SUMERO-INDO-EUROPEAN LANGUAGE CONTACTS

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ABSTRACT: *Albeit the genetic affinity of the Sumerian language is still lacking consensus, some vocabulary related to Sumerian may be found from various language families including Indo-European, Kartvelian, Semitic, Dravidian and Uralic. Where the Semitic contacts are well attested, contacts to other families have often regarded controversial.*

In this paper I will present and briefly review 30 words attested in the Sumerian and Indo-European languages which may share a common etymology, including some which have already been proposed by J. Pokorny and G. Whittaker. Of the presented lexical data, ~9 words can be tentatively considered as direct borrowings and 6 as a proto-historical adstrate. The rest can be regarded partly as wanderworts or perhaps even as relics of the debatable Nostratic macrofamily. However, in some cases the semantic and phonetic resemblance may be purely coincidental.

Introduction

Sumerian language was spoken in ancient Mesopotamia from the 4th millennium BC to the Old Babylonian period (1900 BC) during which the Sumerians gradually assimilated into Akkadian speaking Babylonians. By the end of the 17th century BC Sumerian was no longer spoken as a first language but it was still studied by Akkadian scholars as a classical language and its literary tradition continued for almost two millennia. The latest written memorials of the Sumerian language date back to the post-Seleucid era 1st century AD (Hayes 1997: 4).

In the 1850s after the rediscovery and partial decipherment of the Sumerian language by Henry Rawlinson and Edward Hincks, arose an

intriguing question of its genetic affinity. Although the typological features of Sumerian reflect those found in many agglutinative languages of Eurasia[1], finding any genealogical links to other languages proved to be an insuperable task. Regardless of numerous attempts to connect Sumerian with Caucasian, Semitic, Ural-Altaic[2], (Elamo-)Dravidian, Basque and Indo-European languages, by the vast majority of scholars it is still regarded as a language isolate with no known relatives (Edzard 2003). It has also been suggested that the Sumerian language descended from a late Paleolithic creole (Høyrup 1992). However, no conclusive evidence, excluding some typological features cannot be found to support Høyrup's view.

Even though Sumerian has no known genealogical relatives, some Sumerian vocabulary can be identified from various languages such as Akkadian and Assyrian[3], and also from their modern relatives e.g. Arab. هيكل *(haykal)* 'temple' ← Akk. *ekallum* ← Sum. *é.gal* 'palace'; Hebr. עיר *('ir)* 'town' ← Sum. *iri* 'city; town'.

Where the language contacts with Semitic languages are well studied and practically undeniable, it becomes more complicated to find convincing evidence on Sumerian language contacts with families located outside Mesopotamia, such as Indo-European. The key problem is, that due to distribution of possible Sumerian loan words in IE languages the contacts must have taken place before the diverging of the Proto-Indo-European language (PIE), which according to the present knowledge[4] took place before the Sumerian migration into Mesopotamia. Consequently, in order to explain the distribution one is tempted to assume that either (1) Sumerian or its earlier language stage was once spoken in the proximity of the PIE urheimat located in the Pontiac-Caspian Steppe, or (2) that the common vocabulary was not directly transmitted from Sumerian to PIE (or vice versa), but was borrowed through unknown prehistoric languages spoken between the PIE and Sumerian homelands (and perhaps partly

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1 Features include a developed case system, lack of grammatical gender or articles, complex finite and non-finite verb conjugation, extensive use of compounding etc. See Edzard 2003: 1; Hayes 1997: 6–7 or Thomsen 1984: 48–51 for a synopsis of the general characteristics of the Sumerian language.
2 Bobula 1951; Zakar 1971; Gostony 1975; S. Parpola 2007 (work in process).
3 See Lieberman 1976.
4 See Kurgan hypothesis by Gimbutas 1956.

even originated from them).

I would personally consider the latter a more credible option as we know next to nothing about the Sumerian homelands before their migration into the Southern Mesopotamia. Despite Kramer's (1963) Transcaucasian hypothesis, i.e. a Sumerian migration into Mesopotamia from the north, ultimately from the Caucasian or Transcaucasian region is acknowledged as the most plausible option (see Ziskind 1972), the actual hard evidence for it is extremely difficult to find. Kramer based his hypothesis mostly into Sumerian chronicles, cultural features and their expertise in metal working[5]. The hypothesis also loosely supported by later genetic studies on the Iraqi people, which point to their close relationship with Kurds, Caspian Iranians and ultimately the Svani Georgians of The South Caucasus (Cavalli-Sforza et al. 1994: p. 242), but as the genetic relationship between the modern Iraqi people and the Sumerians are uncertain, this cannot be taken as a hard evidence.

Alas, also from the linguistic point of view evidence for "Caucasian" origin is practically nonexistent. Sumerian and Kartvelian certainly share some typological features including ergativity and heavy verbal prefixation, but yet both can be explained as a late development in Sumerian. Common vocabulary is minimal and consists only of few uncertain similar lexical items (see Klimov 1998[6]), which despite of their phonological and semantic similarities are problematic as the Kartvelian cannot be reconstructed beyond the Georgian-Zan level (ca. 2600 BC).

