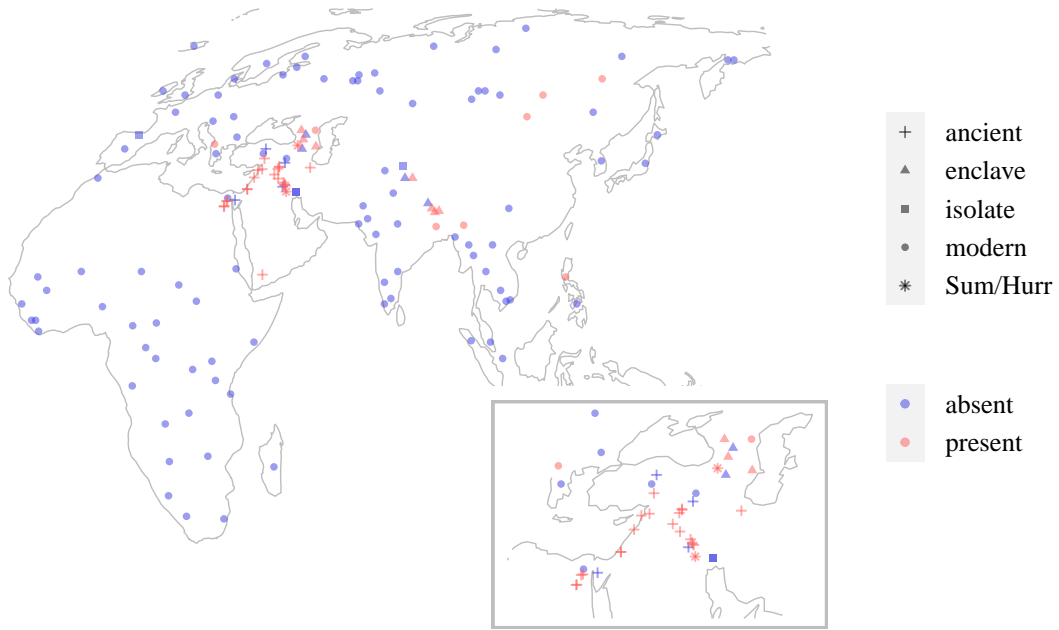


Figure 1: Distribution of morphological optatives. Inset of the Near East

of it in the region diminished. In the Caucasus though, areal pressure still seem to be influential in maintaining this feature.

## 2.2 High inflectional synthesis of the verb

By inflectional synthesis we refer to the use of verbal inflection to express grammatical relations. In other words, when a grammatical category is expressed through bound inflection it is a synthetic rather than analytic realization of that category. Here we follow AUTOTYP (Bickel et al. 2022) which codes the maximal number of inflectional categories a verb can have simultaneously. The most common categories for synthesis are agreement, tense/aspect/mood, evidentials/miratives, status (realis, irrealis, etc.), polarity (negation), illocution (interrogative, declarative, imperative), and voice (Bickel & Nichols 2005b).

Both Hurrian and Sumerian have relatively high number of categories marked inflectionally on the verb. Sumerian inflects the verb for aspect, mood, voice, valancy, agreement of the A argument, P argument and the various applicative arguments which agree in person, number and gender. Prefixes conjugate the verb for aspect and mood (marked with the prefixes *na(n)-*, *ga-*, *bara-*, and the ventive prefix *mu-* to express wishes, commands and assertions). Agreement for the arguments of the verb is marked for transitive A arguments, P arguments and oblique objects is marked on the verb with either or both a person prefix and a person suffix which agree in person (first, second, third), number (singular, plural) and gender (human, nonhuman). The applicative prefixes *da-* '(together) with', *ta-* 'from', *ši-* 'to(wards)', *e-* 'on', *ni-* 'in' promote the oblique object to the P argument position. The prefix *na(n)-* negates wishes, requests, or commands, and the prefix *bara-* negates assertions. In addition, a finite verb may include the prefix *nga-*, the function of which is not entirely understood (Jagersma 2010). Although we do not know the precise meaning of this prefix, we still count it here as it

inflects the verb and is a distinctive category from the other inflectional affixes. It is not likely that this prefix would have a derivational function, as in general Sumerian does not seem to have many words created through derivation. It does have one sparsely attested derivational suffix *-?u* (*sar-ru* (Nik 1:165 2; L; 24) ‘document’ derived from the verb *sar* ‘write’). Though the full system may be debated, Sumerian inflects for at least 16 distinct categories. An example of a negated transitivized ventive verb, with Agent and Patient agreement is presented in Example 3a.

