The problem of linguistic inheritance and contact in the Kalahari Basin: the case of body parts

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1 Preliminaries

1.1 Current status of “Khoisan”

+ “Khoisan” originally coined for an entity of physical anthropology (Schultze 1928)
- only later proposed as a language family (i.a. Schapera 1930), on account of supposedly widely shared linguistic features (notably clicks and other sounds, vocabulary)
- conception of “Khoisan” as one of four African super-families popularized by Greenberg (1963): all African click languages other than Bantu and Cushitic > Figure 1

Khoisan besides: Niger-Kordofanian, Nilo-Saharan, Afro-Asiatic

- Hadza
- Sandawe
- South African Khoisan (= SAK)
  - Northern Khoisan
  - Central Khoisan
  - Southern Khoisan

Figure 1: Subgrouping of “Khoisan” according to Greenberg (1963)

+ no convincing linguistic evidence (Westphal 1962a, b, 1971; Traill 1986; Sands 1998, Güldemann 2008b) > specialist consensus that “Khoisan” must not be treated as a family > if “Khoisan” language family spurious, necessary to tackle the common assumption of shared historically related features > **goal of the present talk**:

- determine the actual kind and amount of shared lexicon in the body part domain
- explain their origin by plausible historical scenarios other than inheritance
- relate them to general hypotheses on early population history in the Kalahari Basin

+ three widely accepted genealogical language groups, partly based on robust historical-comparative evidence - **cf. Figure 2 and Map 1 on separate handout**
+ the second type of a historically related language group is a “linguistic (contact) area” > some hypothesized/identified in the Kalahari Basin:

(a) Central Kalahari (Traill 1980, Traill and N. 2000):

Taa (Tuu), G|ui (Khoe-Kwadi), ǂHoan (Kx’aa); ?Naro (Khoe-Kwadi), Ju|’hoan (Kx’aa)

(b) Cape (Güldemann 2006):

Khoekhoe (Khoe-Kwadi), !Ui (Tuu)

1.2 The historical-comparative method in linguistics

+ the comparative method has been the major force in historical linguistics for 200 years
- essential for establishing the genealogical relationship between languages
- the limits of reconstruction using the comparative methods are generally set at around 8,000 to 10,000 years (e.g., Nichols 1996, Watkins 2001)
- after a very long period of divergence, it is no longer possible via the method to determine conclusively whether two languages are genealogically related or not

+ comparative method includes the comparison of “cognates” (words with a shared origin)
- crucially, relations are confirmed through shared, preferably paradigmatic, morphology
- deduction of regular sound change rules which historically operated between a reconstructed proto-stage and a later stage of a language

> First, every sound change, inasmuch as it occurs mechanically, takes place according to laws that admit no exception. That is, the direction of the sound shift is always the same for all the members of a linguistic community except where a split into dialects occurs; and all words in which the sound subjected to the change appears in the same relationship are affected by the change without exception. (Osthoff and Brugmann 1878, translated in Lehmann 1967: 204)

Latin	French	Ancient Greek	English	German
Grimm's law: PIE *p → f in Germanic				
pedis	pied	poús (podós)	foot	fuß
pater (paternalis)	père	patḗr	father	vater
Grimm's law: PIE *d → t in Germanic (and later *t → ts in German)				
decem	dix	déka	ten	zehn
dēns (dentis, dentalis)	dent	odṓn (odóntos)	tooth	zahn

Table 1: Regular sound changes from Proto-Indo-European (PIE) to English/German

+ assumes the “tree model”, “pure” tree structures are the exception rather than the rule
- but language contact and borrowing can be taken into account, especially as soon as sound-change rules are well established
- in languages undergoing sustained contact over long periods, borrowing may occur over and over, leading to contact-induced similarities in grammar and lexicon (in both semantic and phonological structure), making teasing apart borrowing from inheritance more difficult

English 1	English 2	English 3
foot	**ped**icure (via Latin~French)	**pod**iatry (Greek-based neologism)
father	**pater**nal (via Latin~French)	
ten	**dec**imal (via Latin~French)	do**deca**hedron (from Greek dōdekaedron)
tooth	**dent**al (via Latin~French)	ortho**dont**ics (Greek-based neologism)