Where the urheimat problem makes it difficult to give any certain time or place for the possible loan words between Sumerian and PIE, the phonological inventories complicate this matter even further. The Proto-Indo-European sound system is completely based on reconstruction and thus reflects the "pronunciation" on a very abstract level. The situation is not much easier with the Sumerian, as the exact quality of its phonemic inventory is very uncertain. The uncertainty is a result of the

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5 The two last mentioned can point Sumerian origins to any mountainous region, not necessarily to Caucasus.

6 Klimov considers the few similar lexical items between Kartvelian and Sumerian as "phonetic symbolism" and not real etymologically connected words. However, he has failed to notice few possible items, e.g. Sum. *kur* 'mountain; (foreign) land' ~ GZ. **gora* 'mountain; hill'; Sum. *-da* '(comitative case marker), side, with, and' ~ GZ. **-da* 'and'.

decipherment process based on the Akkadian phonetic values of the Sumerian cuneiform signs, whereupon misleadingly the phonemic inventories of these languages seem to be almost identical. By internal reconstruction it is possible to reveal some of these lost phonemes, but unfortunately it is often impossible to locate their distribution among the vocabulary on a larger scale. E.g. we know that the Sumerian language featured a phoneme $/d^r/$[7] of uncertain quality as well as probable earlier (Proto-Sumerian) labio-velar stop[8] $/g^w/$ and perhaps two liquids[9] $/l_1/$ and $/l_2/$ but there are only a handful of words where they are known to possibly exist. Even more complicated is the case of Sumerian vowel inventory of which only four vowels <i e a u> are distinguished on graphemic level, but where each of these graphemic vowels hide a subset of vowel phonemes tentatively reconstructed[10] as <i> = /i/; <e> = /e ɛ/; <a> = /a/ and <u> = /o ɔ u/ (Smith 2007).

Nevertheless, in this paper I assume that the current reconstructions of the Sumerian and PIE sound systems are adequate enough to be used for lexical comparison. In general, Sumerian words are represented in their graphemic forms, but also more detailed phonemic reconstructions are presented in cases they are available.

Vocabulary

This section consists of 30 Sumerian and Proto-Indo-European words and roots, which could possibly share a common etymology. Arrows (→) refer to the direction of borrowing, tilde (~) stands for "possibly corresponds with". In the case of borrowing, the arrows point rather to language families than individual languages. For example OCS *osl;* OE *assa;* → Finn *aasi* 'donkey' means that the word has been borrowed to Finnish from Indo-European languages, not from Old Church Slavonic or Old English.

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7   Quality of this phoneme is uncertain. Jagersma (2011) suggests $/ts^h/$, but also some kind of flap, tap or spirant have been suggested.

8   This would explain the correspondence <b> ~ <g> between Emesal and Emegir, as well as other dialectal variation.

9   Jagersma (2011) posits only one liquid in the Sumerian phonemic inventory.

10 This is a very controversial topic often ignored or discussed very briefly in Sumerian grammars.

(1) Sum. **anše** 'equid; donkey; ass' ~ Hitt. (ANŠE) /?/; HLuw. (ASINUS)-*na* 'donkey; mule'; Arm. *ēs*[11] 'donkey'; Lat. *asinus*; PCelt. **assin* 'ass'; Lith. asilas; OCS *osl*; OE. *assa*; → Finn. *aasi* 'donkey'

The word dates back to the domestication of the African wild ass in North-East Africa around 4500 – 4000 BC wherefrom it was introduced to Mesopotamia and Levant ca. 2800 – 2500 BC. By this time the Proro-Indo-European had already diverged and consequently the word was only borrowed into western IE languages through Anatolia. Unfortunately, despite Hittites and Luwians wrote 'donkey' using a Sumerian logogram ANŠE, the word is unattested syllabically and thus the actual pronunciation is unknown.

Phonetically *anše* seems to be a plausible source of borrowing for western IE languages. In the eastern IE branch this word was inherited from a different source: Tocharian B **kercapo*; Middle Persian *xar*; Sanskrit. *khara*.

It is unclear if the Sumerian word is original or borrowed. It may be of African origin (compare to Egyptian *āa*[12] 'donkey'), but also a native, although very controversial etymology has been suggested by Halloran (1999): {AN} = 'sky; high', {ŠE} = '(terminative) to' = 'to lift up; carry'.