(3) a. Sumerian

še            é-a            nu-mu-da-ĝál  
 še-Ø        é-?a        nu-Ø-mu-?-da-n(i)-ĝál-Ø  
 barley-ABS house-LOC NEG-VP-VENT-1SG-with-in-be.there-3NH.S/DO  
 ‘I have no barley in the house (lit. “There is no barley with me in the house”).’  
 (MVN 11:168 19; U; 21; Jagersma 2010: 156)

b. Hurrian

i-l-an                      mMane-ž mKelia(-ž)-ll(a)-ān  
 if-3PL.ENCL-CONN PN-ERG    PN(-ERG)-3PL.ENCL-CONN  
 kul-i-ā-ma  
 say-TR-3SG.ERG-NEG  
 ‘If Mane and Kelia do not say them (the words)...’ (Mitt. iv 20-21; Campbell 2007: 65)

Hurrian is also highly inflectional. A Hurrian verb may be inflected for tense, aspect, mood, voice, polarity, and person and number agreement with the A and P arguments. Hurrian verbs are inflected for tense with the present suffix *-Ø*, preterit suffix *-oš*, or future suffix *-et*. Iterative aspect is marked with the suffixes *-ukar* or *-ar*, and intensivizer *-aš*. Mood distinguishes between indicative and non-indicative. Valence is inflected through the transitive marker *-i*, intransitive marker *-a*, the active marker *-an(n)*, the factitive *-am*, and the intransitivizer *-u/ol*. Incohesive voice is marked with the suffix *-ill*, locative with *-ahh*, reflexive with the suffix *-u/ol*, and negation with *-u(w)/wa*. person markers agree with the A argument and the P argument and indicate person (first, second, thirds) and number (with the plural suffix *-š*). In addition there are still many verbal affixes in Hurrian of unclear function (Bomhard & Wegner 2020). Put together, there are at least 11 inflectional categories in Hurrian, not counting the suffixes with unknown functions. An example of a suffix sequence in Hurrian is given in Example 3b and Table 2.

Table 2: Hurrian suffix sequence of indicative verbs. Mood markers are not included, following Diakonoff (Wegner 2007: 65)

Root+RETense	Ob- ject- less	Un- clear	In/transi- tive	Negation	Subject	Plural	Enclitic pronoun	Syn- tactic parti- cles
-an-	-Ø-		imbu-	-i-	-u(w)/wa-	1SG-av/- (a)ffu-	-š(a)-	-an
-ar-	-oš-	-t-	-a-	-kkV-	2SG-o			-man
-ol-	-et-				3SG-a		-tta/t	
-Všt-							-mma/m	

Eurasia and Africa are marked by relatively low synthesis of the verb. Exceptions to that are the Himalayas and the Caucasus where a high degree of synthesis is clustered



(Figure 2). As high degree of synthesis is shared by Sumerian and Hurrian and the enclave languages, higher levels of synthesis may have been common in the past, but have diminished with time.



Figure 2: Distribution of the number of categories in the maximally inflected verb form (synthesis). Inset of the Near East

### 2.3 Ergative Alignment

Morphosyntactic alignment describes the type of grammatical relationship between the arguments of the verb. Arguments are aligned when they are marked in the same way, under a certain condition (Bickel 2011a; Witzlack-Makarevich 2011). In an accusative alignment the sole (S) argument of an intransitive verb and the agent (A) of a transitive verb are marked in the same way, differently from the patients (P) of transitive verbs ( $S=A \neq P$ ). In an ergative alignment, on the other hand, the S argument is marked in the same way as the P argument of a transitive verb and differently from the A argument ( $S=P \neq A$ ). A language may also have neutral alignment and not differentiate any of the arguments ( $S=A=P$ ), or mark all arguments differently ( $S \neq A \neq P$ ). Languages may have different alignments under different conditions (for example under different TAM or clauses). Here we report whether a language has the option to align arguments ergatively in the morphological form of case or verb agreement markers (or both).

