



From nouns to numerals

The birth of the Indo-European decimal system and its implications for Anatolian 'four'

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Foreign Elements in the Proto-Indo-European Vocabulary

Anatolian and the rest of IE can't agree on 'four'

Why?

Because "[the] process of forming concrete numerals divorced from their lexical meaning must not have been concluded by the departure of Anatolian as its speakers saw fit to describe four as the 'lesser'." Bjørn (2017: 141)

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The basic numerals of (Proto-)Indo-European

	<u>Internal clues</u>	<u>External evidence</u>
1.	<i>*(H)oi-/sem-</i>	
2.	<i>*dwo-</i>	
3.	<i>*trei-</i>	
4.	<i>*k^wetwor</i>	Anatolian
5.	<i>*penk^we</i>	‘the whole’, ‘finger’
6.	<i>*s(w)ek’s</i>	IE inconsistencies
7.	<i>*septm</i>	Afro-Asiatic
8.	<i>*(H)ok’to</i>	Kartvelian ‘four’
9.	<i>*(h,en)neu-</i>	
10.	<i>*dek’m</i>	‘hand’

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4. 'four', a tale of three roots



1. **k^wetwor*

- Common IE numeral 'four'
- No established etymology

2. *(*h₃*)*ok't-*

- Logical antecedent of a dual 'eight', pos. attested in Av. *ašti* 'breadth of four fingers'
- Probable loan relation with Proto-Kartvelian **otxo* 'four'

3. **méh₁u-*

- Anatolian 'four', e.g. Hittite *miyu-*, HLuw. *maauua-*, Lyc. *mupñm-*
- Possibly related to Myc. *me-wi-jo* 'less'

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5. ‘five’, a full hand

- **penk^we*
 - Core IE numeral for five
 - Possibly reflected in Luwian *5-wa*
- Etymologically related to the ‘hand’:
 - Germ. **fingraz* ‘finger’
 - Hittite *panku-* ‘all, whole’ (Polomé 1969: 99ff.)
 - Common phenomenon, cf. Semitic (Lipiński 1997: 287)



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6. 'six', internal problems for external source

- **s(w)ek's*
 - Core IE numeral for six
 - Onset seemingly problematic, e.g. Goth. *saihs* vs. Arm. *vec*.
 - No Anatolian data
- External comparanda
 - Semitic **šid̥t*
 - Kartvelian **ekws*
 - Gains saliency in light of 'seven'



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7. 'seven', one-to-one with Semitic

- **septm*
 - PIE numeral for seven
 - Faithfully preserved in all branches, including Anatolian
 - cf. Hittite *si-ip-ta-mi-ya* = *VII-mi-ya* (Neu 1999)
- Strong external evidence, primarily Semitic
 - Semitic definite form **s-b-t-m* a perfect candidate (Dolgopolsky 1993: 243)
 - 'The seventh' apparently the vehicle
 - Likely of agricultural and/or cultic significance (Nichols 1997: 127)
 - Secondarily also transferred from IE languages to Fenno-Ugric and Chinese (Bjørn 2017: 124f.)
 - Kartvelian **šwid* (Klimov 1985: 206)



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8. ‘eight’, the grammatical dual

4 x 2

- **(H)ok'tō-*
 - Core IE numeral for eight
 - Possible Anatolian evidence in HLuw. *8-wa-a-ī*
- Grammatically recognized as a dual (cf. Brugmann 1904: 365)
 - Substantiated by:
 - Avestan *ašti* ‘breadth of four fingers’ and
 - Kartvelian **otxo* ‘four’

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9. ‘nine’, the new one?



- **(h₁en)neu-*
 - Core IE numeral for nine
 - Anatolian evidence in the unspecified Lycian numeral *nuñtāta*
- Etymological interpretation requires ‘nine’ to be:
 - ‘newer’, i.e. more recently numeralized, than ‘eight’ and ‘ten’
 - the missing link between the octesimal system and two hands

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10. 'ten', the other hand

- **dek' m̥*
 - Core IE numeral for ten
 - No Anatolian evidence
- Etymology:
 - **dek'*-s 'right hand', continued in Latin *dexter* (Mallory-Adams 1997: 403)

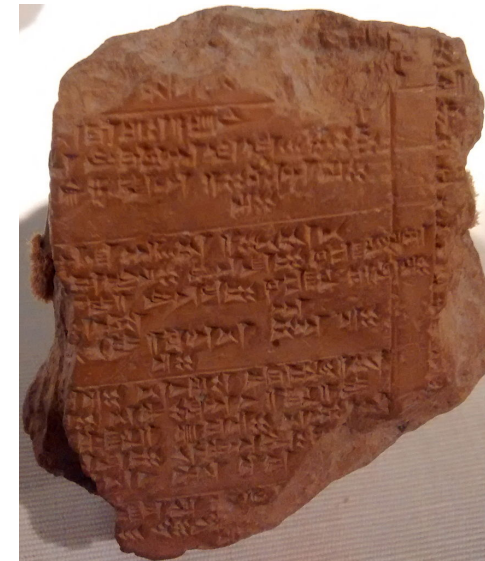


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Anatolian *vis-a-vis* Core IE numerals

- 1 to 3 are common IE .
- 4 'four' is demonstrably different .
- 5 'five' maybe, cf. Luw. *5-w(a)* .
- 6 'six' is unknown .
- 7 'seven' is common IE .
- 8 'eight' maybe, cf. HLuw. *8-wa-a-i* .
- 9 'nine' is common IE .
- 10 'ten' is unknown .