ED IIIa/b, OA, Lagaš II, Ur III, OB[13]. (ANŠE)[14]. [2957×, AF 48][15]

(2) Sum. **bur(u(d)$_x$)** 'breach; hole; depth; to perforate' ~ PIE **b^{h}er(ed^h)-* 'to cut; breach'; OInd. *bhárvati* 'chews'; Lat. *forāre* 'to bore; pierce' ON *bora* → Finn. *pora-* '(to) drill'

Often suggested as a wanderwort or a Proto-Nostratic etyma: PN **burV* 'to break' (Bomhard 2008). Due to its first attestation in the OA period, Sumerian word is possibly a loan from Akkadian *būrum* 'pit; well; cistern' and its relation to PIE is very difficult to analyze.

OA, Ur III, OB (U) [49×, AF 0]

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11 Most likely derived from PIE **h₁ekwos* 'horse' and thus not related.

12 Also transcribed *ꜣ3* possibly pronounced **[ʕaː].

13 Periods the word is attested in Sumerian literature, cf. the abbreviations in the end.

14 Logographic writing.

15 Total attestations in PSD corpus and archaic frequency (before the ED III period) of the logogram. Figures are based on ePSD.

(3) Sum. *dub* 'clay tablet' → Akk. *ṭuppum;* NA *ṭuppu* id.→ Hitt. **tuppi** id.

Borrowed to Hittite through Akkadian or Assyrian.

ED IIIb, OA, Lagaš II, Ur II, EOB, OB (DUB) [1183×, AF 229]

(4) Sum. *erin;* **(ḫ)u₁₁-rí-in** 'eagle; standard' ~ PIE ***h₃er-; *h₃or-no-** 'eagle'; Hitt. *ḫaran;* Arm. *arcui;* Gk. *órneon* (ὄρνεον); Lith. *erelis;* ON *ari.*

Both Sumerian variants are also found in Akkadian as *erû* and *urinnu* (CDA 80, 426). PIE **h₃* is omitted in Sumerian similarly to (12) and (26), but there are also forms where the word initial /ḫ/ was possibly preserved as HU can be read *ḫu* or *u₁₁.*

    In contrast to *ᵍburu₄* 'crow' (9), this word is not necessarily onomatopoetic.

ED IIIa, OB (HU.URU.IN^(MUŠEN)) [23×, AF 25]

(5) Sum. **gan(a)** 'to bear young; give birth' ~ PIE ***ǵenh₁-** 'to give birth'; Hitt. *genzu;* Skr. *jāti* (जाति); TochB *kän;* Lat. *genus, gignere;* Goth. *kuni.*

In Sumero-Akkadian lexical lists translated into Akkadian as *walādu(m)* 'to give birth'. Affinity of these words is unclear. More frequently attested word with same meaning is *utud.*

ED IIIb to MB+ (GAN) [12×, AF 125]

(6) Sum. **géme**; ES **gi₄-in** ~ **ge₄-en₆** 'fem. worker' ~ PIE ***gʷʰen-** ′woman'; Hitt. **kuu;* Luw. *wanatti;* Skt. *gnā* (ग्ना); TochB *śana;* Gk. *gunē* (γυνή); OCS *žena;* Ir. *bean;* ON *kona.*

Logogram compound SAL.KUR (woman + foreign land) implies that the word was borrowed into Sumerian and denoted to foreign female slaves. In lexical lists translated with Akkadian *amtu* 'female slave'. Halloran (1999) has also suggested a Sumerian etymology {ĜEŠ} = 'tool' + {MI₂} = 'woman', but the IE origin is to be considered more plausible.

ED IIIb, OA, Lagaš II, Ur III, EOB, OB (SAL.KUR) [4025×, AF 0]

(7) Sum. **gigir₍₂₎(a)** 'chariot' ~ PIE ***kʷekʷlo-** 'wheel'; Luw. *kaluti-;* Skt. *čakrás* (चक्र); TochA *kukäl;* Gk. *kyklos* (κύκλος); Lith. *kãklas;* ON *hvel* ~ PSD ***tikVr**

'wheel; circle; chariot'; Tam. *tikiri* ~ Zyr. *gegil* 'wheel' ~ CK **grgar* 'wheel' ~ Sem. **galgal*

Similar word can be found from various languages, e.g. PIE, Sumerian, Kartvelian, Semitic, Dravidian and even Uralic (Zyrien *gegil* 'wheel' Parpola 2007). In most of the languages this word can be analyzed as a reduplicated verb 'to turn; roll; twist'. Sum. *kìr* 'to roll' → *gigir*; PIE **kʷel-* 'to turn; twist' → **kʷekʷlo-*; CK *gr-* 'to roll' → **grgar*. It is suggested that the word is of Indo-European origin, as the latest archaeological evidence points that wheeled vehicles were invented by PIE speakers of the Late Tripolye Culture (see A. Parpola 2007).