Sumerian displays three types of alignment in its grammar: ergative alignment, accusative alignment and a tripartite alignment (Jagersma 2010). Perfective verbs follow an ergative alignment in verb agreement markers (Michalowski 1980). The A argument is marked with the final person prefixes, while the S argument and P argument are marked with the same person suffixes (Table 3). Imperfective verbs have partly accusative and partly tripartite alignment. P arguments are marked with the final person prefixes. A arguments and S arguments are marked with the same person prefixes in the first and second person. A arguments and S arguments in the third

person are marked with a different person suffix. Therefore, in the first and second person, imperfective verbs follow a nominative alignment, and in the third person they have a tripartite alignment. In the imperative, arguments follow a nominative alignment. Sumerian case alignment is always ergative. The A argument of a transitive verb is in the ergative case, and the S argument of an intransitive verb and the transitive P argument are in the absolutive case. The ergative case is marked with the enclitic case marker *-e* (Jagersma 2010).

Table 3: Sumerian person marking in the perfective and imperfective (Jagersma 2010: 360)

	PERFECTIVE			IMPERFECTIVE		
	A	S	P	A	S	P
1SG	?	en	en	en	en	?
2SG	e	en	en	en	en	e
3SG	n	Ø	Ø	e	Ø	n
3NH	b	Ø	Ø	e	Ø	(b)
1PL	-	enden	enden	enden	enden	-
2PL	-	enzen	enzen	enzen	enzen	-
3PL	-	eš	eš	enē	eš	-

Hurrian has a full ergative alignment in its case system, which is consistent throughout all tenses, persons and pronouns (Bomhard & Wegner 2020). The ergative case is marked on the A argument of a transitive verb with the suffix *-ž* (Example 4b), while the S argument of the intransitive and the P argument of the transitive verb are marked with the absolutive case Ø. Though not much is known about Hurrian's sister language Urartian, the available inscriptions also exhibit an ergative alignment (Wilhelm 2008), suggesting strongly that this was a family wide trait.

(4) a. Sumerian

*PN ses=ĝu=e                      kiri<sub>6</sub>=ane=Ø                      Ø-ma-n-šúm-Ø*  
 PN brother=my=ERG orchard=his=ABS VP-1SG.G-3SG.A-give-3NH.SBJ.DO  
 'PN, my brother, gave me his orchard' (Pettinato L'uomo p. 101:45 obv 2-3; 21; Jagersma 2010: 155)

b. Hurrian

*šēn(a)-iffū-ž-l[l(a)]-ān                      ḥaž-i-en*  
 brother1SG.POSS-ERG-3PL.ENCL-CONN hear-TR-MOD  
 'Let my brother hear them!' (Mitt. i 113; Campbell 2007: 248)

Ergative alignment in either case or agreement is rare in modern Eurasia, only appearing in the Himalayas and Caucasus. Ergative alignment is also rare in Africa. It is attested only in a few languages from the Nilo-Saharan family, spoken around the Nubian Mountains (Casaretto et al. 2020), an area that has been suggested to be an enclave (Dimmendaal 2010).

Of all ancient Indo-European languages Hittite is the only one with ergative alignment. It is restricted to case marking in neuter nouns, for example with the noun *pahhur/n-* 'fire'. The nominative/accusative case *pahhur* is used with the S and P arguments and the ergative case form *pahhuenanza* with the A argument (Example 5). Hittite ergativity is likely an innovation since its origin from an ablative marker is fully

