

## Hadza as Afrasian?<sup>1</sup>

In this paper, I address the issue of the genetic affiliation of Hadza, the language of a tiny tribe of Tanzanian hunter-gatherers, genetically separated from other groups of *Homo sapiens* by some hundred thousand years and occupying the same area for over 50,000 years; the language was formerly considered to be Khoisan because of its click-containing phonetic inventory, but is now regarded as an isolate. The paper provides parallels from various Afrasian (Afro-Asiatic) languages, tied together through regular consonant correspondences and fairly strict semantic criteria, to the extensive Hadza lexical material collected by American linguists with the help of their Hadza collaborators; the parallels are drawn from the standard 100-item Swadesh wordlist (including the 50-item subset of the most stable items based on the selection of Sergei and George Starostin) as well as from other semantic groups. The author analyzes other explanations for these matches (such as accidental look-alikes; borrowings into Hadza from neighboring and even geographically distant Afrasian languages; common substrate), but concludes that the most plausible explanation is genetic affinity. The position of Hadza within the Afrasian super-family is, according to lexicostatistics, more or less equally close to the Omotic and Cushitic families; glottochronology dates the separation between Proto-Hadza, Proto-Cushitic and Proto-Omotic to the turn of the 10-9<sup>th</sup> millennia BCE when a group of Afrasian speakers presumably made it to Northern Tanzania and passed on their language to the (presumably) formerly Khoisan-speaking Hadza ancestors.

*Keywords:* Hadza language; Afrasian languages; genetic affinity; sound correspondences; lexicostatistics; etymology; lexical borrowing.

The Hadza people, a group of Tanzanian hunter-gatherers, are one of the most enigmatic peoples in the world, genetically separated from other early *Homo sapiens* groups by about a hundred thousand years (Tishkoff et al. 2007). They live close to the Olduvai Gorge, sometimes called the “Cradle of Mankind”, and have occupied the same area at least since the beginning of the Later Stone Age, 50,000 years ago or perhaps even longer. Exposed to powerful influences from different cultures, confirmed historically, genetically and, what is particularly important for our research, linguistically through many lexical borrowings, the Hadza have somehow held on to their traditional way of life, preserving their astounding singularity in the midst of a rapidly changing world. Only recently their culture, language and identity have become endangered.

Their language used to be considered Khoisan because of the presence of “click” phonemes (Greenberg 1966). However, lexicostatistical analysis (Starostin 2013) did not confirm the kinship with the Khoisan languages; for the most part, the language is today considered to be an isolate<sup>2</sup>.

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<sup>1</sup> In memory of my untimely departed beloved son Mikhail Militarev (Jan. 18, 2005 – Nov. 21, 2022) who not only helped me with this investigation but whose deeply personal worry over every language and people that is endangered has moved me to this study and whose essay (Militarev 2021) introduced me to the phenomenon of the Hadza people.

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<sup>2</sup> One should not pay serious attention to ludicrous assumptions about its status as a “first language”, even if published in a highly respectable scientific journal (Pennisi 2004).

The assumption of Afro-Asiatic affinity was first expressed by Derek Elderkin (1982) and cautiously supported by George Starostin (2008)<sup>3</sup>. Some of the lexical matches suggested by Elderkin and Starostin are convincing, but the proposed parallels with non-obvious consonant correspondences (such as Hadza *w* vs. \**f* or Hadza *h* vs. \**p*) are not confirmed by my analysis. However, further research by the author relying on the updated Afrasian etymological database by Militarev and Stolbova and the Hadza lexicon by Kirk Miller et al. (2021)<sup>4</sup> has revealed several hundred lexical matches between Hadza and all the Afrasian branches, showing regular and unsophisticated “one-to-one” correspondences in root consonants. Curiously, it turned out that, other than the presence of nine clicks and such secondarily developed traits as weak opposition of the dentals, lack of distinction between *l* and *r* and between *h* and *ħ*, lack of post-velars (uvulars) and a few other nuances (such as pre-nasalized plosives and affricates in Hadza not postulated for Proto-Afrasian, and labialized velars in Hadza whose PAA status is disputed), the Hadza system of consonants (Table 2) is very similar to the one that was first outlined for Proto-Afrasian by Dolgopolsky (1973), further elaborated in the late 20th century by Igor Diakonoff and his team<sup>5</sup> and, more recently, amended by several leading Afrasianists (Table 1):

*ḗ (?)	*p	*b	*f	*m
*ṭ	*t	*d		*n
*ḥ [tsʰ]	*c [ts]	*ʒ [dz]	*s	
*ḥ̣ [tʃʰ]	*č [tʃ]	*ʒ̣ [dʒ̣]	*š	*r
*ḥ̣ [tʃʰ]	*ĉ [tʃ]	*ṣ̌ [sʃ]		*l
*ḥ̣	*k	*g		*y
*ḥ̣ <sup>w</sup> (?)	*k <sup>w</sup> (?)	*g <sup>w</sup> (?)		*w
*ḥ̣ <sup>h</sup> (?)	*k <sup>h</sup> (?)	*g <sup>h</sup> (?)		
	*ħ	*ɣ		
	*ħ <sup>w</sup> (?)	*ɣ <sup>w</sup> (?)		
	*ħ	*ʕ		
	*h	*ʔ		

Table 1. The Proto-Afrasian consonantal system.

<sup>3</sup> “It seems that the Afro-Asiatic hypothesis for Hadza is no less, and perhaps even more likely, than the Khoisan one... None of this means that Hadza should be automatically assigned to the Omotic group; to do this, it is necessary to have a more complete corpus of etymologies with established phonetic correspondences... In order to somehow really move towards clarifying the “Hadza-Afro-Asiatic” problem ... it is necessary to conduct preliminary lexicostatistical counts with other branches of the Afro-Asiatic family” (Starostin 2008; translated from Russian). It might be claimed that all these perfectly fair conditions have been fulfilled by the present author.

<sup>4</sup> To the best of my knowledge, the dictionary still remains in the status of unpublished manuscript since it has not been yet tone-marked.

<sup>5</sup> Diakonoff et al. 1992; cf. also Takács 1999: 266–270. A specific feature of the Proto-Afrasian consonant system, which is not preserved in most daughter languages, but best explains the consonantal peculiarities of them all, is the pattern of three local consonant series each consisting of four consonants, represented by triads of a voiced, voiceless and glottalized / “emphatic” affricate (with the lacuna of a voiced affricate in the lateral triad) and a corresponding sibilant. The system is practically identical with that of Hadza; it goes without saying that, while reconstructing the Proto-Afrasian consonantal system, we had no idea about the phonology of Hadza.

p <sup>h</sup>	p	b	(p')	f
mp <sup>h</sup>	mb			
t <sup>h</sup>	t	d		
nt <sup>h</sup>		nd		
	c [ts]	ɟ [dz]	ç [ts']	s
	nc	nɟ		
	č [tš]	ǰ [dž]	č̣ [tš']	š
		nǰ		
	ĉ [tl]	ĉ̣ [tl']		ŝ [sl]
k <sup>h</sup>	k	g		
ŋk <sup>h</sup>		ŋg		
k <sup>hw</sup>	k <sup>w</sup>	g <sup>w</sup>		
h/ḥ	w	y		
l/r	m	n	ŋ	ŋ <sup>w</sup> ʔ

Table 2. Hadza consonants (elicited from Sands, Maddieson, & Ladefoged 1996: 174).

Matches between lexemes from various semantic fields could be accounted for by borrowing into Hadza (cf., for example, Elderkin 1978), chance coincidence, or genetic relationship. However, mass coincidence or mass borrowing from diverse and geographically distant Afrasian languages by the Hadza, known for their permanent presence in the same area, do not *a priori* seem like a realistic solution. To test the hypothesis of kinship, it would be required to apply the lexicostatistical method, in the process of slowly transforming from 'controversial' into 'semi-accepted' by the linguistic mainstream<sup>6</sup>. It has been applied using the Swadesh 100-word list compiled for Hadza by Kirk Miller (Miller 2021), also taking into account the annotated list by George Starostin (Starostin 2012), as well as the 50-item wordlist of the universally most stable words (Starostin 2010) as applied to the Afrasian Lexicostatistic Database, composed by the author and connected to the Afrasian Etymological Database which allows to etymologize the Afroasiatic lexemes from the lists.

The average percentages of matches obtained with languages across all Afrasian branches both for the 50- and the 100-item wordlists (see below) do not produce the impression of random numbers. In particular, the subsystem of most stable personal pronouns ('I' — 'we' — 'thou'), a solid marker of linguistic kinship upon first approximation, is practically identical with the Common Afrasian system, all but precluding the scenario of borrowings to Hadza from various Afrasian languages (although some such cases are also elicited or tentatively supposed) or by a common substrate, to say nothing of random coincidences. The least controversial explanation is that "proto-Hadza" is an early offshoot of the Afrasian macrofamily in Africa, superimposed on an unknown (most likely Khoisan) substrate.

### Hadza 100-item wordlist: selected items with AA matches

*Note:* in accordance with the rules of the Swadesh-Starostin method in lexicostatistics, only those words, both in Hadza and any Afrasian language, whose meaning fully coincides with the meaning of the correlated item on the list are scored as positive matches (i.e. the

<sup>6</sup> The author belongs to that particular school of historical-comparative linguistics which considers a certain percentage of direct matches in core vocabulary to be the most reliable criterion for establishing both the fact of linguistic kinship and its degree.

meaning in Hadza and the meaning in the compared AA language(s) must be identical). To avoid confusion, each such word or a reconstructed form representing two or more languages is preceded by the sign =.

Additional *comparanda* are adduced (after '< AA') to demonstrate the reliability of the given AA etymology; naturally, these do not add to the score.

Further conventional symbols are as follows: (1) '~' simply means 'compare'; (2) '//' is a separator between the various AA branches; (3) ';' is a separator between groups within the same branch/family; (4) '◊' introduces bibliographic references to the sources.

1. 'all' *waʔi* ~ Omot. N.: =Basketo *woy-ci*, =Doko *way-ci* (< *way-t-*) 'all' <AA \**waʔ-* 'one, whole': Sem.: Arab. *wʕy* 'to collect, put together in one place' // Berb. \**yaw-n/t* (<\**yawʕ-*) 'one' // Eg. (Pyr.) *wʕ* 'one' // Cush. S.: Ma'a *we* 'one', etc. ◊ AADB 2873.

6. 'bird' *tʰitʰi*, *titiʔ* ~ =Chad. \**diʔ(diʔ)-* 'bird (gen.)': W.: =Kiir *dot*, =Ngizim *ḍúta*, etc., C.: =Podoko *ḍī-ya*, =Mofu *ḍiy-áŋ*, E.: =Lele *tidi*, =Migama *ḍiḍú*, =Mubi *ḍiḍúo*, etc. <AA \**diʔ(diʔ)-* '(k. f) bird': Eg. (Med.) *idw* 'Art Vogel' // Sem. \**daʔy(-at)-* 'bird of prey': Hbr. *dāʔā*; Arab. *daʔy-at-*, etc. ◊ ADB 360. Cf. SED II No. 64.

9. 'blood' *átʰaʔmá-*, *átámá* [ʔatʰama]<sup>8</sup> =AA \*(*ʔa-*)*dam-* 'blood': =all Sem. (except Mandaic and MSA) // =all Berb. (except Tuareg) // =Chad. \**dVm-* > *t-dVm-* > *H/t-dVm-*: W.: Angas *toom*, Bolewa *dòm*, Tsagu *ʔiim-an*, Bade *tə-dóm*, etc.; C.: Tera *tòm* // ◊ AADB 93; Stolbova 2016 #148.