ED IIIa, OA, Ur III, EOB, OB (ĜEŠLAGAB×U/ĜEŠLAGAB×BAD), [437×, AF 37]

(8) Sum. ***gudʳ***, ***gu₄*** 'ox, bull; cattle'. ~ PIE **gʷou(s)-* 'cow; ox'; Hitt. **kuu̯āu-*; Skr. *go* (गो), Gk. *bous* (βοῦς); TochB *keŭ*; ON. **kú*;

Having almost perfect phonetic and semantic correspondence, this is one of the best cognates available (also proposed by G. Whittaker [2005]). Exact quality of the Sumerian word final phoneme /dʳ/ is uncertain, but a dental fricative or some kind of flap or tap has been suggested (Thomsen 1984) /*guθ/ or /*guɾ/.

I consider it probable that the Sumerian word originates from some older Mesopotamian language, as domestication of cattle predates the Sumerian migration for at least three millennia. Possibly related word is found in Egyptian *ka* 'ox' → fem. *kaut* 'cow'.

ED IIIa/b, OA, Lagaš II, EOB, OB, MB+ (GUD), [17947×, AF 182]

(9) Sum. ***gu-úr(u)***, ***buru₄*** 'crow; vulture' ~ PIE **kórw-eh₂* 'crow'; Skr. *śāri* (शारि); Lat. *corvus*. Lith. *krauklys/šárka*; OE *hræfn*.

Sumerian word is attested in numerous different forms, *buru₄*ᵐᵘšᵉⁿ and *gu-úr(u)*ᵐᵘšᵉⁿ being the most frequent. Graphemic *g~b* alternation has been explained to represent a labiovelar stop /gʷ/ (normally transcribed /ᵍb/ in Sumerology). Similarity may also be a result of onomatopoeia, which is fairly common in bird names. Compare with words meaning 'crow' in Turkish *karga*, Japanese *karasu*, Kiswahili *kunguru*, Navajo *gáagii* etc.

ED IIIa, Ur III, OB (NU₁₁.BURᴹᵁŠᴱᴺ), [13×, AF 0]

(10) Sum. ***gu₇(.rʔ)*** 'eat' ~ PIE **gʷer-* 'devour'; Skt. *girati* (गिरति); Av. *jaraiti*;

Gk. *bora* (βορά); Lith. *gerti*; Ir. *bráighid*; ON *krás.*

Reading with final **r* is controversial and based on alternative reading *kur₈.* Forms a possible minimal pair with Sum. *gur₁₆* ~ PIE **gʷer-* thus possibly belonging to the same layer of borrowings (cf. 14).

ED IIIa/b, OA, Lagaš II, Ur III, EOB, OB (KAGxGAR); [1672×, AF 236]

(11) Sum. **gúr** '(to) circle; ring; loop; to curb, subdue' ~ PIE **ǵʰer-* 'to enclose'; Hitt. *gurtas*; Skt. *harati* (हरति); TochB *kerccī*; Gk. *khórtos* (χόρτος); ON *gaðr.*

Very poorly attested. More frequently attested word for 'to enclose' is *niĝin.* Relation between these words is unclear, if one ever existed.

Rare (GAM), [?×, AF ?]

(12) Sum. **igi** 'eye; face'; ES. **i-bi** ~ PIE **h₃ekʷ-* 'eye'; Skt. *akṣi* (अक्षि); Toch. *ak/ek*; Lat. *oculus*; OCS *oko*; ON *auga.*

Similarly to (4) and (26), PIE **h₃* corresponds to Ø in Sumerian. Relation unclear.

ED IIIb, OA, Lagaš II, Ur III, EOB, OB (IGI), [1133×, AF 21].

(13) Sum. **izi** 'fire; brazier' → Akk. *išātu* id. ~ PIE **h₁eus-* 'to burn'; Skt. *oṣati* (ओषति); Lat. *ūrō*; Lith. *usnis*; ON *usli.*

Controversial due to phonetic and semantic inaccuracy. Possibly coincidental.

ED IIIb, OA, Lagaš II, Ur III, OB (NE), [257×, AF 303]

(14) Sum. **kur** 'mountain; netherworld; (foreign) land; east (wind)' ~ PIE **gʷer-* 'mount; ridge of hills'; Skt. *giri* (गिरि); Gk. *deiras* (δειράς); Arm. *leṙ*; OCS *gora* ~ GZ **gora-* 'mount; hill' ~ PU **wōre* < **woxri* 'mountain; forest'.

Has also phonetic values *gur₁₆*[16] and *kir₂/₅.* This is an ancient, areal word (cf. Bomhard [2008] PN: **borV*) found from numerous languages including Kartvelian and Uralic. In some Uralic and IE languages this word has also a meaning "woods; forest". In the Sumerian *kur* written with a determinative (GIŠ.KUR) means a "log" or "wood"; Akkadian *kiskibirru* 'kindling wood' (ePSD: *kur₍₄₎*).

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16 I consider it possible that this word may have included a labio-velar stop /*gʷbur/ as in *buru₁₄*(EN×GAN₂@t) ~ *gur₁₆*(KUR) 'harvest' → Akk. *ebûru* id.