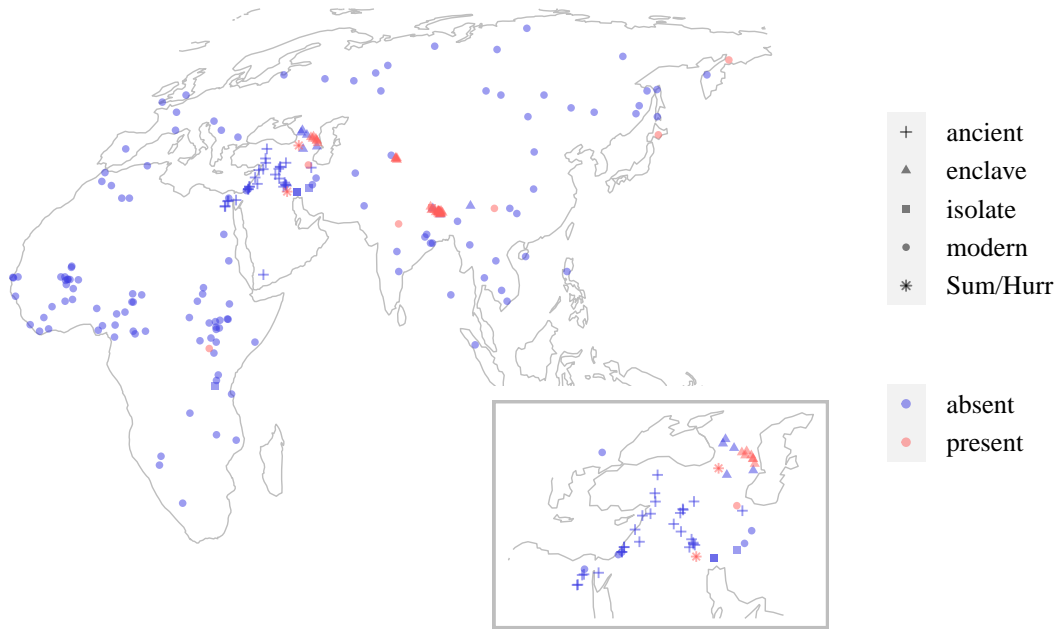


Figure 3: Distribution of ergative alignment. Inset of the Near East

transparent (Garrett 1990). The development of ergativity in Hittite perhaps indicates an areal pressure.

(5) Hittite

*man=an pahhuen-anza arha warnuzi*  
 OPT=3SG.ACC fire(N)-ERG.SG away burn.PRS.3SG

'I wish fire would burn it up.' (KBo 32.14 ii 6–7; Garrett 1990: 267)

Some Iranian and Indo-Aryan languages in the vicinity of the Ancient Near East also started to develop ergative-absolutive systems with TAM splits from the first century BCE onwards (Haig 2008; Butt & Deo 2017). To illustrate, (6) from archaic Māhārāṣṭrī (500 CE) shows what is considered an ergative construction or, alternatively, a precursor of what developed into the ergative systems in early modern varieties of Indo-Aryan. The A argument appears in the instrumental and the verb agrees with the P argument (Butt & Deo 2017: 539).

(6) Māhārāṣṭrī, Middle Indo-Aryan

*t-eṇa palāyamāṇ-eṇa purāṇakuv-o taṇadabbhaparichinn-o*  
 that-Inst.SG running-Inst.SG old.well-NOM.SG.M grass.covered-NOM.SG.M  
*diṭ-ṭho*  
 notice-PRFSG.M

'that running one noticed an old well covered with grass' (Butt & Deo 2017: 538)

In Iranian, the emergence of ergativity is set earlier. Middle Persian (ca. 300 BCE – 700 CE), for instance, expresses past tense A and P through the oblique form, 1SG *man* in (7); for S the rectus case (1SG *an*) is used.

(7) Middle Persian

*ud man Kerdīr ... was ranj ud āwām dīd*  
and 1SG.OBL.A K. much trouble.P and time.P see.PST

'and I, Kartir, ... have been at great trouble and pains ...' (Inscription of Kartir §14; MacKenzie 1999: MR 245)

There are two likely sources for ergative alignment of case marking in Indo-Iranian: a non-canonical subject construction involving a genitive/dative marked benefactive, experiencer, or possessor (Haig 2008; Jügel 2015) and predicatively used non-finite forms in subordinate function (Casaretto et al. 2020). Notably, both source constructions are well attested in other branches of Indo-European as well. For example, the *mihi est* ('to me is', i.e. 'I have') construction of Latin (8) corresponds to the likely source construction of the Iranian ergative, including the morphology of the participle (IE \*-to- > Lat. -tus/-ta (M/F), Sanskrit -ta-/-tā- (M/F)). Such constructions keep emerging in Indo-European languages, for example possessive resultatives based on participles and possessor-marked A (*u Peti*) in colloquial Russian (9).