10. 'bone' *midla* (Miller et al. 2021), *mitl'a* (Sands 2012: 5) =AA \**ma/iĉ-* 'bone': =Cush. C. \**ḥaṣ-* (<\**maṣ-*); =E.: HEC: Darasa, Burji *mičč-o*; Yaaku *moč-o*; =S.: Dahalo *miĉĉ-o*<sup>9</sup> // =Omot. N.: Mao (Sezo) *málĉ-é* ◊ AADB 1269.

16. 'come' *dza* (in Miller et al. 2021: 1, commented: Bantu) =Chad. W.: Hausa *zó*, C.: Gidar *zó* 'to come' <AA \**ʒaʔ/w-* 'go (slowly), come': Eg. (OK) *izy* 'go!' (alternately < \**ʒVʔ-*) // Berb.: Tuat *e-zzu* 'to march', Mzab, Wargla *zwa* 'to go' (alternately < \**ʒVʔ-*) // Cush. E.: Dullay: Tsamai *zey-* 'go' ◊ AADB 641; Takács 1999: 176; Stolbova 2016 #788.

17. 'die'<sup>10</sup>.

21. 'ear' *fiatʰapiʔʰi* (in Miller et al. 2021: 1, commented: <\**fiatsʰape* 'leaf'<sup>11</sup>) (met. < \**hačači piʔ*?) =Omot. N.: Omoto \**Hayṣ-* 'ear', Bworo *aayč-ē* (cf. also S.: Ongota *ʔāš*, *haš* 'hear' and 'leaf') <AA \**ʎ/ħaṣ-* 'leaf; ear' ◊ AADB 1093.

23. 'eat' *seme*, *simi* =AA \**suʔVm-* 'eat': =Eg. (BD) *sɛm* 'eat' // =Chad. \**sVm-* 'eat': W.: Angas *səm*, Sura *sum*; C. \**sal-im-* ◊ AADB 1252; Stolbova 2009 #258.

<sup>7</sup> The other generic term for 'bird', *tsiriiri* [ʔsiliʔili] (for the symbol ʔ see fn. 12) is likely a loan from Iraqw *čirši*.

<sup>8</sup> In addition to this match, Hadza *tʰitʰi* vs. AA \**d* (mostly with \*ʔ or ʕ in the same root?) is confirmed by Hadza 'bird' *tʰitʰi*, *titi* vs. Chad. \**diʔ(diʔ)-* 'bird (gen.)' (above); Hadza *tetʰaʔo* vs. AA \*(*y*)*daʕ-* 'know' (#45); Hadza *ʔutʰume-ko* vs. AA \**daʔVm-/ʔudum-* 'spear' (below); Hadza *bitití-bii* 'fierce' vs. AA \*(*ʔV-*)*bVd-* 'crazy' (below), etc.

<sup>9</sup> Similarity between the Hadza and Dahalo terms made various authors suspect borrowing, but lack of other known Dahalo loanwords in Hadza speaks against the idea of 'bone' (which belongs to the most stable part of the core wordlist and is borrowed extremely rarely) to be the only word borrowed into Hadza from Dahalo.

<sup>10</sup> Hadza *miši* (in Miller 2021: 1, commented: Dat[oga]?), cf. Chad. W.: S. Bauchi \**miš-* 'die': Kir *muse*, Polchi *miši*, etc. ◊ AADB 4274. In spite of a full coincidence, not scored (perhaps, super-cautiously). The verb, naturally, evokes associations with \**mwot*, the main NAA (Sem.-Eg.-Berb.-Chad.) term for 'die', but there seems to be no other cases of AA/Chad. \**-ti* > \**-si* in S. Bauchi. Stolbova's position is ambivalent: the section on Chadic Phonological Reconstruction (Stolbova 2016) contains no *-t* > *-s/š* transition, but in the Dictionary section, S. Bauchi \**miš/ši* is included into the entry \**mV(wV)t-* 'to die' (Stolbova 2016 #579 with the comment "all < \**mVti*").

<sup>11</sup> Another comment (Miller et al. 2021: 184): "jj vs zz personal variation [between various speakers - AM]... Starostin notes widespread connection between 'ear' and 'leaf' in African languages, thus perhaps *hajjapitchi* < *hazzape* 'leaf' (perhaps historically meaning \*ear), w[ith] sibilant assimilation of \*zz > jj before tch (itself \*iti > itci??)."

24. ‘egg’ *usle-ko* [ʔuʔeko] =Chad. \**šay(šay)-* / \**ʔi(n)š-* ‘egg’: W.: Bolewa *d-inš-a*, Karekare *ʔins-à*, Gera *is-à*, etc.; C. \**š/žay(š/žay)-*: Mandara *šay-a*, Logone *ʔenš-e*, Munjuk *ež-e*, etc.; E. \**is/š-*: Migama *d-èès-è*, Mubi *d-íss-ó*, etc. ◇ AADB 1028.

30. ‘fly’ (v.) *pururu* [puʔulu]<sup>12</sup> ‘fly off, overhead’ =AA \**pir-* ‘to fly’: =Cush. N.: Beja *fir*, C.: Bilin *fir y-*; E.: Saho *fire*, LEC: Dirayta *fir-*; Yaaku *peri*; S.: Ma’a *puru* // =Omot. \**f/pir-*: N.: Wolaita *pir-ad-*, Gemu *fir-*, etc., Bworo *pirap-*; S.: Dime *far* // =Chad. W.: Kupto *firò*; C.: Gude *pár*, Podoko *pərərərə*, etc. // =Berb.: Semlal *firri*, Shawiya *fərfər*, Siwa *əm-fər*, Ahaggar *fərət*, etc. // =Eg. *pʔ* (<\**pVr*) // =Sem.: Tna. *näfärä*; Mhr. *farr*, Soq. *fer*, etc. ◇ AADB 692; Stolbova 2016 #617.

31. ‘foot’-1 (also ‘leg’) *a/uphukwa* [ʔa/up<sup>h</sup>uk<sup>w</sup>a] =Chad. W.: Hausa *kaƴà* (Abraham 1962); E.: Kera *kámp-a* ‘foot, leg’ (metathesis?; the comparison is quite vulnerable both phonetically and semantically) <AA: Cush. S. \**fank<sup>w</sup>-*: Iraqw *fuknoo*, Burunge *faanķu* ‘hoof’, Alagwa *faanķu* ‘fleshy part of foot or leg’, Dahalo *funk-* ‘to walk rapidly’.

‘foot’-2 *asena-ko* [ʔasenako] ‘toes (people or animals)’ (Miller 2013: 23), ‘foot, toe, hoof’ (Sands 2012: 3)<sup>13</sup> =AA \**ʔa-sin-* ‘foot, leg’: =Eg. (20 Dyn.) *sn.wy* ‘zwei Füße’ (less likely < ‘two’) // =Chad. \**ʔa-sin-* ‘foot’: W.: S. Bauchi \**ʔa-sinH-*; C.: Higi-Nkafa *šini*, Banana *asénú*, etc.; E.: Migama *ʔásín*, etc. // =Cush. E.: LEC: Boni *saʔán* // Omot. N.: Dizi (Sheko) *šaanu* ‘foot’ ◇ AADB 216.

32. ‘full’<sup>14</sup> *furu-ne* ‘to be many, plenty, to be full’ =AA \**ʔVpVr-* ‘full’: =Berb.: Zenaga *tu-fur-t* // =Eg. (MK) *ʔpr* // =Chad. W.: Hausa (Katsina dial.) *fál*, *far* ◇ AADB 2965.

33. ‘give’ *kwe-* ~ AA \**kaʔ-* / \**ʔVk-*: =Berb. \**ʔawk* ‘to give’: Siwa *ūš* (<\**ūk*), Fodjaha *aš*, Zenaga *yaka* // =Chad. C.: Gidar *ki*; E.: Sokoro *áka* ‘to give’ (Stolbova 2011 #11: \**kVʔVw/y-* ‘to bring, carry’): ◇ AADB 3651.

34. ‘good’ *muta-na*, *mta-na*<sup>15</sup> =AA \**mVʔ-* ‘good’: =Chad. E.: Mubi *mḍé* ‘good’ // =Omot. N. \**mVʔt/ḍ-* ‘good’: Gofa *modē*, Koyra *modē*, Mao (Sezo) *maṭṭi* ◇ AADB 4123.

36. ‘hair’ *hadle* ~ AA \*(*Ha-*)*č/šVw-* ‘hair, feather’: Cush. S.: =Ma’a *ašú* ‘hair’ (\**č* and \**š* both render *š* in Ma’a, according to Takács 2011) // Eg. (Pyr.) *šw.t* ‘feather’ ◇ AADB 1284.

37. ‘hand’ *ukhwa-bii* [ʔuk<sup>w</sup>h<sup>a</sup>-] (also ‘fingers’) ~ Sem.: =Akk. *kaṭ-u* (< \**kaṭ-t-*) ‘hand’<sup>16</sup> // Cush. N.: =Beja *kákwi-i* ‘hand, arm’ (Reinisch 1895: 139) <AA \**kaṭi-* ‘claw, fingernail, hand’: Eg. (MK) *kaḥ* ‘(upper) arm, shoulder, elbow’ (<\**kaḥ-h* with nominal class marker *-h*, cf. Takács 1997) // Chad. W.: Mburku *kaṭwi*, etc.; E.: Mokilko *kóok-e* ‘claw, fingernail’ // Cush. E.: LEC: Konso *kaṭ-aa*, HEC: Darasa *kaṭy-a* ‘claw’, Dullay \**kaṭ-* ‘claw, nail, finger, hoof’ // Omot. N.: Oyda *kaṭ-a* ‘palm of hand’, etc. ◇ AADB 2206.

42. ‘T’ *ono* [ʔono, ʔono-ko] =AA \**ʔani/u* ‘T’: =Sem. (except MSA) \**ʔanV-kV* // =Eg. *ink*, Copt. (all) // =Berb. \**na/ikk* // =Chad. \*(*ʔa-*)*na(n)-* // =Cush. \*(*ʔ*)*ani* // =Omot. \*(*ʔ*)*inu/a* ~ \*(*ʔ*)*in-ta* ~ \**ta-ʔana* (metathesis) ◇ AADB 2762.

<sup>12</sup> In Miller et al. (2013), the symbol *l* conventionally stands for either *r* or *l* and may correspond to AA \**r* or \**l*. The other term for ‘to fly’ quoted in Miller 2021 is *hukwa*, but in Miller et al. 2021: 220 it is translated as ‘to fly away, take off’.

<sup>13</sup> Both terms show the distribution of meanings as ‘upper part of foot’ and ‘lower part of foot’ (including ‘toes and hoof’), allowing both terms to represent the notion ‘foot’ in the list.

<sup>14</sup> The other term for ‘full’ is a word with a click.

<sup>15</sup> In Miller 2021, quoted as \**mata-* (Bantu), but in Miller et al. 2021: 302 commented as “Bantu -tana, but not attested in neighboring languages” which makes borrowing from Bantu highly improbable. The synonym, Hadza *zzi’e* [ts’iʔe] ‘to be good, fine’ (Miller et al. 2021: 554), matches Omot. N.: \**c/ča/uy-*: Gimira (Bench) *soy*, (She) *cea*, *sea* ‘good’ <AA \**c/čuʔ-* ‘good, sweet’, but, in view of Iraqw (and Burunge) *cuuʔ* ‘(taste) sweet’ (<\**c/čuʔ-*, AADB 3046), the Hadza verb is suspicious as a possible borrowing from Iraqw and not scored.

<sup>16</sup> With strictly regular consonant correspondences (Beja *k* < \**ķ*) and trivial semantic changes, it is one of the examples of disregard by mainstream Semitologists of non-Semitic Afrasian comparative data: the Akkadian term for ‘hand’ is still considered “of uncertain origin”.