Meanings 'foreign land' and 'east (wind)' are possibly of later secondary development and refer to the Zagros Mountains east of the Sumerian heartland in Mesopotamia.

Halloran (1999) has suggested a native Sumerian etymology for *kur:* {KI} = 'place'; {UR$_{2/3}$} = 'roof; mountain pass; root, base', but I consider it controversial due to Kartvelian, IE and Uralic evidence supporting its areal origin.

ED IIIa/b, OA, Lagaš II, Ur III, EOB, OB, MB+ (KUR), [2494×, AF 145]

(15) Sum. *luḫ(u)* 'to wash; clean' ~ PIE **leh$_2$w-* 'to wash'; Hitt. *lahhu* 'to pour'; Gk. *lousis* (λοῦσις); Lat. *lavō*; ON *laug*.

Also rarely attested *lìh* and *làh*. Words are very likely related due to their phonetic and semantic resemblance, however the direction of borrowing is unclear.

ED IIIb, OA, Lagaš II, Ur III, OB (LUH), [164×, AF 0]

(16) Sum. *maḫ(a)* '(to be) great; powerful; numerous' ~ PIE **mag^h-* 'to be able; to have power'; Skt. *magha* (मघ); Gk. *mēkhos* (μῆχος); ON *mega*; Lith. *magėti*; → Finn. *mahtaa* 'to be able', *mahti* 'might'.

Very well attested in literary and lexical texts. Relation of these words is probable but difficult to analyze.

ED IIIb, OA, Lagaš II, Ur III, EOB, OB (MAH), [3271×, AF 6]

(17) Sum. *musara* 'inscription; seal' → Akk. *musarûm* ~ PIA **mudra-* 'seal'; Skt. *mudrā* (मुद्रा).

Borrowed only to Indic branch. Sumerian etymology {MU} = 'name'; {SAR} = 'write' proves the Sumerian origin.

ED IIIb, OA, Lagaš II, Ur III, OB (MU.SAR.RA), [55×, AF –]

(18) Sum. *nu* 'no; not (to be); without; un-' ~ PIE **ne-* 'no'; Hitt. *natta* 'not'; Lat. *non.*

Found from various languages and often regarded as a Proto-Nostratic etyma. Sumerian *nu* also functions as a negative verb: *nu-ù-me-en* 'I am not', **nu-me-en* 'you are not', *in-nu-ù* 'he is not', **nu-me-en-dè-en* 'we are not' etc.

ED IIIb, OA, Lagaš II, Ur III, EOB, OB (NU). [785×, AF 101]

(19) Sum. *sí-sí* 'horse' ↔? Akk. *sisium* 'horse' ← Hurr. *issi(a)* 'horse' ~ PIE *h_1eḱwos* 'horse'; Hitt. *aśuwas*; CLuw *a-aš-šu*; Skt. *áśva* (अश्व); PIA. *aĉwa-*; Lat. *equus*; Alb. *sasë*.

Probably borrowed into Sumerian from Hurrians, who populated the northern parts of Mesopotamia[17] from ca. 2400 to the first millennium BC. It is unclear from which Indo-European language Hurrians borrowed the word, but the source language had definitely underwent satemization, thus being most likely of the Indo-Aryan group. The problematics of the PIE root *h_1eḱwos* and its possible connection to Hurrian *issia* is discussed further in Ivanov (1999).

Ur III, OB (^(ANŠE)SI$_2$.SI$_2$, ^(ANŠE)KUR), [90×, AF 0]

(20) Sum. *šáḫ(a)* 'pig; boar' → Akk. *šaḫû* 'pig'; Ug. *šeḫû* 'pig' ~ PIE *suh_1-* 'swine'; Skr. *sūkara* (सूकर); TochB *suwo*; Lat. *sūs*; Goth. *swein*.

Variants: *šaḫ*, *šúḫ*? (ŠUBUR). The reading with <a> is more widely accepted and supported by the Akkadian correspondent. Similar word is also found from Kartvelian languages, GZ *ešw-* 'wild boar, pig'. All these words probably share a common prehistoric etymology.

Halloran (1999) has suggested (again a very controversial) Sumerian etymology for *šáh* based on his hypothesis of the Proto-Sumerian articulatory symbolism: {ŠE} = 'grain'; {A} = 'water'; {Ḫ} = 'numerous; offspring' (see also Halloran 2005).

ED IIIa/b, OA, Lagaš II, Ur III, EOB, OB, MB+ (DUN), [1117×, AF 39]

(21) Sum. *še* 'barley; grain' → Akk. *še'um* ~ PIE *seh_1-* 'to sow; seed(?)'; Hitt. *šai-* 'to thread'; Skt. *sāyaka* (सायक); TochA *sāry*; Lat. *serere*; Goth. *saian*.

Despite their semantic inaccuracy, these words possibly share a common etymology. Sumerian word for 'to sow' is *uru$_4$*/*oru/ (see 28).