(8) Latin

*instructa sunt mi ... consilia*  
prepared.NOM.PL.N are 1SG.DAT plan(N).NOM.PL

'I have prepared my plans' (Ter., *Phor.* 321)

(9) Russian (colloquial)

*u Peti pirog ispečen*  
at Petja.GEN.SG cake(M).NOM.SG bake.PTCP.NOM.SG.M

'Petja has baked a cake.' (Wiemer & Hansen 2012: 87; our glosses)

A construction that closely corresponds to the other source of ergative alignment, predicatively used nonfinite forms as in Indo-Aryan, concerns medieval Brittonic verbal noun clauses (Manning 1995). Middle Welsh has a class of verbal noun clauses that systematically marks A arguments with the phrasal marker/preposition *o* 'from' (*o Dauyd* in 10a and *o lwdyn* in 10b). Nominal P arguments (*y kawr* in 10a) lack overt marking, pronominal ones behave like possessors.

(10) Middle Welsh

- a. *lad o Dauyd y kawr*  
kill from David the Giant

'David killed the giant' (LLA 27.24, Manning 1995: 180)

- b. *llad o lwdyn y llall*  
kill from animal the other

'(An) animal killed the other (one)' (WML 108.18; Manning 1995: 180)

S arguments display a mixed behaviour depending on verb semantics and referential properties (Manning 1995). With non-human reference they take the *o* marker depending on verb semantics (*ohanat* in 11a vs *Kei* in 11b). S arguments with non-human reference as a rule align with P arguments, i.e. do not take the *o* marker (*y crut* in Example 11c), see summary in Table 4.

The predicate corresponds to a deverbal noun that is not specified for TAM, voice or person. The construction occurs both in main clauses, where it has mainly narrative functions, and in subordinate clauses, where the verbal noun combines with various prepositions assuming a wide range of functions. This construction did not survive into Modern Welsh.

(11) Middle Welsh

- a. *syrthyaw ohonat ymywn pechawt arall*  
 fall from.2SG into sin other  
 ‘You fell into another sin.’ (SG.30, Manning 1995: 182)
- b. *kyuodi yna Kei*  
 get\_up then Kei  
 ‘Then Kei got up.’ (KO.384, Manning 1995: 182)
- c. *ymchoelut y crut a’e wyneb y waeret*  
 turn the crib upside down  
 ‘The crib turned upside down.’ (ChSDR.150, Manning 1995: 181)

Table 4: Argument marking pattern in Middle Welsh clauses with predicatively used verbal nouns.

	A	S	P
human reference	<i>o</i>	<i>o/∅</i>	<i>∅</i>
non-human reference	<i>o</i>	<i>∅</i>	<i>∅</i>

Given these formal and functional correspondences, the actual question is why Romance and Brittonic Celtic did not develop an ergative alignment of case marking as Indo-Iranian did. In addition to a general anti-ergative bias in Romance and Celtic, internal developments may have been at play. In Latin, for example, *habēre* ‘have’ and *tenēre* ‘hold’, the precursors of Romance transitive perfective auxiliaries, were much less restricted and more frequent in auxiliation than DAT + *esse*, which was ultimately ousted. Middle Welsh predicative verbal nouns possibly were prevalent in literary style and less so in spoken language. As for Indo-Iranian, areal pressure in the contact zones with the Ancient Near Eastern languages could have reinforced their retention.

In summary, we suggest that ergativity was a recessive feature that was incipiently more prominent in the ancient world than it is now but that survived only in a few pockets. One possible reason for this pattern is a general bias against ergativity in the language processing system (Bickel et al. 2015).

## 2.4 Genderless Pronouns

Another possible ancient feature is the lack of gender distinction in independent personal pronouns. Independent personal pronouns are lexical items capable of carrying stress, that are not bound forms (such as the bound person affixes and clitics in previous examples) (Siewierska 2013). A language may distinguish gender in its independent personal pronouns. For example, Hebrew distinguishes person and number throughout its independent personal pronoun system, and gender in the second and third person (Table 5).