45. ‘know’<sup>17</sup> *tetha’o* [tet<sup>h</sup>aʔo] (also ‘understand’) =AA \*(y)daʃ- ‘know’: = Sem. \*yVdVʃ- (Akk., Ugr., Hbr., Aram.) // =Chad. C.: Mandara, Podoko *diya* // Cush. E.: =Saho-Afar \*d/ḍi/aʃ- // Omot. N.: =Bworo *daa-n* <AA: Cush. E.: LEC: Oromo *yaada*, Konso *yaat*- ‘think’; S.: Iraqw *daʃ-ati* ‘witchcraft, magic’, etc. // ◊ AADB 3472.

46. ‘leaf’ *fiats’a-pe* (pl.) =AA \*h/hʌç- ‘leaf’: Sem.: =Palest. Aram. *ḥūṣ-*; =Soq. *ḥeṣ* (‘palm leaf’ in PSem.) // =Cush. C. \*h/hʌç- // =Omot. N. \*Hayç-: Omoto, Chara \*hayç-, Mao \*y/wac/ç- ◊ AADB 1093.

49. ‘long’ *thas-* [t<sup>h</sup>as-] =AA \*tays- ‘long’: Chad. C.: =Daba *tšim* // Omot. N.: =Hozo *-tiš-ti* // Cf. Sem.: Arab. *tys* ‘grandir et avoir les cornes comme un bouc (se dit d’un petit de chèvre)’ ◊ AADB 4265.

52. ‘many’ *ʒaso* =Cush. S.: Asa *-šāʔi* // =Omot. N.: Yemsa *šoyo* ‘many’ <AA \*w/yasaʃ- ‘big, many’: Cush. S.: Maʒa *-ša* ‘very (much)’ // Omot. N.: Dizi (Maji) *šwe-t* ‘all’ // Chad. W. \*was/c- ‘swell’; E. \*waHas/c- ‘swell, become bigger’: =Kujarke *wáašā* ‘many’ // Sem.: Arab. *w/yʃ* ‘be spacious, big’ ◊ AADB 2002.

56. ‘mouth’ *awani-ka* [ʔawani-ka] (also ‘lip, beak’)<sup>18</sup> =Omot. N. \*waan- ‘mouth’: Chara, Gimira, Yemsa, Kafa, Anfillo, Bworo, Mao (Ganza), (Sezo) *waani* <AA \*ʔawin- ‘tongue; (part of) mouth’: Cush. E.: LEC: Somali *ʃan* ‘cheek; inside of mouth next to cheek’; S.: Dahalo *ʃén-a* ‘tongue’ // (?) Chad. C. \*ʃan- ‘tongue’: Tera *ʔən-a*, Fali-Kirya, Higi-Nkafa *n-ʔàn-á* // (?) Sem.: Arab. *ʃinān-* ‘muscle longitudinal de chaque côté du cou’) ◊ AADB 1822; cf. Stolbova 2019 #331a.

61. ‘nose’ *intawe* [ʔiŋt<sup>h</sup>awe] =Chad. \*ʔi/a(wa)nti/an- ‘nose’: W.: Hausa *hánčì* < \*Hanti), Ankwe *wantín*, Bolewa *wunti*, Karekare *ʔwantín*, Kulere *ʔatánán*, etc.; C.: Gisiga *hətaŋ*, Musgu *nčín*, etc.; E.: Migama *ʔítín*, Bidiya *ʔetēno*, etc. ◊ AADB 3037. Cf. Stolbova 2016 #767a.

62. ‘not’ *ukhuwa*, *ukuwa* [ʔu<sup>k</sup>huwa, ʔu<sup>k</sup>kuwa] =AA \*(ʔa-)k<sup>w</sup>ay- ‘not’: =Berb.: Ghadames *ak*, Fodjaha *ənk* // =Chad. \*kway: W.: Sura *ka*, Miya *kwa*, etc.; C.: Mandara, Sakun *ka*, Musgu *kai*, etc. // =Cush. \*ka-: N.: Beja *ka-*; E.: Tsamai *-kaka*; S.: Iraqw *-Vká* // =Omot. \*(ʔV-)kway: N.: Basketo *-kkaye*, Bworo *káyay*, Mao (Sezo) *ke:wε*; S.: Dime *ʔəkai* // Cf. Sem.: Akk. *akû* ‘destitute, weak, powerless’, Arab. *ʔawk-at-* ‘mal; malheur’ ◊ AADB 137.

63. ‘one’ *itçhâme* [ʔiçt<sup>h</sup>aame]<sup>19</sup> =AA \*ʃist(-an)- ‘one’: Sem.: =Akk. m. *ištēn*, f. *ištīat*, =Sab. *ʃs<sub>1</sub>tn* // =Chad. \*sVt(-an)- ‘one’ (\*sVt- in Stolbova 2016 #722): =C.: Mafa *sta-d*, Podoko *taŋá*, Mofu *té-d*, Logone *səyədiya* (met. <\*ʔistən), etc. // =Omot. N. \*(H)ist(an)- ‘one’: Wolaita *issō*, *istā*, *issinō*, Yamma *isson*, Bworo *issa*, Dizi (Nao) *isn*, etc. ◊ AADB 2800.

64. ‘person’ *unu* [ʔunu] ~ AA \*ʔa/inay(-n)- ‘man, person (also elder kin)’: =Chad. W.: Pero *nìy-é*, Ngizim *nón* ‘person’ // Cush. E.: LEC: =Rendille *éneŋy-et* ‘person’ // =Omot. S. \*ʔani(n)-: Ari *aŋg*, Banna *aŋi*, Ubamer, Galila *aŋin-a* ‘man, person’, Ongota *ʔin-ta* ‘person’ ◊ AADB 1472.

<sup>17</sup> Another term, *zzahi* [ts’ahi] ‘know a person’, is not included as it is probably borrowed from Iraqw *caah* ‘recognize, understand’.

<sup>18</sup> Miller et al. (2013: 29–30) wonder if \**awa* (mouth?) can be a common element of *awanika* and *awati* ‘upper lip, both vermilion and area of moustache & philtrum’, which they compare, following Elderkin and Starostin to Rift \**ʔafa* ‘mouth’ and related Agaw and S. Omot. forms (in fact, < AA \*ʔap- ~ \*pay- ‘mouth’ AADB 245). The above comparison to AA \*ʔawin- is valid only if *ʔawani-* and *ʔawati-* are not related.

<sup>19</sup> With the comments (Miller et al. 2021: 54): “Maybe itçhV- ‘alone, ʔanother’ plus msg -me?” and “Can we get ’itçhâko ~ ’itçhakoko for fem?”. The connections look very likely and resemble the AA structure (see, e. g., Akkadian and Wolaita). The Hadza form is a metathesis <\*ištā-me: the tš cluster is avoided in Hadza. Miller et al. (2013: 54) also quote Qwadza *itame* ‘one’, which does not match AA \*ʃis-tV-n- and does not seem to have any etymology at all, but oddly looks somewhat similar to the Hadza term. Can it be a borrowing from Hadza? See a somewhat similar case with ‘two’ in fn. 25.

65. ‘rain’-1<sup>20</sup>.

‘rain’-2 (verb) *sa* =Cush. C. *\*siw-* ‘rain’ // Chad. C.: =Buduma *ha* (<*\*sa*) ‘to rain’; E.: Sokoro =*was* (met.) ‘rain’ <AA *\*sawi?*- ‘rain’: Beja *siw* ‘spurt’ // Omot. N.: Gimira *so?* ‘water’. AADB 3959.

67. ‘road’ *yeye* (also ‘way, path’) =Chad. E.: Kera *kákáy* (redupl.) ‘road’ // =Omot. N.: Dizi (Maji) *kook*, (Nai) *kuu-t-* ‘road’ <AA *\*kaw/y(k)-* / *\*yVhk-* / *\*hVwk-* ‘go, walk, come; road’: Omot. S.: Ari, Ubamer *kay-* ‘go, walk’ // Sem. *\*yhk/\*hwk*: Aram. Off. *yhk*, Samaritan *hwk* ‘go, walk’, etc.; Gz. *hwk* ‘stir, move’ // Berb. *\*?yVkk-* ‘come, go, walk’ ◊ AADB 3832.

71. ‘say’-1 *î* (< *\*?iy?*)<sup>21</sup> =AA *\*ya-* / *\*?iy-* ‘say’: Cush. =C.: Bilin, Kemant *y-*; =E.: Saho *iy-*, Afar *-iy(y)-*, LEC: Somali *ii-*, Dasenech *y-*, HEC: Sidamo *i-*, *y-*, etc.; =S.: Ma’a *-yo*, Dahalo *žō-m-* (<*\*yo-*) // =Chad. E.: Lele *yàá*, Somrai *yé* // =Eg. (Pyr.) *î* ◊ AADB 849.

‘say’-2 *he* (also ‘to tell’) =Cush. N.: Beja *hay-*; E.: LEC: Somali *hay-*, HEC: Darasa *hiy-*, Burji *hay-en-* // =Omot. N.: Koyra, Kachama, Ganjule *hii-*, etc. <AA *\*hay/w-* ‘say; speak, shout’: Sem.: Akk. *awû* ‘speak’, Ugr. *hw-t* ‘word, statement’ // Eg. (Pyr.) *îhy* ‘shout’ // Cush. S.: Dahalo *hwayu* ‘voice, noise’ ◊ AADB 856.

74. ‘sit’ *hama* [hama] (also ‘stay, lodge’) =Cush. S.: Asa *ʔamim-* ‘sit’ (*\*h* > Asa *ʔ*, acc. to Takács 2011) <AA *\*hVm-* ‘stay still (stand, sit, sleep)’: Cush. S.: Ma’a *huma* ‘stand’ // Chad. W.: Gurunum *yemmu*; E.: Birgit *ʔamí* ‘to sleep’ ◊ AADB 3075.

76. ‘sleep’<sup>22</sup> *ʔase* (also ‘lie’ Miller 2021) =Berb.: Audjila *iša* ‘sleep’ // =Omot. N.: Mao (Ganza) *šo-* ‘sleep’ <AA *\*say?*- / *\*ʔays-* ‘sit, sleep, rest’: Omot. N.: Dizi (Nao) *aša* ‘sit’ // Chad. W.: Hausa *sàyyáayaa* ‘take a rest’; C.: Zime-Batna *sóʔó* ‘to rest’ // Cush. N.: Beja *sāʔ*, *ʔassa*; E.: LEC: Arbore *siye*, Elmolo *asíya* ‘sit’ ◊ AADB 2182.

78. ‘smoke’ *ts’ikx’o* [ts’ik<sup>h</sup>o]<sup>23</sup> =AA *\*ç/Vg<sup>w</sup>-* ‘smoke’: Cush. C.: =Waag *çag-a* (< Omot.?) ; S.: =Dahalo *ʔoggw-a* // =Omot. N.: Oyda *çugg-ə*, Kafa *çug-ō*, Anfillo *çug-o* ◊ AADB 1516.

79. ‘stand’ *ikha-* (also ‘to stop’) [ʔik<sup>h</sup>à] =Omot. N. *\*?ik(k)-* ‘stand (up)’ <AA *\*kaʔ/w-* / *\*?Vk(k)-* ‘rise, be high, stand (up)’: Chad. *\*kVʔVw-* ‘rise’ (‘to go up; top’ in Stolbova 2011 #293) ◊ AADB 659.