Table 2: Multiple reflexes of PIE cognates in English due to borrowing (cf. Table 1)

+ problem of meaning change

> [W]hen it is a matter of meaning, one has as a guide only a certain probability based on common sense, on the personal evaluation of the linguist, and on the parallels that he can cite. The problem is always, at all levels of analysis, within just one language or at different stages of a comparative reconstruction, to determine if and how two morphemes which are formally identical or similar can be shown to coincide in meaning. (Benveniste 1972: 249)

> some studies provide a methodological guide as to exactly which changes in meaning are natural and expected, and which are not, e.g., Wilkins (1996) on body parts

1.3 The data base

a) Why body parts?

- part of “basic vocabulary” that is semantically universal
- salient, comparably easy to delimit as semantic domain
- comparably easy to elicit
- parts of the domain are relatively stable historically
- forms a semantically structured system with related sub-systems
- sophisticated application of historical-comparative method advanced: Wilkins (1996)

b) Inventory of the body part questionnaire

- Wilkins (1996) proposes a 75 item “person part” word list, encompassing natural cross-linguistic tendencies of semantic change based on several unrelated families, and provides a methodological way of searching for cognates where the synchronic meanings diverge
- KBA body part list builds on the Wilkins list, expanding it to 111 items, adding a number of terms that are common in and/or historically relevant for the languages of area:

(1) Wilkins (1996): 1 claw, 2 fingernail, 3 finger, 4 palm, 5 hand, 6 forearm, 7 upperarm, 8 arm, 9 toenail, 10 toe, 11 sole, 12 heel, 13 foot, 14 calf of leg, 15 shin, 16 thigh, 17a leg, 18 to bend, 19 elbow, 20 knee, 21 chest, 22 belly (outside), 23a trunk of tree, 24 skin, 25 skeleton, 26 body, 27 person, 28 man (male), 29 husband, 30 woman, 31 wife, 32 cheek, 33 jaw, 34 chin, 35 beard ~ moustache, 36a front side of sth., 37 face, 38 top, 39 head, 40 mouth, 41 lip, 42 eye, 43 hair, 44 forehead, 45 ear, 46 skull, 47 brain, 48 bone marrow, 49 stomach (inside), 50 intestine, 51 space inside ~ within, 52 liver, 53 heart, 54 breast, 55 milk, 56 to suck, 57 blood, 58 (to be) red, 59 snot, 60 nose, 61 egg, 62a fruit - 62b seed, 63 (to be) round, 64 testicle, 65 breath, 66 wind, 67a soul - 67b spirit, 68 bark (of tree), 69a to flay animal, 70 to cover, 71 to walk, 72 to point (with finger), 73 to see, 74 to smell, 75a to hear

(2) Added items not in Wilkins (1996): 17b lower leg, 23b root (of tree), 36b space before sth., 62c pip (melon etc.), 69b to remove tree bark, 75b to listen, 76 eye brow, 77 tears, 78 tooth, 79 tongue, 80 to lick, 81 throat, 82 neck, 83 back, 84 shoulder, 85 right hand, 86 left hand, 87 thumb, 88 chest (with back), 89 lung, 90 kidney, 91 rib, 92 bone, 93 hip bone, 94 anus, 95 buttock, 96 penis, 97 vagina, 98 menstruation, 99 shit ~ faeces, 100 to shit, 101 pus, 102 wound, 103 corpse, 104 (to be) dead, 105 to die

c) Inventory of languages

- through the EuroBABEL KBA project, fieldwork has been conducted by project members on a number of little documented languages/dialects; further data collected from other works
> all data into the KBA database, facilitates systematic searches according to different goals