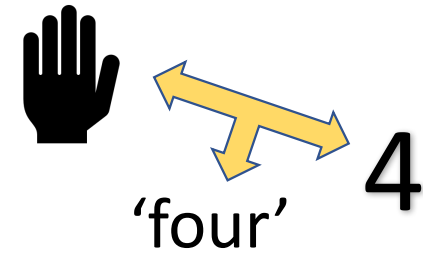


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Numeral or lexical substitution?



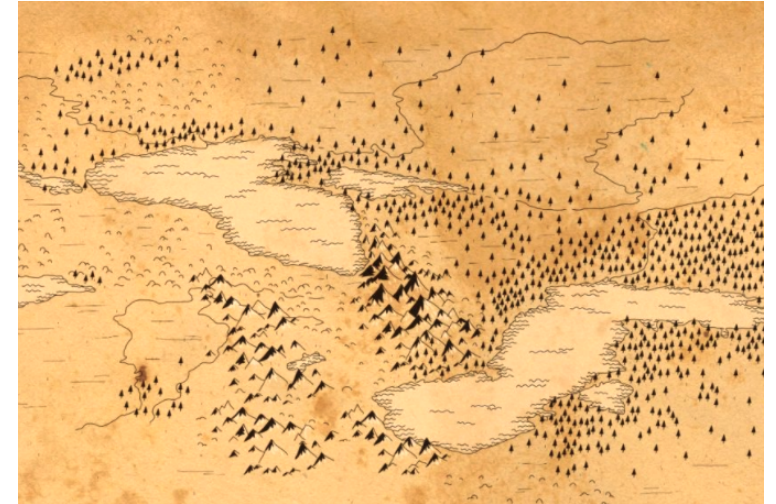
- In the attested IE languages numeral substitution is exceptionally rare
 - Best example is Romani (Matras 2009: 201f.)
- But lexical substitutions are not
- The Anatolian substitution of 'four' is unique in an IE setting

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Circumstantial evidence

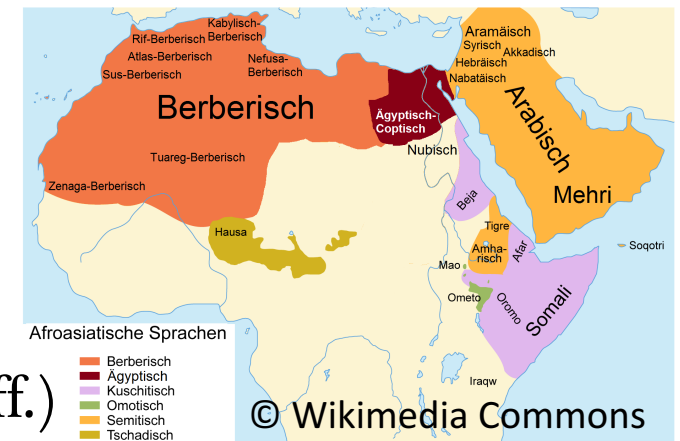
- Transparent system
 - six-seven borrowings
 - five-ten hands
- Uralic only counted to 'two' (Napolskikh 2003)
 - Neighbors or cousins ?
 - Share pronouns, some basic lexicon, but not numerals.
 - Both from the northern reaches of the Volga? (cf. Anthony 2007 and Carpelan & Parpola 2001)
 - '1-2-3-many' typical of less complex societies
 - cf. Piranha, Guarani, Kayardild (Australia)



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The Split: Afro-Asiatic edition





- "Northern Afro-Asiatic" (data from Lipiński 1997: 282ff.)
- Egyptian, Semitic and Libyco-Berber
- Same numerals for 'six' (also Hausa) and 'seven' (later introduced to PIE)
- Also partial correspondences with 'three', 'five', 'eight', and 'nine'
- Different root for 'four' in all three branches!
- Comparable Core IE system only in place by Proto-Semitic

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Language family						Numerical stage	
Uralic		Pre-PIE		Afro-Asiatic		Subitizing only	
Samoyedic	Fenno-Ugric		Proto-Indo-European		"Northern Afro-Asiatic"		Process of numeralizing nominal quantifiers
	Fennic	Ugric	Core IE	Anatolian	Semitic	Egyptian	
						Closed numeral category	

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Caveats

- **miye-* could be a loan that replaced PIE ‘four’
 - Cf. ‘six’ and ‘seven’
 - although there is no evidence of ‘older’ IE alternants
 - and from where? A candidate is missing
 - *kutruuan* ‘witness’ may be a relict (cf. Kloekhorst 2008: 499ff.)
 - But this theory does not preclude **k^wetwor* from existing in Anatolian!
- Numbers may spread horizontally between dialects
 - This is probably partially the case with Libyco-Berber



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Hypothesis



- The PIE decimal system induced by contacts with Neolithic civilization
- Part of a broader spread of the decimal system roughly 5.000-3.000 BCE
 - cf. Mallory-Adams (1997: 398) and Helimski (2001: 190f.)
- ‘Seven’ most likely the first higher numeral to fall in place
- The higher numerals are still generally lexical as Anatolian split
 - Anatolian favors ‘less’ to **k^wetwor*
 - The system is numeralized independently

Anatolian vs. Core-IE

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Thank you for your attention !

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