80. ‘star’ *ntsa-ko* [ntsakko], *sa-ko* =AA (*t/wV-n-*)*ciʔ(ciʔ)-* ‘star’: =Chad. *\*(ti-)ca(c)-* ‘star’: W.: Hausa *tāçūniy-ā* (likely < *\*ta-çun-*): C.: Zime-Batna *ʔicúú*, Peve *čiču*, E. *\*tisaw/y-*: Lele *tèsé*, Kabalai *tás-a*, etc. // =Cush. S. *\*(ti-)ca(ca)ʔ-*:<sup>24</sup> Iraqw *cacēʔ*, Alagwa *ticaʔ-oo*, etc. // =Omot. *\*(wu-n-)cay(c)-*: N.: Male *šaci*, *wuçaci*, Chara *wonč/ʒe-ta*, etc.; S.: Ari (Banna) *wonč-o* ◊ AADB 4267.

82. ‘sun’ *isho-ko* (*isho* ‘sunlight’) [ʔiʃoko] =AA *\*ʔa/is-* ‘sun’: Berb.: =Ghadames *īsi* (Berb. *\*a/uss* ‘day’) // =Chad. C.: Logone *sə*, Makeri *sí* // =Cush. S.: Qwadza *as-o* ◊ AADB 1622.

84. ‘tail’ *zzaho* [ts’aho] =Chad. *\*çVH-* ‘tail’: W.: Hausa *wúçiy-àa* (met.), Diri *çúw-ā*; C.: Masa *čátú*, Dzepaw *čyáw*, etc. ◊ AADB 3352; Stolbova 2009 #942.

85. ‘that’-1 (distal) *\*na* =AA *\*nV/\*?Vn* ‘that’: =Eg. (PT) *p-n* (m.), *t-n* (f.), *n-n* (pl.), Copt. *nē* // =Berb.: Ayr *we-n*, Ahaggar *wî-n*, Zenaga *a-n*, Shawiya *wi-n*, etc. // =Chad. W.: Kiir *nòð-náñ*;

<sup>20</sup> Also ‘water’. Compatible with AA *\*ta?*- ‘flow, pour’ (AADB 991), but not scored because Proto-Khoe *\*tú*, Sandawe *\*to* ‘water’ probably fit better.

<sup>21</sup> Miller et al. (2019: 44) also cite Dat. *yi* ‘say’, but if the idea of the Hadza-Afrasian kinship holds water, the Afrasian origin of this verb seems more likely, given that verbs, especially belonging to the core vocabulary, are usually not borrowed.

<sup>22</sup> The other term for ‘sleep’ is a word with a click.

<sup>23</sup> Cf. *zzoko* [ts’oko] and *zzogô* (acc. to Obst) [ts’ogo] ‘fire, campfire, coal from fire’ with the comment “Cf. possible cognates *zziggo* ‘smoke’...” (Miller et al. 2021: 558). In view of the meanings of *zziggo-bee* (pl.) ‘smoking fires, streams of smoke’ and *zziggo-ko* ‘distant smoke’ (Miller et al. 2021: 555–6), the identification of the two terms, ‘fire’ and ‘smoke’ seems correct. The variation of velars (*k/k/g*) in oral comprehension (vs. *\*-g* in AA) may be due to dissimilation from *ç-* in the Anlaut. It should be noted that there are alternative Khoisan matches (Proto-Khoe *\*cáo* and Sandawe *\*çwā*).

<sup>24</sup> Borrowing into Hadza from the reduplicated form in W. Rift seems unlikely.

C.: Fali-Kirya *ní-ítá*; E.: Ubi *ʔà-n-am* // =Cush. C.: Aungi *á-n* // =Omot. N.: Gofa *in-ay-ssi*, Dizi (Nayi) *ne-ás* (m.), *ne-yin* (f.), (Hozo) *za-ŋaŋà* ◇ AADB 2880.

‘that’-2 \*b- =Cush. N.: Beja *ba-* // =Omot. N. \*bV-: Kafa *ebi*, Mocha *εbe*, Anfillo *bε-ni* <AA \*b-demonstrative and locative pronoun: Cush. E.: LEC: Konsoid \**-pa* (<\*ba) locative case ending // Sem.: Mhr., Jib., Soq. *bo* ‘here’ ◇ AADB 3863.

86. ‘this’ \*ha =AA \*ha(y): Sem. \*hā =Ugr., Aram., Arab. // Berb. =Ahaggar *wah* // Chad. =C.: Sakun *hayu*, Logone *ha-ma* // =Cush. S.: Alagwa *hee*, Burungi *ha, hi* // =Omot. N.: Omoto \**hay(-t)* ◇ AADB 3349.

87. ‘thou’-1 *t<sup>h</sup>e* (m.), *t<sup>h</sup>eko* (f.) =A \*(ʔan-)tV ‘thou’: =Sem. \*ʔantV // =Eg. (PT) *nt-k* // Berb.: =Ghat *ti-unti* (f.) // Cush. =C. \*ʔanti; =E. \*ʔatu/i; S.: =Dahalo *ʔatta* // Omot. N.: =Dizi \**yeta*; S.: =Ongota *ʒaa-melʒa-nta* (cf. AA \*ʒV ‘this, that’) ◇ AADB 2833.

91. ‘two’ *pi<sup>h</sup>e*, *pie-(be)* =AA \*(hV)pV(p)- / \*H/yV(m)p/b- (<\*hVp-?) ‘two’: =Chad. W.: Hausa *bíyú*, Sura *bap*, Fyer *poo*; C.: Mandara, Glavda *buw-a*, Peve *hwōb*, Zime-Batna *hōb* // =Cush. S.: Qwadza (m)be-a<sup>25</sup> // =Omot. N.: Yemsa *hep, yep*, Mao (Bambeshi) *yúmbó*, Ganza *mambu* (redupl.) // Cf. Sem.: Arab *ʿabb-* ‘pareil, égal à...’ ◇ AADB 1967. Cf. Stolbova 2019: 198.

92. ‘walk’ *haka* (*haka* ‘go’, *ʔetlhikwa* ‘walk’) =AA \*hw/yk- / \*kw/yH- ‘go, walk’: =Sem.: Aram. Off. *yhk*, Samar. *hwk* // =Berb.: Fodjaha *yuke*, Ahaggar *akk*, etc. // =Chad. E.: Lele *kàw* // =Omot. S.: Ari, Ubamer *kay-* ◇ AADB 1967.

93. ‘warm’-1 *piti-* ‘hot’, *pitipiti* ‘tepid’<sup>26</sup>.

‘warm’-2 ‘to warm (oneself by a fire)’ *sifi* [sihi] =Sem. \*šVhan- (likely <\*šVh-an-) ‘(be) warm, hot; warm oneself’: Akk. *šahānu*, Arab. *shn*, Gz. *saḥana*, Tna. *sāhanā* (all verbs), Jib. *šhan-ún* ‘warm, hot’ ◇ AADB 1871.

95. ‘we’ (inclusive) *uni-bii* [ʔuni-] =AA \*nV-(h/k)n- / \*naḥ- / \*(h/lan)a/in- ‘we’: =Sem.: \*(ʔa)naḥnu ~ \*naḥ- // =Eg. (Pyr.) *n* (dependent), (NE) *inn* (independent, Coptic *anon*), -*n* (oblique) // =Berb. \*nVkni // =Chad. W.: Pa’a *hnaà* (f.), *tinà* (m.); C. \*na(na); E. (all) // =Cush. N.: Beja *hanín*; C. \*(ʔ)ya/in(n)a; E. (all) \*ʔin-/ \*nV(-n), S.: Iraqw *aten*, Ma’a *nine*, Dahalo *naŋi* // =Omot. N. \*nu-/ \*nuni ◇ AADB 2005.

96. ‘what?’ *akwiʔa* [ʔak<sup>wi</sup>ʔa] =Chad. C.: Daba *ki-n*, Logone *ɣwa-ni* ‘what?’ // =Omot. N.: Mao (Hozo) *ki-nda*, (Sezo) *kí-nà*, (Bambeshi) *kò-mísijà* (Blažek 2008) ‘what?’ <AA \*k<sup>w</sup>ay- ‘what? who?’ ◇ AADB 2021.

97. ‘white’ *pedla* (*petl’a-* in Sands 2012) =Sem. \*pays̄- (AA \*payç-) ‘white’<sup>27</sup>.

98. ‘who?’ *akwaza* [ʔa<sup>k</sup>waɕa] (<\*ʔak<sup>w</sup>-) ~ AA \*k<sup>w</sup>ay- ‘what? who?’: Chad. C.: =Tera *kiya* ‘who?’ // =Omot. N.: Kafa *ko-ni*, Mocha *ko*, Anfillo *ko-nne*, Bworo *ko-nni*, Mao (Sezo) *kí-nà*; (Bambeshi) *kiya* ‘who?’ ◇ AADB 2021.

<sup>25</sup> Cf. Miller et al. 2021: 347: “Qwadza (m)bea does not seem to be Cushitic..., so if Qwadza bea is related to Hz *pie*, the direction of loan is not clear, assuming it’s even a loan... Hadza *itchâme* ‘1’ also similar to Qwadza *itáme*.” Note that there is an alternative source of borrowing -βwī ‘two’ in the Bantu Nyaturu language spoken in the Singida region of Tanzania (with matches in some more distant Bantu languages). See a somewhat similar case with ‘one’ in fn. 18.

<sup>26</sup> Cf. (not scored, of course) AA \*fVṭ- ~ \*wVfVṭ- ‘to process by heating’ (AADB 485): Sem. \*wpt̄ ‘to burn, cook, make pottery’: Sab. *wft̄* ‘to burn’, Gz. *wafaṭa* ‘to burn, cook, ignite’ // Eg. (NK) *fty* (<OK \*fdy?) ‘smth. referring to the fabrication of metal weapon’, (Med.) *wft̄* ‘to drill, bore’ // Chad. W.: Hausa *fyāḍā* ‘to hit with smth. flexible’; C.: Mada *vād* ‘to forge’, *ávàḍ* ‘choffer, forger, percer’, Mafa *viḍ-* ‘forger, fabriquer’; E.: E. Dangla *pāḍé* ‘marteler le fer rougi au feu, forger à chaud’ (Cf. Takács 2001: 593).

<sup>27</sup> About the much-debated problem of relating Arab. *ʔabyaḍ-* ‘white’ either to Arab. *bayḍ-at-* ‘egg’ (with Sem. and Chad. cognates) or Akk. *pešû* ‘white’ see SED I No. 43 and II: 338. For me, as a proponent of Semitic (and Afra-sian) \*p̄, the argument of the main term for ‘white’ coinciding in the two Semitic languages to some extent outweighs its apparent lack of Sem. and AA cognates.



In the 100-item wordlist for Hadza, there are 17 words with clicks; 8 unequivocal or highly probable loans from W. Rift (most likely Iraqw); one from Bantu; one from Dat.; three items can perhaps be better explained as borrowings from Khoe and Sandawe. I rank all of them as loans and, in accordance with Sergei Starostin's method (Starostin 2000), remove them from scoring — that is, the Hadza-Afrasian 100-item wordlist is reduced by 30 units while augmented by 9 items representing full synonyms ('bird', 'full', 'good', 'know', 'to rain', 'say', 'that', 'warm', 'we'), i.e. 79 items remain for comparison, of which thirty find no matches in AA, while 49 have matches in one or more AA languages which receive positive scores for presumed affinity<sup>28</sup>.

Table 3 lists the percentages of matches between Hadza and the various subgroups of AA on the 100- and 50-item wordlists.