Both Sumerian and Hurrian lack any gender distinction in independent personal pronouns. Sumerian has a two-way gender distinction, distinguishing between human and non-human nouns. This distinction is kept in the person prefixes, (*n* for human and *b* for non-human arguments), in the possessive pronouns (*ane* for human and *be* for non-human nouns), and in interrogative pronouns (*a-ba* for human and *a-na* for non-human nouns (Jagersma 2010). But independent personal pronouns lack this distinction between human and non-human nouns. The independent personal pronoun paradigm for Sumerian is given in (12a).

Table 5: Independent personal pronouns in Hebrew

	GENDER	
	Male	Female
1SG	ani	ani
2SG	ata	at
3SG	hu	hi
1PL	anu/anaxnu	anu/anaxnu
2PL	at-em	at-en
3PL	h-em	h-en

Hurrian lacks gender distinction all together. The independent personal pronouns distinguish person (first, second, third) and number (singular, plural), and are marked for case. Hurrian's independent personal pronoun paradigm in the absolutive case is given in (12b).

- (12) a. Sumerian (Jagersma 2010: 208)
- |               | Singular | Plural |
|---------------|----------|--------|
| First Person  | ĝe       | (?)    |
| Second Person | ze       | (?)    |
| Third Person  | anē      | anēnē  |
- b. Hurrian (Bomhard & Wegner 2020: 53)
- |               | Singular | Plural      |
|---------------|----------|-------------|
| First Person  | ište     | šatti(=)lla |
| Second Person | fe       | fe=lla      |
| Third Person  | man=e    | mane=lla    |

Unlike the other features surveyed here, genderless pronouns are the most common pattern in the world today (Figure 4). They are also common in the enclaves and isolates. Gendered pronouns are common in Africa in the Niger-Congo and Afro-Asiatic languages, and in the Indo-European languages of Europe (Siewierska 2013). These three language families are associated with the agricultural spreads of the Neolithic, pointing to an ancient pattern of genderless pronouns, as seen in Sumerian and Hurrian and kept in the enclaves and isolates today. Intriguingly, late comers into the enclaves, such as Ossetic in the Caucasus and Nepali in the Himalaya (both Indo-European), adapted to the areal pattern and lost their gender distinction in independent personal pronouns.

Under this scenario, gendered pronouns would emerge as a likely innovation, chiefly associated with the Neolithic.

### 3 Discussion

As enclaves are not linguistic areas and are defined by their diversity, we do not expect areal effects, i.e. we do not expect the languages in the enclaves to be homogeneous with regards to the features surveyed here. The same is true for language isolates. These languages are not related to one another and there is no reason to expect them to be homogeneous in any way. Rather, in this qualitative look on the distribution of four grammatical features, we set out to find if there are any specific structural aspects of language which may have been more common in the past, as suggested by their