ED IIIa/b, Ebla, OA, Lagaš II, Ur III, EOB, OB, MB+ (ŠE), [28315×, AF 639]

(22) Sum. *še$_{21}$.d* 'to lie down (of animals); to rest; to sit' ~ PIE *sed-* 'to sit'; Skt. *sīdati* (सीदति); Av. *nišaðayeiti*; TochA *sätk*; Gk. *hezomai* (ἕζομαι); OCS *sěděti*; Gaul. *essedum*; ON *sitja*.

Translated into Akkadian as *rabāṣu* 'to sit; be recumbent (of animals)'. This

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17 Hurrian lands were called *Išuwa* 'horse-land' by the neighboring Hittites.

word is probably of Emesal origin[18] (cf. ***núd*** 'lie down (humans) ~ ***šed***). Relation of this word with PIE unclear.

ED IIIb, OB (HU.NA$_2$), [9×, AF ?]

(23) Sum. **šeg$_9$** 'snow; frost; cold weather' ~ PIE ***sneig^{wh}*** 'snow'; Skt. *sneha* (स्नेह); TochB *śiñcatstse*; Gk. *nipha* (νίφα); Lith. *sniegas*; ON *snjór*.

Possible connection to Sumerian *šeg* was first introduced by Pokorny (1959). However, differing from Pokorny, I consider it possible that the Sumerian word was not originally pronounced /šeg/.

Sumerian word is alternatively written with a compound A.ŠU$_2$.NAGA traditionally read *šeg$_4$*. In my interpretation, this represents the original pronunciation: Sign A stands for a semantic complement {water}[19] where ŠU$_2$ represents a phonetic complement indicating, that the last sign should be pronounced with a syllable initial consonant cluster /*šneg/. This would be similar to to the way Hittites scribed their consonant clusters in cuneiform e.g. *pa-ra-a* /prā/ 'to; forth'. Because syllable initial consonant clusters were prohibited by Sumerian phonotactics, /*n/ was dropped in the later language stages and word was simplified into /šeg/ (ŠEG$_9$) as shown in OB syllabic writing *še-eg*[20].

ED IIIb, Lagaš II, Ur III, OB (ŠEG$_9$), [11×, AF 10]

(24) Sum. ***tag(a)*** 'to touch; take hold of' ~ PIE ***tag-*** 'to touch'; Gk. *tetagōn* (τεταγών); Gaul. *Taximagulus*; OE *þaccian.*

Semantic and phonetic resemblance is flawless. Sumerian *tag(a)* is possibly somehow related to Sumerian verb *tuku* 'to have; to acquire'. Similar words are also found from Dravidian and Turkic languages: Proto-North-Dravidian **tak-* 'touch; Proto-Turkic *dẹg* 'to touch; to reach'. Possibly an areal wanderwort. Also often suggested as a relic of the Proto-Nostratic macrofamily.

ED IIIb, OA, Ur III, OB, MB (TAG), [266×, AF 48]

(25) Sum. ***ú-li-in*** / **wu$_x$-li-in** 'colored twine/wool' → Akk. *ulinnu* id. ~ PIE

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18 Main dialect <n> corresponds to Emesal <š> in certain words.

19 Similarly to A.AN {WATER.SKY} = *šèĝ* 'rain'.

20 I have previously suggested that ŠE could have a phonetic value /*ašna/ or /*šne/ due to one of its alternative readings: *ášnan; šne-eg ~ ášna-ig*. Word initial /a/ in the latter could then be regarded as a prosthetic vowel.

wel 'wool'; Hitt. *ḫulana*; Skt. *ūrṇā* (ऊर्णा); Lat. *vellus*; Goth. *wulla*; → Finn. *villa* 'wool'

More common word for 'wool' in Sumerian was *mug* → Akk. *mukku*. Word *ú-li-in* was most likely borrowed into Sumerian, and denoted to some particular type of colored twine imported from an Indo-European language speaking region.

Syllabic writing alludes to late borrowing.

Rarely attested (U₂.LI.IN), [?×, AF 0]

(26) Sum. ***u₈(.a)*** 'ewe'; also read ***us₅*** 'sheep' ~ PIE ***owi***; ***h₃owi(s)*** 'sheep; ewe'; Hitt. *ḫawi*; Skt. *ávika* (अविक); TochB *āuw*; Lat. *ovis*; Goth. *awēþi*; → Finn. *uuhi* 'ewe'

Suggested also by Whittaker (2005). This pair is semantically credible, but difficult to validate due to absence of /w/ in Sumerian writing. PIE *h_3 seems to be omitted as in (4) and (12).

ED IIIa/b, OA, Lagaš II, Ur III, OB, MB+ (LAGAB×GUD+GUD), [4255×, AF 86]

(27) Sum. ***urbara*** 'wolf' ~ Akk. *barbaru* id. ~ PIE ***ẉlkʷo-*** 'wolf'; Hitt. *ulippana*; Skt. *vṛka* (वृक); Lat. *lupus*; Av. *verhka-*; TochB *walkwe*; Alb. *ulk*; Lith. *vilkas*; ON *úlfr*.