As can be seen from the table, nearly all Hadza matches with different Afrasian groups and individual languages show a higher percentage in the 50-item (more stable) wordlist than in the 100-item wordlist. This is a strong argument for kinship. Of course, the table also shows that not everything is so smooth. In addition to uneven distribution of the Hadza matches with the individual Afrasian languages and groups closely related to each other,<sup>29</sup> there remain a number of hard-to-explain cases, such as an extremely low percent of matches with Qwadza and Asa. Moreover, if the surge in some Hadza-Cushitic matches can be explained by geographical proximity (undetected loans or influences?), a similar surge with some Chadic languages is hard to explain by the same logic, to say nothing of several standalone and strikingly similar Hadza-Chadic zoonyms.

However, the average percentage of matches between Hadza and Afrasian in both lists seems to imply kinship, with a higher proximity between Hadza and the Cushitic and Omotic branches; this provides us with some grounds to hypothetically separate the Hadza language into a third — alongside Cushitic and Omotic — subbranch of the South Afrasian branch of the AA macrofamily.

At the same time, of course, it is impossible not to pay attention to the high percentage of coincidences with individual Chadic languages (Tera, Mubi, etc.), which is not easy to explain. Even more enigmatic is the coincidence, which is difficult to recognize as accidental, of such a unique grammatical phenomenon as the infixation of *-k-* with the meaning of plurality, intensity of action, etc. in both Hadza and some of the Chadic languages.

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<sup>28</sup> Hadza-AA matches representing a common AA (like #42 'I') or at least a common AA branch root (like #24 'egg' in Chad.) are, of course, of much better *quality* than Hadza matches with a few isolate and disperse AA terms (like #32 'full'). However, lexicostatistics is a *quantitative* method relying on a relative percentage of coincidences; it must meet the requirements (at least in the Starostin version) of regular sound correspondences and representative semantics, whereas the probability of some percentage of random lookalikes is the same when comparing both related and unrelated languages. For comparison: lexicostatistics that I have applied to AA vs. 11 Nubian and to AA vs. 3 Kuliak languages on the basis of both 100- and 50-item wordlists shows no more than 3% of matches, which is the level of random noise, excluding the possibility of kinship despite the fact that in both Nubian and Kuliak languages there are quite a few loanwords from Afrasian outside the basic vocabulary. The same result — no genetic affinity — is for the lexicostatistical comparison between AA and Sumerian, or between AA and Elamite; both of these extinct West Asian languages have a lot of common areal lexical items with AA, including non-Semitic Afrasian branches (which *inter alia* supports my theory of the Proto-Afrasian Urheimat in West Asia.)

<sup>29</sup> E. g., in the 50-word list: 10 in Mashile vs. 3 in Dasenech; 11 in Iraqw vs. 5 in Burunge; 17 in Gemu vs. 6 in Zaisse (Ometo); 20 in Chara vs. 9 in Mocha; very low percent in S. Omot. languages vs. 9 in Ongota; 14 in Amharic vs. 6 in Soddo; very low percent in MSA; 20 in Tera vs. 5 in Bachama; 0 in Masa vs. 13 in Peve, etc.

	100-word list	50-word list
Omotic:		
N. Omotic (average)	11	14
Ometo (average)	8.5	12.5
Chara	12	20
Gimira (average)	6.5	10
Yemsa	10	11
Gonga (average)	9	13 (Kafa 17)
Dizoid (average)	6.5	12
Maoid (average)	11	17.5 (Bambeshi 20)
South Omotic	3	4
Cushitic:		
Beja (after Reinisch)	6	12
C. Cush. (average)	9 (Bilin, Qwara 12)	15 (Bilin, Falasha 17, Waag 18)
E. Cush. (average)	6	9.5
Saho-Afar (average)	8	9
LEC (average)	5	7 (Diraita 10)
HEC (average)	6	10.5 (Burji 12)
Dullay (average)	5	12.5 (Tsamai 15)
Yaaku	4	9
S. Cush.	4	7
W. Rift (average)	4.5 (Iraqw 5)	7 (Iraqw 11)
Asa	1	0
Qwadza	2	3
Ma'a	6	9
Dahalo	8	17
Chadic:		
West (average)	4.5 (Hausa 9)	9 (Hausa 14)
Central (average)	5.5 (Tera 10)	9.5 (Tera 20, Musgu 16)
East (average)	6 (Mubi 10)	11 (Mubi 17, Migama 16)
Berber:		
North (average)	7	7
Zenaga	8	9
East (average)	7.5	12
Tuareg (average)	4.5	6.5
Egyptian		
	4	6
Coptic (average)		
	3.5	6
Semitic:		
Akkadian	8	13
Hebrew	5	10
Aramaic (Syr.)	9	11
Arabic (Qur'an)	8	12
Ethiopian (average)	5	10
Modern S. Arabian	3.5	3

Table 3. Percentages of Hadza matches with the various subgroups of AA.

In Hadza (Miller et al. 2021: 7–8):

- “ $\langle kV_1 \rangle$  [Same as  $-kV-$  A.M.] (after first CV, echoes first V.) pluractional. (very common)
- (1) on verbs: multiplicity of
    - (a) subject, esp. on intransitive verbs
    - (b) action, esp. on intransitive verbs with singular subjects
    - (c) object, esp. on transitive verbs with singular subjects....
  - (2) on nouns, adjectives:
    - (a) multiplicity of detail...
    - (b) greater or lesser extreme...

In Chadic (Leger & Stolbova 2021: 42–45):

“The semantics of the Kupto verbs... suggest that there is an infix pluractional morpheme  $-k-$  in their basic... form... (42). In Maha: pluractional verbs  $kàay-áayò$  ‘to plant’ pl.  $kàky-áayò$  ‘to plant many time’ ...  $wèen-áayò$  ‘to observe’ pl.  $wèkn-áayò$  ‘to observe often’... (43). ‘FROZEN  $-K-$  PLURACTIONAL VERBS IN THE ANGAS-SURA GROUP (44). MASS AND LIQUID NOUNS WITH  $-K-$  INFIX

a. PCh  $*dVm-$  ‘blood’: P-AS  $*tVkVm$  (pl.)  $< *tVm$  (regular devoicing of initial Chadic  $*d-$ ): ...Kofyar  $tàgàm$ , Mushere  $tekem$ , Mwaghvul  $tỳòm$ , Ngas  $toom$ ... (45).”

Glottochronology<sup>30</sup>, again applied according to Sergei Starostin’s version of the method<sup>31</sup>, has yielded the turn of the 10<sup>th</sup>–9<sup>th</sup> millennia BCE as the time of separation between Proto-Hadza, Proto-Cushitic and Proto-Omotic (vs. circa 10 300 BCE as the Proto-Afrasian time of separation into SAA and NAA represented by Semitic, Egyptian and Berber-Chadic).

### Non-basic lexicon matches

The abundance of matches in the non-basic vocabulary is also an argument in favor of relationship, if indirect. Below I list some of the best ones, grouped by various semantic fields.

#### I. Animals.

##### I.1. Ungulates.

##### I.1.1. Bovids and pigs.

Hadza  $biso-ko$  ‘wildebeest, gnu’ (Miller et al. 2021: 89) ~ AA  $*bus-$  ‘goat, bushbuck’: Cush. E.: LEC: Oromo  $buš-aa$  ‘goat’; S.: Iraqw  $baʒas-a$  ‘bushbuck’ // Omot. N.: Bworo  $bush-aayá$  ‘Kleinvieh’ // Chad.  $*bus-$  ‘he-goat’  $\diamond$  AADB 4270; Stolbova 2019: #135.

Hadza  $geweda-ko$  ‘dikdik’ (Miller et al. 2021: 151) ~ AA  $*guday-$  ‘k. of bovid’: Cush. E.: LEC: Oromo  $gad-am-sa$  ‘greater kudu’, Dirayta  $gad-an/m-sa$  ‘antelope’, HEC: Sidamo  $god-a$  ‘deer, gazelle’; S.: Iraqw  $gwand-a$ , Alagwa  $gwand-o$  ‘ram’, etc. // Omot. N.: Zaise  $gaid-é-endo$  ‘buffalo’ // Chad.  $*galuday-$ : W.: Hausa  $gàd-áa$ , Ngizim  $gád-ùwà$  ‘duiker’, etc.; C.  $*gVday-$ : Zime-Batna  $gódàyy$  ‘buck’ // Sem.  $*gaday-$  ‘kid’: Ugr.  $gdy$ ; Hbr.  $gadi$ ; Aram.: Syr.  $gady-ā$ ; Arab.  $žady-$  ‘kid’,  $žadāy-at-$  ‘gazelle; petit de gazelle’  $\diamond$  AADB 2490; SED No. 76. Cf. Militarev & Nikolaev 2020 #1.13a.

<sup>30</sup> Another method that is at best recognized by the mainstream as “controversial”. My experience of using glottochronology in Sergei Starostin’s version gives quite plausible results, especially with the Semitic family (in which it is easier to find historical parallels to linguistic divisions), perhaps due to the ‘sharp’, one-time separation of the speaking groups from each other, due to large distances preventing from immediate contacts, which “blur” the picture of linguistic split as in the case of Slavic languages. The most convincing example of coincidence of the proto-language split time in glottochronology with archaeological and genetic dating (and even with the ‘legendary’ historical tradition) is the Ethiopian Semitic case (see Militarev 2023).

<sup>31</sup> Yielding much more plausible proto-language split dating wherever these dates are verifiable extralinguistically.

Hadza *ndama* ‘calf’ (Miller et al. 2021: 321)<sup>32</sup> ~ AA \**damaʔ/ly-* ‘k. of bovid, antelope’: Cush. E.: HEC: Hadiya *damal-iččo* ‘antilope dekkula’ (with the fossilized *-l* suffix); S.: Iraqw *damaʔ-amo*, etc., Asa *domo-k*, Qwadza *damay-ituko* ‘eland’ // Omot. N.: Male *damm-ə* ‘calf (bovine)’, Yemsa *dum-ā* ‘antilope dekkula’ // Chad. \**dVm-*: W.: Mburku *dumun* ‘duiker antelope’; C.: Masa *dimi*, Afade *dümm-o*, etc.; E.: Somrai *demai*, Tumak *dēm-ā* ‘sheep’ // Berb.: Tlit *á-dmū*, Zenaga *dāmi*, Ahaggar *e-demi*, etc. ‘gazelle’ ◇ AADB 2464; Militarev 2022 #32.

Hadza *nja* [nɔʒa] ‘(Bohor) reedbuck’<sup>33</sup> = *minza* (Miller et al. 2021: 328), both having AA matches, obviously related to each other:

(a) Hadza *nza* ~ AA \**ʕi(n)ʒ-* ‘k. of smaller bovid’: Cush. \**ʕiʒ-* ‘k. of lesser bovid’: E. \**ʕiʒ-* and \**ʕiʒ-*: Saho *ʕid-oo*, Afar *ayd-ā* ‘sheep’, LEC: Somali *id-o* ‘flock of sheep’, Arbore *ʕizz-e* ‘gazelle’, Elmolo *ʕéd-i* ‘goat’ // Sem. \**ʕal/inz-/\*ʕVʒ-* ‘(she-)goat’: Akk. *enz-u*; Hbr. *ʕēz*; Aram.: Off. *ʕnz*, *ʕz*; Sab. *ʕnz* ‘goats’; Arab. *ʕanz(-at)-*; Jib. *ʕz*, Soq. *ʕoz* ◇ AADB 2471. Cf. Militarev & Nikolaev 2020, #1.4a; SED II No. 35.