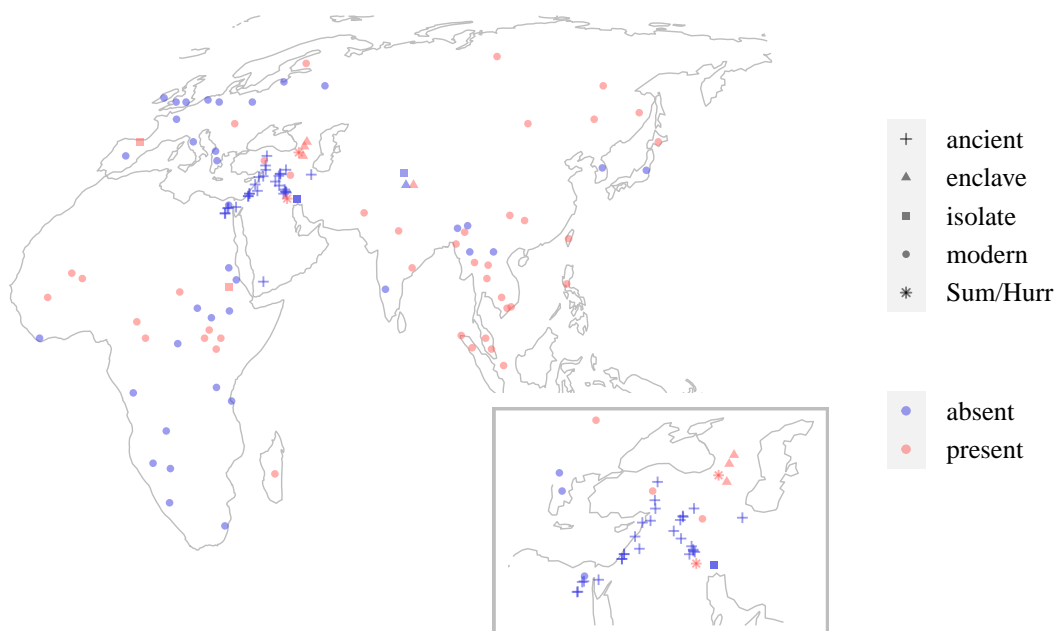


Figure 4: Map of the distribution of the presence or absence of Gender Distinctions in Independent Personal Pronouns in Africa and Eurasia. Inset of the Near East

presence in Hurrian and Sumerian, and which may have some residue in the enclave and isolate languages of today.

We offered four morphological features that seem persistent and that may have been preserved in some languages for millennia. Intriguingly, the four features in our purview have also been highlighted by quantitative research on structural stability, though the results do not always agree with each other.

Optative marking was found to be genealogically stable by Wichmann & Holman (2009); Dediu & Levinson (2012) and Dediu & Cysouw (2013). Alignment in general was found to be genealogically stable by Wichmann & Holman (2009), and ergative alignment in particular was found to be more stable by Parkvall (2008). Nichols (2020) finds ergativity to be a *recessive* trait, which is compatible with being genealogically stable in some of the other analyses (easily lost but a good indicator for inheritance). High levels of synthesis were found to be stable by Parkvall (2008), but synthesis in general was found very unstable by Wichmann & Holman (2009). Parkvall (2008) and Wichmann & Holman (2009) find that gender distinction in independent personal pronouns are relatively stable in families, though Dediu & Cysouw (2013) results do not find it to be particularly stable.

It is likely that these differences result from the use of different coding schemas and methods. Dediu & Cysouw (2013) for example tested gender distinction in independent personal pronouns as a categorical feature with six categories, whereas Parkvall (2008) tested it both as a categorical and as a binary feature with the distinction of presence versus absence of gender in independent personal pronouns. Furthermore, the quantitative studies mentioned here only assess genealogical stability, while our purview extends to areal stability. As argued in the introduction, ancient features can persist through either vertical inheritance or frequent re-adaptation by contact.

In this paper we focused on the presence or absence of features in the Old World.

But an additional observation we find worth pointing out is the distribution of the same features in the Circum Pacific, a large region that spans the entire Pacific Rim and the American and Australian continents. The Circum Pacific includes Oceania (including Australia and New Guinea), Pacific coastal facing mainland Asia, and the Americas (Bickel & Nichols 2006) and has been previously associated with the Eurasian enclaves (Bickel & Nichols 2005b,a; 2006; Bickel 2020). This area was defined through genetic and archaeological evidence which suggest a coastal migration route into the Circum Pacific from ancient mainland Southeast Asia up until the Austronesian expansion (Nichols 1997b,a). As this area was formed through migrations from ancient Southeast Asian languages, before the big linguistic spreads of the region responsible for today's distribution in the Old World, we postulate that the dominant features that were passed on into the Circum Pacific would match more closely the common features in antiquity.