Mostly attested in OB period but few ED IIIa attestations and a native etymology point to earlier Sumerian origin: {UR} = 'dog'; {BARA} = 'outside'. I consider it possible that the PIE word may have a Sumerian etymology regardless of its phonetic appearance, as names of carnivorous beasts were often tabooed and exposed to intentional euphemistic deformation (see Allan & Burridge 1991).

ED IIIa, OB (UR.BAR.RA), [33×, AF 0]

(28) Sum. ***uru₄*** 'to sow; cultivate' → Akk. *erēšu* id. ~ PIE ***h₂erh₁-*** 'to plow'; TochA *āre*; Arm. *arawr*; Lat. *arō*; Lith. *arti*; OCS *orati*; OIr. *airim*; ON *arðr*. → Finn. *aura* 'plow'.

Possibly pronounced /*oru/. Regardless of the semantic inaccuracy, these words share likely a common prehistoric etymology.

ED IIIb, OA, Ur III, OB (APIN), [359×, AF 181]

(29) Sum. **urud(a)** 'copper' → Akk. *erû* 'copper' ~ PIE *h_1reud^h-ó-* 'red'; Skt. *rudhira* (रुधिर); Av. *raoδita*; TochA *rtär*; Gk. *eruthros* (ἐρυθρός); Lith. *raudonas*; Gaul *roudos*; ON *rjóðr*; PGerm. **hrauta(z)* 'iron' → Finn. *rauta* 'iron' ~ PSD **er-* 'dark-brown color'; Tamil **eruvai* 'blood; copper'.

Possibly pronounced /*oruda/[21]. Despite the semantic inaccuracy with the PIE these words probably share a common etymology. The Sumerian initial vowel <u> = /o$^?$/ can be explained as a prosthetic vowel to overcome the phonotactic restriction disallowing syllable initial consonant clusters. /h/ may have dropped in later language stages similarly to laryngeal[22] /*h/ in Sumerian: /*hid/ → íd 'river' (→ Hebr. *Hideqqel* 'Euphrates'; /*hey.gal/ → é.gal 'palace' (→ Ugaritic *hkl* 'palace').

ED IIIb, OA, Lagaš II, Ur III, EOB, OB (URUDA/DUB), [992×, AF 61]

(30) Sum. **úš** 'blood; gore' ~ PIE **ésh₂r-, *h₁ésh₂r-* 'blood'; Hitt. *ēšar*; Skt. *ásr̥j* (असृज्); TochA *ysār*; Arm. *ariwn*; Gk. *éar* (ἔαρ); Ltv. *asins*.

Relation of these words is unclear. Word *úš* (UŠ₂) is also used as a singular hamṭu (preterite) stem of a suppletive verb *ug₇/₅* 'to kill; to die; to be dead': *ba-úš-en* 'you died' ~ *ba-ug₅-en* 'you will die'. It is not certain to me if *úš* 'to kill; to die' is derived from *úš* 'blood' or vice versa, or if they are just coincidentally homonymous. In the case of homonymy Sumerian word could be a late loan (OB period) from some IE language; otherwise it is to considered as an original word due to its existence in a suppletive verbal paradigm.

OB (UŠ₂), [50×, AF ?] in meaning 'blood'; ED IIIb, OA, Lagaš II, Ur III, EOB, OB (UŠ₂), [3556×, AF 65?] in meaning 'to kill; ~ die; death'.

Conclusion

Entries (1), (3), (7), (17) and (27) are probably loan words from Sumerian, (3) being intermediated by Akkadian and (7, 27) possibly by some unknown, now extinct languages. In contrary, entries (6), (19), (23) and

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21 See Appendix A in Smith 2007.
22 Sumerian had also a pharyngeal fricative /ḥ/ which retained in all positions.

13 13

(25) are certainly not of Sumerian origin, and most likely borrowed from the PIE, (19) being borrowed through Hurrian.

Words (8, 20, 21, 26, 28) and (29) represent mostly agricultural terminology predating the Sumerian migration. These words are not necessarily of the Sumerian or Indo-European origin, but relics of the local prehistoric areal vocabulary. Also (1) could be included in this group if the Sumerian etymology is not accepted.

The rest of the entries (2, 4, 5, 9, 10, 11, 12, 13, 14, 15, 16, 18, 22, 24 and 30) are more problematic to analyze, even though some of the words show a clear phonetic and semantic resemblance.