(b) Hadza *minza* ~ AA \**ma-ʕi(n)ʒ-* ‘k. of bovid’: (?) Cush.: S.: Dahalo *máʕaq-e* ‘female topi’<sup>34</sup> // Omot. N. \**miHi(n)z-* ‘cow, bull’: Wolaita *mízz-a*, Yemsa *miž-à* ‘cow’, Kafa *minž-o* ‘cattle’, Dizi (Sheko) *mīnz-a*, etc. // Chad. \**maHa(n)z-* ‘k. of bovid; male-goat’: W.: Hausa *màaz-o* ‘harnessed antelope’, Mburku *maaz-u* ‘antelope sp.’; C.: Logone *máz-ā* ‘Antilopa hamariya’, Matakam *múz-àk* ‘he-goat’; E.: Barein *múz-o* ‘ox’ // Sem. \**miʕaz-*: Aram.: Jud. *mēʕazz-ē* ‘goats’;<sup>35</sup> Minean *mʕz-y* (du.) ‘chèvre’; Arab. *miʕāz-* ‘chèvre ou bouc’ ◇ SED II No. 148; Takács 2008: 156–157, 796; AADB 2695; Militarev & Nikolaev 2020, #1.4b.<sup>36</sup>

### 1.1.2. Equids.

Hadza *dongo-ko* ‘zebra’<sup>37</sup> ~ AA \**da(n)gʷ(-ay/r)-* ‘k. of equid’: Cush. E.: Oromo (Barareta dialect) *dongorr-a* ‘donkey’; S.: Alagwa *ndaḡʷai*, Qwadza *daḡʷagwai-ko* ‘donkey’ (Dolgopolsky 1973: 275) ◇ AADB 3318.

### 1.1.3. Large herbivores<sup>38</sup>.

Hadza *begḡawu-ko* [be'kx'au-ko] ‘a bull elephant’ (Miller et al. 2021: 87)<sup>39</sup> ~ AA \**bakʰaw-*<sup>40</sup> ‘bull, cow, large cattle’: Eg. (Late) *bḥ* ‘Buchisstier’ // Berb. \**baḡaw*: Ayr, E. Tawllemmet *e-bāyāw* ‘vieux boeuf’, Nefusa *byu* ‘veau’ // Chad. W.: Hausa *ḡakwáa-nè* (pl. of *ḡauna*) ‘dwarf buffalo’

<sup>32</sup> Commented as [Sands; maybe Sukuma? identical to Swahili].

<sup>33</sup> Commented as [Isanzu nja, Sukuma njaa]. Could the perfect Hadza match with the AA terms imply a borrowing from Hadza?

<sup>34</sup> *d* is usually considered to reflect only \**d*, but a few other cases of Dahalo *d* < \**ʒ*/*ʒ*, including the present reflex in a triconsonantal root, do not seem to be haphazard.

<sup>35</sup> Oddly translated in some Aram. dictionaries as ‘from goats, goats-hair, horn, etc.’.

<sup>36</sup> Looks like a unique case of derivation with the prefix *m-* from \**ʕi(n)ʒ-* ‘k. of smaller bovid’ as early as the PAA level. With all the problems in each of the proposed roots, a rather rare combination of the radicals \**ʕ* and \**ʒ* makes chance coincidence highly unlikely.

<sup>37</sup> Commented in Miller et al. (2021: 130): Cf. Dat. *diḡèedà* ‘donkey’, < \**dakee* > pWRift \**dakeetu* ‘zebras’, sg \**dakeetiya*; but Dat. itself perhaps from pWR \**daḡway* ‘donkey’. Sandawe *doro zebra*, *dak'we* ‘donkey’.

<sup>38</sup> Cf. also a striking and hard-to-explain case: Hadza *wezza'i-ko* [ʷe'ts'aʔiko] ‘hippopotamus’ (Miller et al. 2021: 506) ~ Chad. W.: Angas *wūʒāi*, C.: Muskum *wūzil* ‘hippo’ (Blažek 1994: 201). The stunning similarity between the Hadza and Angas forms (the Cush. terms quoted by Blažek are hardly related) do not look haphazard. Can it be an Angas loan in Hadza? A common substratum term? See also fn. 45.

<sup>39</sup> Dr. Sands (personal communication) suggested for this zoonym *bek'ahu-ko*, the general term for ‘elephant’.

<sup>40</sup> In the alternative notation, \**baḡaw-*. A phonetically unique, if debatable, case: Hadza *kx'* (in the version by Miller et al.) neatly matches the hypothetical AA \**kʰ* or \**q* reconstructed by Diakonoff’s team on the evidence of a very limited number of examples with \**k* in Berber, Chadic, most Cushitic and Omotic supposedly corresponding to \**ḥ* in Semitic and Egyptian (perhaps also *ḥ*). Semantically, ‘elephant’ vs. ‘bull’ is normal.

(Abraham 1962: 90); E.: Kera *bèke*, Saba *boko* ‘cow’ // Cush. E.: Yaaku *baḥbaḥ* ‘small dikdik antelope’ ◇ AADB 2593; cf. Stolbova 2021 #108.

Hadza *rôsho* [lo:fo] ‘rhinoceros’ (Miller et al. 2021: 400),<sup>41</sup> likely < \*roš- ~ AA \*warš-<sup>42</sup> ‘rhinoceros’: Cush. E. \*worš- ‘rhinoceros’: LEC \*worš-: Oromo *worse-sa*, Konso *orš-ayta*, Gidole, Dirayta *orš-ayt*, HEC \*worš-aŋ-: Hadiya *oršaŋ-aḍo*, Burji *wórš-a*, Dullay \*wVrs-Vŋ-: Gollango, Harso *oršaŋ-aḍo*, Yaaku *órse?* // Chad. C. \*warž-: Mbara *wí(r)ž-ĩ*, (?) Gidar *walš-ya* (-l < \*-r and \*ž > š influenced by l?) ‘bull’ // Sem.: Eth. \*ḥawriš-<sup>43</sup> ‘rhinoceros’: Gz. *ḥariš*, Tna., Tgr. *ḥariš*, Amh. *haris*, *awraris* ◇ AADB 2529. Cf. Blažek 1994; Militarev and Nikolaev 2020 #3.7.

## I.2. Predators.

### I.2.1. Canines.

Hadza *hadehade* ‘wild dog’<sup>44</sup> ~ AA \*Hayd- ‘dog’: Berb. \*a-yd/di ‘dog’ (all except Siwa and Aujila) // Chad. \*hid-, *hadd-* ‘dog’: W.: Bolewa, Ngamo *ḥàdà*, etc., C.: Tera *yìdà*, Gudu *hídà*, etc. // Cush. S.: Ma’a *idiḥe* ‘dog’ (hardly a lw.) (met.) ◇ AADB 2939; Stolbova 2019 #116; Militarev 2022 #1.

Hadza *biriri-ko* [bililiko] ‘bat-eared fox’ (Miller et al. 2021: 89) ~ AA \*ba(y)r- ‘k. of wild canine’: Cush. E.: Yaaku *bari-e* ‘jackal’ // Chad. E. \*bar- ‘jackal’: Migama *bòr-ú*, Birgit *bâr-á*, etc. // Berb.: Shilh *a-bayrr-u* ‘renard’ (Naït-Zerrad 1998: 146) // Sem. \*ba(r)bar- (redupl.): Akk. *barbar-u* ‘wolf’; Arab. *babr-* (pl. *bubūr-*) ‘espèce de chacal qui conduit le lion sur la piste de la proie’ ◇ Cf. PMasai \*-barie ‘jackal’. AADB 1863. Cf. Militarev & Nikolaev 2021: #7.4; Takács 2001: 22, 148.

Hadza *gondera* [gondela] ‘dog’ (not the main term) ~ Chad. \*gVHVd- ‘dog’: W.: Hausa *góòžèè* (< \*gVHVd-); C.: Dghwede *gdè*, Mofu *gədəy*, etc.; E.: Somrai *dò-gádà*, Mokilko *gédè*, etc. < AA \*gV(ŋ)d-Vl/r- ‘k. of canine’: Sem.: Arab. *ḣad-at-* ‘loup’, *ḣadlā?* ‘chienne’ // Cush. E.: Oromo *gedall-o* ‘jackal’ // Omot. S.: Ari *gudrí* ‘hyena’ ◇ AADB 353; Stolbova 2016 #196.

### I.2.2. Felines<sup>45</sup>.

Hadza *mondo* ‘a large male lion’ (Miller et al. 2021: 291)<sup>46</sup> ~ AA \*mandaw- ‘k. of predator’: Chad. C.: Afade *maud-á* ‘hyena’; E.: Mubi *ḥàmdàw-ùt* ‘cat’ (isolated and disparate terms, not quite reliable) // Sem. \*mV(n)dīn- ‘a large wild cat’: Akk. (OB on) *mindin-u* (*middin-u*, *mandin-u*) ‘tiger (?)’; Arab. *ḥal-madīn-* (met.) ‘lion’ ◇ AADB 4254; cf. SED II No. 151.

### I.2.3. Hyenas.

Hadza *uzame-ko* [ʔudzameko] ‘spotted (laughing) hyena’ (Miller et al. 2021: 76) ~ Chad. \*zVm- ‘lion’: C.: Musgu *zenīm* (met. < \*zVm-n), Masa *zími*; E.: Kwang *zém-ki* (cf. Muktele *ḣim-dàlí* ‘leopard’)<sup>47</sup> ◇ Stolbova 2009 #499.

## I.3. Rodents.

Hadza *yondo*, a general term for mouse, rat (Miller et al. 2021: 543)<sup>48</sup> ~ AA \*ḥandaw- ‘mouse’: Cush. E. \*ḥandaw-: Saho *andaw-a*, Afar *andaw-aa* ‘mouse, rat’ // Chad. C.: Mofu *m-*

<sup>41</sup> Derivation from roko>shô ‘stooped, ready to charge’ seems to be a folk etymology.

<sup>42</sup> The reconstruction of \*-š (not \*-ĉ) is based on the Mbara form alone.

<sup>43</sup> Initial ḥ- absent in the other languages has to be explained; there is also Syr. *ḥars-ūm-ā* ‘proboscis; labia bovis’ which matches the Eth. noun phonetically, but the chain of semantic shifts is hard to imagine.

<sup>44</sup> *Lycan pictus*, according to Dr. Sands (p.c.).

<sup>45</sup> Another case of striking and hard-to-explain resemblance with Chadic forms (see fn. 39): Hadza *sigwazi*, *sigwasi* [siḡ<sup>w</sup>adzi, siḡ<sup>w</sup>asi], an admiring name for *seseme* ‘lion’ (Miller et al. 2013: 419) ~ Chad. W.: Karekare *cágázáu*, *cágáḣaw*, Ngizim *ḣágázáu* ‘lion’.

<sup>46</sup> Compared in Miller et al. 2021: 291 to Burunge *moondo* ‘jackal’, from pBantu \*mondo. Semantically hardly compatible, especially in a presumed borrowing.

<sup>47</sup> Cf. also Chad. W. \*n-zVm- ‘griffon’: Bolewa *n-zimò-kì*, etc. (Stolbova 2009 #500). If related, the common proto-meaning is ‘a scavenger’. Another peculiar Hadza-Chadic zonym?

*àndùw-àŋ*, Gisiga *m-onduw-aŋ*, Muktele *m-ádàw-á*, Matakam *m-ùdùw-à* ‘rat’ ◇ AADB 285; Militarev & Nikolaev 2021: #7.2.

Hadza *giririba-ko* [gililibaʔuko] ‘striped grass rat, or striped mouse’ (Miller et al. 2021: 153) ~ Chad. E.: Mokilko *gàrb-ô*,<sup>49</sup> Mubi (met.?) *gúmbùr-ò* ‘mouse, rat’ ◇ Jungrauthmayr & Ibrișimow 1994.