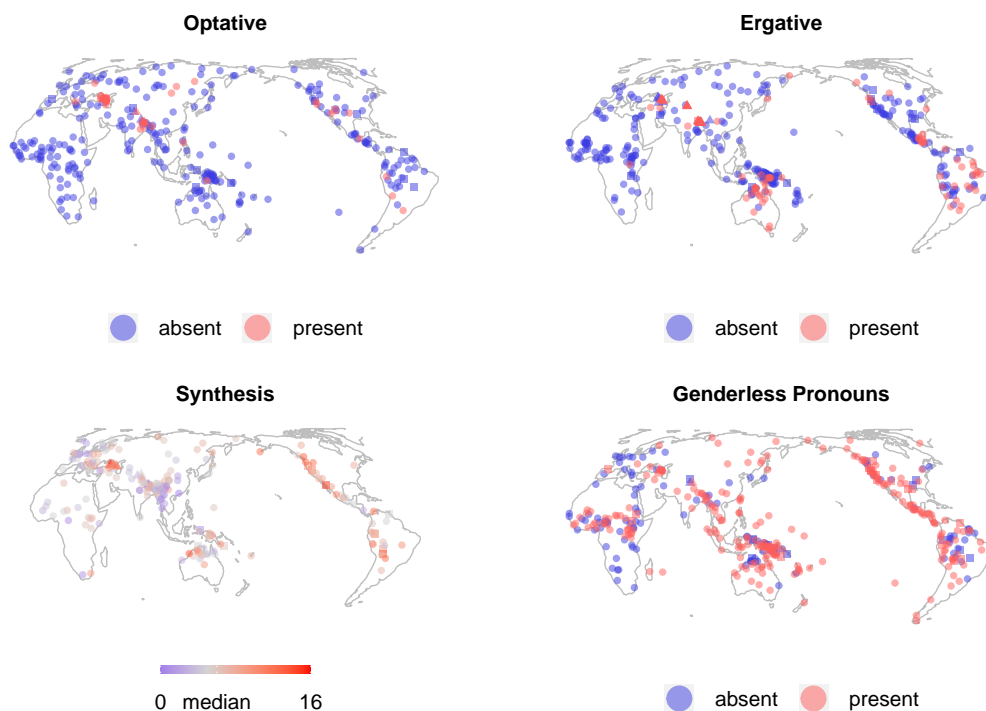


Figure 5: Maps of the distribution of the presence and absence of Optative, Ergative, and Genderless Pronouns and the degree of Synthesis in the world

Ergativity, high synthesis (more specifically, higher-than-median synthesis) and genderless pronouns are more frequent in the Circum-Pacific than in the rest of the world (Figure 5). These observations are supported by a family bias analysis (Bickel 2011b; Bugaeva, Nichols & Bickel 2022).<sup>1</sup> For two features, the odds for a language family to be evolutionarily biased towards them are about two and a half times higher inside versus outside the Circum Pacific and for one feature they are one and a half higher (median estimate of odds ratios and 95% probability intervals: ergativity: OR = 2.4, 95% PI = [2.1, 3.2]; higher-than-median synthesis = 2.4, 95% PI = [2, 8.7], genderless pronouns: OR = 1.6, 95% PI = [1.6, 1.7]). This suggests that for these three features, the Circum Pacific mirrors the distribution of Sumerian, Hurrian and the enclave and isolate languages.

This is not the case for optative, where the odds of having a morphological optative are almost the same for families within and outside the Circum Pacific (Median OR =

<sup>1</sup>See <https://github.com/noorefrat/ancient-features> for the script performing these analyses.



0.9, 95% PI = [.8, 1.7]). This suggests that optatives were prevalent in the past but were reduced in modern languages. Inflectional optative is present in almost all of the ancient languages, yet was lost in all of their modern varieties. Since this feature does not persist in the modern Circum Pacific either, it seems that the pressures that so effectively caused its loss in the modern languages of Eurasia also operated in the Circum Pacific. It remains to be seen whether this pressure reflect a global post-Neolithic social dynamic.

Indeed, social factors that have changed considerably with urbanisation, industrialisation and globalisation have been demonstrated to have an effect on language structures, both through functional-adaptive and contact induced pressures. Therefore, it is hard to argue that modern languages can be representative of the typological distributions that have been present for all of human linguistic history. Even though in the last decades social scientist and linguists have been aware of the WEIRD and LOL (literate, official, lots of users) (Dahl 2015) biases in their samples and the dubious status of generalisations made on the basis of such samples, we would argue that another letter 'M', for modern, ought to be added and receive just as much consideration when interpreting such generalisations.

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