Abbreviations

Periods and language stages

ED IIIa	Early Dynastic IIIa (2750 BC)	Old Sumerian
ED IIIb	Early Dynastic IIIb (2550 BC)	"
OA	Old Akkadian (2340 BC)	"
Lagaš II	2nd Dynasty of Lagaš (2093 BC)	"
Ur III	3rd Dynasty of Ur (2050 BC)	Neo-Sumerian
EOB	Early Old Babylonian (2000 BC)	"
OB	Old Babylonian (1900 BC)	Post-Sumerian
MB+	Middle Babylonian and later (1500+ BC)	"

Languages

Akk.	Akkadian		Ltv.	Latvian
Alb.	Albanian		NA	Neo-Assyrian
Arab.	Arabic		OCS	Old Church Slavonic
Arm.	Armenian		OE	Old English
Av.	Avestan		OG	Old Georgian
CLuw.	Cuneiform Luwian		OIr	Old Irish
CK	Common-Kartvelian		ON	Old Norse
ES	Emesal Sumerian		PCelt.	Proto-Celtic
Finn.	Finnish		PIA	Proto-Indo-Aryan
Gaul.	Gaulish		PIE	Proto-Indo-European
Gk.	Greek		PN	Proto-Nostratic
Goth.	Gothic		PSD	Proto-South-Dravidian
GZ	Georgian-Zan		PU	Proto-Uralic
Hebr.	Hebrew		Sem.	Proto-Semitic
Hitt.	Hittite		Skr.	Sanskrit
HLuw.	Hieroglyphic Luwian		Sum.	Emeĝir Sumerian
Hurr.	Hurrian		Tam.	Tamil
IE	Indo-European		TochA	Tocharian A
Ir.	Irish		TochB	Tocharian B
Lat.	Latin		Ug.	Ugaritic
Lith.	Lithuanian		Zyr.	Zyrien

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<http://en.wiktionary.org/wiki/Appendix:List_of_Proto-Indo-European_roots>

APPENDIX I – SUMERO-PIE VOCABULARY

From Sumerian to Indo-European

(1)   *anše* 'donkey; equid'   → European **assin* 'donkey'

(3)   *dub* 'clay tablet' → Akk.   → Hitt. *tuppi* 'clay tablet'

(17)   *musara* 'inscription'   → Indo-Iranian **mudra* 'seal'

(27)   *urbara* 'wolf' → (?)   → PIE **u̯lkʷo-* 'wolf'

From Indo-European to Sumerian

(6)   *gi₄-in* 'female worker'   ← PIE **gʷʰen* 'woman'

(19)   *sí-sí* 'horse'   ← Hurr. *issia* ← Indo-Iranian (*?)

(23)   *šeg₉ / *šneg₄* 'snow'   ← PIE **sneigʷʰ* 'snow'

(25)   *ú-li-in* 'colored twine'   ← Unknown IE language

Possibly of Proto-Historic origin

(7)   *gígir(a)* 'chariot' → (?)   ↔ PIE **kʷekʷlo-* 'wheel'

(8)   *gu₇(dʳ)* 'ox; bull; cattle'   ↔ PIE **gʷou(s)-* 'cow'

(20)   *šáḫ(a)* 'pig'   ↔ PIE **suh₁-* 'pig'

(21)   *še* 'barley; grain'   ↔ PIE **seh₁-* 'to sow'

(26)   *u₈(a)* 'ewe'   ↔ PIE **h₃owis* 'ewe; sheep'

(28)   *uru₄* 'to sow; cultivate'   ↔ PIE **h₂erh₁-* 'to plow'

(29)   *urud(a)* 'copper'   ↔ PIE **h₁reudʰ-ó-* 'red'

Origin and Sumero-Proto-Indo-European relation unclear

(2)   *bur(u(d))* 'to perforate'   ? PIE **bʰer(e(dʰ))* 'to perforate'

(4)   *erin; ḫurin* 'eagle'   ? PIE **h₃orno-* 'eagle'

(5)   *gan(a)* 'give birth'   ? PIE **genh₁-* 'to give birth'

(9)   *ᵇgur(u)* 'crow'   ? PIE **kórw-eh₂* 'crow'

(10)   *gu₇(r)* 'to eat'   ? PIE **gʷer* 'to devour'

(11)   *gúr* 'to circle'   ? PIE **ǵʰer-* 'to enclose'

(12)   *igi* 'eye'   ? PIE **h₃ekʷ-* 'eye'

(13)   *izi* 'fire; brazier'   ? PIE **h₁eus-* 'to burn'

(14)   *kur* 'mountain'   ? PIE **gʷer* 'mount'

(15)   *luḫ(u)* 'to wash'   ? PIE **leh₂w-* 'to wash'

(16)   *maḫ(a)* 'to be powerful'   ? PIE **magʰ* 'to be able; ~ power'

(18)   *nu* 'no'   ? PIE **ne-* 'no'

(24)   *tag(a)* 'to touch'   ? PIE **tag-* 'to touch'

(22)   *šed* 'to lie down; to sit'   ? PIE **sed-* 'to sit'

(30)   *úš* 'blood; to die; to kill'   ? PIE **(h₁)ésh₂r-* 'blood'