Hadza *wajjo* [watʃo], unidentified sp. mongoose (Miller et al. 2021: 503 after Sands) ~ AA \*ʔV(n)çaw- ‘k. of smaller carnivoran or rodent’: Cush. C. \*ʔi(n)çaw-: Bilin *inšuw-aa*, Khamir *iečuw-aa*, etc. ‘mouse’; E.: LEC \*wawaç- (met.): Oromo *wawwaç-oo* ‘mongoose’ // Omot. N. \*ʔi(n)çaw- ‘rat’: Wolaita *uça-a*, Kafa *iço-o*, Bworo *inço-o*, Gimira *uç/ç*, Dizi (Sheko) *iiçç-o* // Sem. \*ʔay(n)šaw-: Akk. (OB on) *ayāš-u* ‘weasel’; Gz. *ʔanšaw-ā* ‘mouse, weasel’, Tna *ʔančəw-a* ‘rat, mouse’, etc. // (?) Berb. S. \*-dVway: Ayr. E. Tawllemmet *e-dəwi* ‘jerboa’ // Chad. W.: Hausa *číy-ò* ‘field rat’, Sayanchi *ààcá*; C.: Musgu *ausi* ‘mouse’ ◇ AADB 379; SED II No. 26; Militarev & Nikolaev 2021 #7.1.

#### I.4. Birds.

Hadza *garaani*<sup>50</sup> ‘heron’ (Miller et al. 2021: 150) ~ AA \*gawir- and \*garay- ‘heron, crane, ostrich’: Cush. E. \*garay- ‘ostrich’: Saho *gàraay*, Somali *goray*, etc.; S.: Dahalo *ngára* ‘crested crane’ // Chad. C. \*girw-: Mandara, Padukwo *žirrw-e*, Uzam *žirw-e* ‘ostrich’; E. \*gawr- ‘heron’: Kera *gúgur-i*, Somrai *gwár-a* // Sem. \*ʔVgVr-: Akk. (OB) *igir-ú* ‘heron’, etc. ◇ AADB 1931; cf. Militarev and Nikolaev 2021 #8.6.; SED II No. 29.

#### I.5. Reptiles.

Hadza *jjowa-* [tʃoa] ‘gecko’ (Miller et al. 2021: 230) [çowa] ~ Sem. \*ʔiṭāy- (< AA \*ʔiçay-) ‘k. of lizard’: Akk. *iššû* ‘gecko’; Arab. *ʔiḏāy-at-* ‘sorte de lézard’ ◇ SED II No. 46.

Hadza *miro* ‘spitting cobra’ (Miller et al. 2021: 287) ~ AA \*mayr- ‘k. of snake’: Cush. C. \*mVr- ‘snake’: Bilin *mər-aaw-aa*, Kemant *mer-ewa*, *mär-āwaa*, Aungi *muri*, etc. // Chad. W. \*mīr- ‘python’: Gwandara *mēr*, Angas *myirm*, Sura, Ankwe *mir*, etc. ◇ AADB 371.

#### I.6. Worms and insects.

Hadza *duma-ko* ‘a bug that plays dead’ (Miller et al. 2021: 131) ~ AA \*dV(?)m- ‘k. of insect’ (see also \*dVm- ‘worm’): Sem.: Akk. *dim-ī-tu* ‘locust’, *dimān-u* ‘insect’; Arab. *dimmat-* ‘louse, ant’ // Eg. (NK) *dm* ‘worm’ // Chad. W.: Hausa *dàman-ā* ‘the red velvety spider’; C.: Mofu *ḍa-ḍamíy-daw* ‘k of locust’ ◇ AADB 2696; cf. SED II No. 69.

Hadza *gaga* [ga'ga] ‘grasshopper (general term)’ (Miller et al. 2021: 150) ~ AA: Sem. \*gūg- ‘spider; flea’: Aram. Syr. *gəwāgay* ‘aranea’; Gz. *gug-ā* ‘flea’ ◇ SED II No. 77.

## II. Body parts, functions and states

Hadza *ʔakwisiti-ko* ‘sinew that runs along the spine and neck’ (Miller et al. 2021: 13) ~ AA \*kac/sw- ‘back with shoulders’: Cush. C. \*kas- ‘shoulder’: Bilin *kas*, Khamir *kesaa*, Qwara *kaš*; E. \*kas- ‘shoulder’: LEC: Konso *ħaš-ito*, HEC: Burji *káččoo*, Dullay: Gawwada *ħeššé* // Sem. \*ka/iskalis- (redupl.) and \*kVsʔ/w- ‘back, side or front part of the body (of a sheep?)’: Akk. *kaskas-u* ‘soft part of the sheep's breastbone’; Arab. *kusʔ-* ‘derrière, partie postérieure d'une chose; derrière de la tête’; Tgr. *kəšw-üt* ‘sheep's side’ // Chad. W. \*kawis-: Ankwe *kəšat* ‘shoulder’, Sha *ʔakweš*, Kulere *kašáw*, Daffo-Butura *kúnḡwíši* ‘buttocks’; E. \*kasy-: Kabalai *kāsi* ‘back’, Kera *kasi*, Kwang *kósi* ‘shoulder’ ◇ AADB 1718; cf. SED I No. 152.

Hadza *dushu* ‘distended, big stomach’ (Miller et al. 2021: 131) ~ AA \*dVs(-Vm/n)- ‘fat belly’: Sem. \*dašm/n-: Hbr. *dāšān* ‘fatness’; Aram. Jud. *došn-ā* ‘fat’; Arab. *dsm* ‘être gras’ // Berb.

<sup>48</sup> Cf. *unda'unda* [ʔunḍaʔun'ḍa] ‘hedgehog’ (Miller et al. 2021: 76), probably related.

<sup>49</sup> Note one more triconsonantal (!) Hadza-Chadic zoonym.

<sup>50</sup> Can *-ni* be a fossilized suffix?

\*-dis- ‘belly’: Ghadames *ta-dis-t*, Ntifa *a-dis*, etc. // Chad. W.: Hausa *dūsās-ā* (pl.) ‘corpulent’ ◊ AADB 2555; SED I No. 60.

Hadza *muguga* ‘crop of a bird’ (Miller et al. 2021: 294) ~ AA *mugaŋ*- ‘head with the neck’: Cush. N.: Beja *máge* ‘neck; nape of neck’; E.: HEC: Burji *muga* ‘head’, Dullay: Tsamay *múgaŋ-te* ‘head’ // Berb.: Siwa *ta-məʒa* (<\*mVga) ‘neck’, Timimun *ta-məg-n-a* ‘head’ ◊ AADB 3817.

Hadza *shububu-bi* ‘lungs’ (Miller et al. 2021: 432) ~ AA *\*ci/anp-* ‘lungs’: Sem. *\*si/anp-* ‘lung’: Akk. *sinib-t-u*, *sinip-t-u* ‘part of sheep’s lung’; pB Hbr. *simpōn* ‘ramified blood vessel, artery; bronchiae’; Gz. *sanbuʔ*, *sambuŋ* ‘lung’, etc. // (?) Eg. (MK) *šnb.t* ‘breast of man, chest’; cf. (Gr.) *snb* ‘breath’ // Chad. C.: Gude *atsemb-á*; E.: Dormo *ká-sibiŋ* ‘breast’ // Cush. *\*sanb-* ‘lungs’: N.: Beja *šamb-ut*; C. *\*sanb-*: Bilin *sānb-ii*, Aungi *saamb-ii*, etc.; E.: LEC: Somali *sambab*, Oromo *somb-a*, Arbore *soñb-ot*, HEC: Sidamo *šamb-oo*, etc. // Omot. N. *\*šVmb/p-* ‘heart, lung’: Dawro *šenfo* ‘heart’, *šemp-* ‘breathe’, Male *šempi* ‘soul’, Kafa *šomboo* ‘lung’, etc. ◊ AADB 164; SED I No. 235. Cf. Ainu *\*sanpe* ‘heart’ and Sino-Tibetan *\*sin(V)b-* ‘heart’.

Hadza *zze’a* [ts’eʔa] ‘to shit’ (Miller et al. 2021: 552) ~ Sem. *\*ṭayVʔ-* (*ṭ* < AA *\*ṭ*) ‘excrement, excreta’ ◊ SED I No. 286.

Hadza *bokê*, *bukî-ko* ‘sick, a sick person or animal’ (Miller et al. 2021: 91) ~ AA *\*baw/yVk-* ‘disease, illness’: Cush. E.: Afar *biyak* ‘illness’, LEC *\*buk-* Somali *buk-*, Boni *buš-i* ‘become ill’, Oromo *bokok-* ‘swell (of stomach)’ // (?) Sem.: Gz. *bak*, *bok* ‘scab, wound’ // Eg. (MK) *bṭ.w* (< *\*bVk-*) ‘Bez. einer unheilbaren Krankheit’ // Chad. E.: Bidiya *bàak*, pl. *bàkàw* ‘attraper un rhume, avoir de la fièvre’ ◊ AADB 2623; cf. Takács 2001: 353.

Hadza *nkoro-ko* [ŋkʰo.loko] ‘epilepsy’ (Miller et al. 2021: 330) ~ AA *\*kurVy-* ‘altered state of mind, ecstasy, trance, epilepsy’: Berb. Hgr. *tā-karaww-at*, Ayr *i-kerker-āni* ‘épilepsie’ (cf. E. Tawlemmet *a-tkar* ‘possessed (by an evil spirit)’ < *\*t-kVr?*), Qbl. *kerrer* ‘faire des sorcelleries, des sortilèges’ // Eg. (Dyn. 22) *kʔ* (likely < *\*kur-*) ‘soul’ // Chad. W.: Hausa *kūr-w-ā* ‘soul; ghost’ (Abraham 1962), ‘the soul or personality which is supposed to leave a sleeper, returning when he awakes’ (Bargery 1934; first compared to Eg. *kʔ* by C. Hodge), C.: Bura *kir* ‘the self; the will’; Sem.: Arab. *kry* ‘sommeiller’, Tgr. *kərri belä* ‘talk nonsense’ (cf. *sāb kəyar-āt* ‘soothsayers’) // Cush. C. *\*ʔən-kir-* ‘soul’: Bilin *ʔənkəra*, Qwara *enker*, Aungi *enk-* (*\*ʔənk-[ər]* in Appleyard (2006: 126); all the comparanda starting with Oromo are incompatible); E.: LEC: Oromo *e-keer-a* ‘ghost’ ◊ AADB 2700.

Hadza *kumba-ne* ‘to have a cold (stuffed nose, cough, sore throat)’ (Miller et al. 2021: 250) ~ AA *\*ka(m)b-* ‘cold’: Cush. N.: Beja *kanba*, *kamba*; C. *\*kalimb-* ‘cold, be cold’; E.: HEC: Burji *kabb-* ‘become cold’ ◊ AADB 3838.

### III. Varia.

Hadza *ʔutʰume-ko* ‘spear’ (Miller et al. 2021: 75) ~ AA *\*daʔVm-* ~ *\*ʔudum-* ‘spear’: Sem.: Akk. (YB) *daʔimu* // Chad. C.: Gude *ʔuduma*, Fali-Jilbu *wudumi*, etc. ◊ AADB 1918.

Hadza *slaa* [šaʔa] ‘to love’ (Miller et al. 2021: 434) ~ AA *\*šaʔ/w-* ‘want, wish, like, love’: Sem. *\*šxVyʔ-* (*\*šx* based on Hrs. *š*) ‘wish, want, need’: Aram. Jud. *swy* ‘to wish’, Syr. *səwē* ‘cupidus, studiosus’; Arab. *šyʔ* (also *šhw* and *šwh*) ‘to desire, aspire, wish’; Amh. *ša*, *eša* ‘to wish, want’; Hrs. *šáwweš* ‘want or need badly’ // Chad. C. *\*zV* ‘be happy, loving’: Podoko *ža* ‘rejoice’, Muyang *žayay* ‘to like’, Mbara *žà* ‘cher (affection)’ // Cush. S. *\*šaʔ-* ‘to like, love’: Iraqw, Alagwa *šaaʔ-*, Asa *šaʔ-at* ‘to like’, Dahalo *šaw-* ‘to love, like’ ◊ AADB 1962; Stolbova 2007 #396 (compared C. Chad. to S. Cush.)<sup>51</sup>.

Hadza *ts’ukuts’uku* [çukuçuku] ‘to smile’ (Miller et al. 2021: 560) ~ AA *\*çVhVk-* ‘to laugh’: Sem.: Ugr. *zħk*, Hbr. *šħk* ‘to laugh’; Hatra *šħk* ‘to laugh, smile kindly on so.’, Arab. *ḏħk*; Soq.

<sup>51</sup> A Hadza borrowing from S. Cush. is unlikely; borrowing verbs is a rare phenomenon in AA.

*dáhak* ‘to laugh’, etc. // Chad. \* $\$VVk/k$ - ‘mock, laugh at’: W.: Ankwe *swak* ‘to exite, irritate, entice’, Tsagu *kàašá-n* (met.) ‘to laugh’; C.: Daba *šàk šàk* ‘to tease’  $\diamond$  AADB 2348; Stolbova 2007 #334 (compared to Sem.).

Hadza *bititî-bii* [bititi:bi?] ‘fierce’ (Miller et al. 2021: 88) ~ AA \* $\?VbVd$ - ‘crazy’: Sem.: Eth. \* $\?VbVd$ - ‘to be crazy’ // Berb.: Mzab *beddu* ‘perdre la raison, ê. fou’, Wargla *a-beddiw* ‘faible d’esprit, idiot, fou’, Nefusa *beddu* ‘ê. fou’  $\diamond$  AADB 3769.

Hadza *ihî’a* ‘thing’ [ʔihîʔa] (Miller et al. 2021: 46)<sup>52</sup> ~ AA \* $\?iḥ$ - ‘thing’: Eg. (PT) *ih.t* ‘thing’; Chad. W.: Bolewa *ʔya* ‘thing’; C.: Hwona *ʔya* ‘thing’  $\diamond$  AADB 1586; cf. Takács 1999: 42.

Hadza *akhana* [ʔak<sup>h</sup>ana] ‘name’ (Miller et al. 2021: 11) ~ AA \* $kVnVy$ - ‘call by name’: Sem.: Akk. *kunnû* ‘to treat a person kindly, to honor a deity’; Hbr. \**kny* (pi.) ‘to give so. a name of honor’; Aram. Syr. *kenaʔ* ‘give a name’; Arab. *kny* ‘donner un surnom à qqn.’ // Eg. *kny* ‘call’ // Chad. \**kwa/un*-: W.: Ankwe *kun* ‘tell’, Zar *kwan* ‘say’; C.: Logone *kāwún* ‘speech’  $\diamond$  AADB 859.

Hadza *okoiya-bii* ‘whirlwind, dustdevil’ (Miller et al. 2021: 62) ~ AA \* $kiw/yVH$ - ‘wind, to blow’: Sem.: Arab. *kwh* II ‘souffler pour allumer (le feu)’ // Eg. (Pyr.) *tʔw* (if <\* $kVʔVw$ ) ‘wind, air’ // Chad. \* $kVwV(H)$ - ‘to blow (wind)’: W. Tangale *kiu* ‘blowing (wind)’, Miya *kay* ‘to fan’; C.: Mulwi, Munjuk *kì* ‘to blow (wind)’; E.: Mobu *kwe* ‘souffler (vent)’, Ndam *ʔúgâ*, Somrai *kū* ‘to blow’ // (?) Cush. C. \**kuy*- ‘cloud’: Qwara *kuya*, Falasha *kúya*  $\diamond$  AADB 1580; Stolbova 2016 #411.

Hadza *thimbothimbo* [t<sup>h</sup>imbot<sup>h</sup>imbo] (redupl.) ‘dusk, twilight’ (Miller et al. 2021: 473) ~ AA \* $(?V)\?um$ - ‘darkness, night’: Sem.: Arab. *ʔtm* V ‘devenir sombre, se couvrir de ténèbres (se dit de la nuit)’ // Cush. E.: Saho *ḍum*- ‘become dark’, LEC: Konso, Dirayta *ḍum*- ‘to set (of sun)’, HEC: Hadiya *ṭum-o* ‘darkness’ // Omot. \**ṭum*- ‘night’: N.: Male *ḍuum-i*, Kafa *ṭuum-o*, Gimira (Bench) *ṭum*-; S.: Ari *ḍuum-i*.

Such examples could be significantly increased.

## Analysis

Let us again list a number of arguments that would allow for a different interpretation than the alleged Hadza-Afrasian affinity:

(1) Hadza-Afrasian matches (attested only in African branches of AA) with parallels in non-Afrasian African languages from which these matches could have been borrowed by the corresponding AA languages and Hadza independently;

(2) detected borrowings into Hadza from the neighboring non-Afrasian African languages which, in turn, had earlier been borrowed from Afrasian;

(3) parallels that possibly go back to a much deeper chronological level than the one corresponding to the postulated Hadza affiliation with the Afrasian macrofamily, perhaps even reflecting certain “universal” roots (such as #30 ‘fly’: Hadza *pururu* ~ AA \**pir*-, with similar forms also attested in Kartvelian, North Caucasian, Sino-Tibetan, etc.);

(4) words in Hadza that meet both the phonetic and the semantic requirements of kinship with AA while specifically having reflexes in South Cushitic languages (above all, Iraqw), other cases of borrowing from which have been firmly established (the most etymologically challenging type of cases, making the choice between common origin and borrowing quite difficult);<sup>53</sup>

<sup>52</sup> Cf. also Proto-Central Khoisan \**xuu* ‘thing’.

<sup>53</sup> What is meant are not obvious cases, but those where differences in vocalism or word base structure or shades of meaning may indicate a common origin rather than borrowing (in which the borrowed lexeme is more often “copied” without changes).



(5) words in Hadza that meet both the phonetic and the semantic requirements of kinship with AA, but have "competing" matches in Sandawe and/or other Khoisan languages which may be interpreted as substratum lexemes.

To me, it seems that genetic affinity with AA explains such a large number of matches more plausibly (and economically) than even an unlikely combination of all these situations.

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### Abbreviations

AA = Afrasian; Akk. = Akkadian; Amh. = Amharic; Arab. = Arabic; Aram. = Aramaic; BD = Book of the Dead; Berb. = Berber; Chad. = Chadic; C. = Central; Copt. = Coptic; Cush. = Cushitic; Dat. = Datoga; E. = East; Eg. = Egyptian; Eth. = Ethiopian; Gz. = Ge'ez; Hbr. = Hebrew; HEC = Highland East Cushitic; Hrs. = Harsusi; Jib. = Jibbali; Jud. = Judaic Aramaic; LEC = Lowland East Cushitic; Mhr. = Mehri; MK = Middle Kingdom; MSA = Modern South Arabian; N. = North; NE = New Kingdom; OB = Old Babylonian; Off. = Official Aramaic; OK = Old Kingdom; PAA = Proto-Afrasian; S. = South; Sab. = Sabaic; Sem. = Semitic; Soq. = Soqotri; Syr. = Syriac; Tgr. = Tigre; Tna. = Tigrinya (Tigray); Ugr. = Ugaritic.

### Transcription and transliteration

$\dot{p}$  = bilabial emphatic voiced stop;  $\dot{t}$  = dental emphatic voiceless stop;  $\dot{d}$  = dental emphatic voiced stop;  $\dot{d}$  = voiced interdental fricative (in Egyp., a conventional symbol conveying  $\mathfrak{ḏ}$ );  $c$  = alveolar voiceless affricate [ts];  $\mathfrak{z}$  = alveolar voiced affricate [dz];  $\dot{c}$  = palato-alveolar voiceless affricate [tʃ];  $\mathfrak{z}$  = palato-alveolar voiced affricate [dʒ];  $\mathfrak{s}$  = hissing emphatic voiceless fricative;  $\mathfrak{c}$  = emphatic voiceless affricate;  $\dot{\mathfrak{c}}$  = palato-alveolar emphatic affricate;  $\mathfrak{s}$  = lateral voiceless fricative;  $\hat{c}$  = lateral voiceless affricate;  $\hat{\mathfrak{c}}$  = lateral voiceless emphatic affricate;  $\mathfrak{z}$  = lateral voiced sibilant;  $\mathfrak{g}$  = voiced velar fricative (in Berb.);  $k$  or  $q$  = emphatic velar stop;  $\mathfrak{g}$  = uvular voiced fricative (Arabic "ghain");  $\mathfrak{h}$  = uvular voiceless fricative;  $\mathfrak{h}$  = pharyngeal voiceless fricative;  $\mathfrak{ʕ}$  = pharyngeal stop ("ayin");  $h$  = laryngeal voiceless fricative;  $\mathfrak{ʔ}$  = glottal stop ("aleph", "hamza");  $y$  = palatal resonant;  $\mathfrak{z}$  and  $\mathfrak{i}$  = conventional transcription symbols (in Egyptology).

### Conventions for reconstructed proto-forms

$V$  renders a non-specified vowel, e.g.  $*bVr-$  to read = "either  $*bar-$ , or  $*bir-$ , or  $*bur-$ ".

$H$  renders a non-specified laryngeal or pharyngeal.

S renders a non-specified sibilant.

/ when separating two symbols means “or”, e.g. \*ʔi/abar = “either \*ʔibar– or \*ʔabar–”.

() a symbol in round brackets means “with or without this symbol”, e.g. \*ba(w)r– to read = “\*bawr– or \*bar–”.

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A. Ю. Милитарев. Хадза — афразийский язык?

В статье рассматривается вопрос о генетической принадлежности хадза, языка крошечного племени танзанийских охотников-собирателей, генетически отделившегося от других групп Homo sapiens несколько сот тысяч лет назад и занимающего одну и ту же территорию более 50 000 лет; ранее язык считался койсанским из-за его фонологического инвентаря, содержащего так называемые «кликсы», но теперь рассматривается как изолированный. В статье к обширному лексическому материалу, собранному американскими лингвистами с помощью их сотрудников-хадза, приводятся параллели из различных афразийских (афроазиатских) языков, основанные на установленных автором регулярных хадза-афразийских консонантных соответствиях и строгих семантических критериях. Проводится сравнение слов хадза с предлагаемыми афразийскими параллелями из стандартного стословного списка Сводеша (включая разработанное Сергеем и Георгием Старостинскими подмножество из 50 пунктов наиболее устойчивых элементов), а также из других семантических групп. Автор анализирует альтернативные объяснения этих совпадений (например, случайные совпадения; заимствования в хадза из соседних и даже географически удаленных афразийских языков; общий субстрат), но приходит к выводу, что наиболее правдоподобным объяснением является генетическое родство. В соответствии с полученными лексикостатистическими данными

ми положение хадза в афразийской макросемье оказывается в примерно одинаковой близости к омотской и кушитской семьям; глоттохронология датирует разделение между прото-хадза, прото-кушитским и прото-омотским языками рубежом X–IX тысячелетий до нашей эры, когда группа носителей праюжноафразийского языка, по-видимому, добралась до Северной Танзании и передала свой язык предположительно койсаноязычным предкам современных хадза.

*Ключевые слова:* хадза язык; афразийские языки; генетическое родство языков; звуковые соответствия; лексикостатистика; этимология; лексические заимствования.