(Proto)-Language	Ongoing field research (by *KBA*)	Publications etc.
Proto-Tuu		Güldemann 2005
ǁXegwi†		Honken ms.
ǂUngkwe†		Meinhof 1928/9
ǀXam†		Bleek 1956
Nǁng	M. Ernszt, *T. Güldemann*, B. Sands	
ǀ’Auni†, ǀHaasi†		Bleek field notes
Taa	*T. Güldemann, C. Naumann*	Traill 1994
Proto-Kx'aa		Heine and Honken 2010
ǂHoan	*F. Berthold, L. Gerlach*, B. Sands	Sands and Honken 2011
Juǀ'hoan		Dickens 1994
NW !Xuun		König and Heine 2008
Proto-Khoe-Kwadi		Güldemann and Elderkin 2010
Kwadi		Westphal field notes
Proto-Khoe		Voßen 1997
Shua	*B. McGregor*	
Khwe		Kilian-Hatz 2003
Naro		Visser 2001
G|ui	*H. Nakagawa*	
!Ora~Xiri	*C. Rapold*	Meinhof 1930
St. Namib. Khoekhoe		Haacke and Eiseb 2002
ǂ’Aakhoe	*C. Rapold*	Heikkinen ms.

Table 3: Sources of lexical body part data[1]

- data from early research on extinct languages have varied deficiencies or are completely unreliable, notably older data on Tuu languages like ǀHaasi, ǀ’Auni
- data from published works with gaps, depending on what the researcher happened to collect in this semantic domain for their own research purposes
- data from our targeted fieldwork also with gaps: some items difficult to elicit or may not exist in the language under examination, either at all or due to language retraction/death

[1] We would like to thank the above-mentioned KBA project members and other colleagues who contributed data to this study. We are also grateful to Benedikt Winkhart for collating material from published sources.

2 Body part reconstruction in the three “Khoisan” lineages

2.1 Tuu

a) Proto-Tuu

- 21 robust:
5 hand, 27 people, 35 beard~moustache, 39 head, 42 eye, 43 hair, 45 ear, 47 brain, 48 marrow~fat, 52 liver, 56 to suck, 60 nose, 61 egg, 66 wind, 73 to see, 79 tongue, 84 shoulder, 89 lung, 91 rib, 99 shit, 105 to die
- 17 uncertain:
3 finger, 12 heel, 13 foot, 24 skin, 30 woman, 37 face, 40 mouth, 49 stomach, 54/55 breast~milk, 65 breath, 71 to walk, 78 tooth, 88 chest with back, 92 bone, 94 anus, 101 pus~to be rotten, 104 (to be) dead
- conceptual and compound patterns:
- 4 robust: 44 forehead, 46 skull, (48 marrow = fat), 77 tears
- 6 uncertain: 4 palm, 11 sole, 15 shin, 25 skeleton, 36a front, 87 thumb

b) Proto-ǃUi (subbranch)

- 32 robust:
1/2/9 claw~finger/toenail, 3/5 finger~hand, 16 thigh, 20 knee, 24 skin, 27 person, 27/28 people~men, 28 man~male, 30 woman, 37 face, 39 head, 40/41 mouth~lip, 42 eye, 43 hair, 45 ear, 47 brain, 53 heart, 57 blood, 60 nose, 61 egg, 65 breath, 66 wind, 73 to see, 75a to hear, 79 tongue, 84 shoulder, 89 lung, 91 rib, 94 anus, 99 shit, 100 to shit, 105 to die
- 19 uncertain:
14 calf, 19 elbow, 35 beard~moustache, 48 marrow~fat, 51 inside, 52 liver, 56 to suck, 58 (to be) red, 69a to flay, 71 to walk, 74 to smell, 75b to listen, 78 tooth, 81 throat, 83 back~behind, 85 right hand, 86 left hand, 88 chest with back, 96 penis
- conceptual and compound patterns:
- 5 robust: 26 body, 46 skull, (48 marrow = fat), 54/55 breast = milk, 61/64 egg = testicle
- 1 uncertain: 4 palm

c) Proto-Taa (subbranch)

- 80 robust:
1 claw, 2 fingernail, 3 finger, 4 palm, 5/8 hand~arm, 9 toenail, 10 toe, 13 foot, 14 calf, 15 shin, 16 thigh, 17b lower leg, 18 to bend, 20 knee, 23 root of tree, 24 skin, 25 skeleton, 26 body, 27 person, 27 people, 28 man, 29/31 spouse, 30 woman, 32 cheek, 33 jaw, 34 chin, 35 beard~moustache, 36a front side, 37 face, 38 top, 39 head, 40 mouth, 42 eye, 43 hair, 45 ear, 46 skull, 47 brain, 48 marrow~fat, 49 stomach, 50 intestine, 51 inside, 52 liver, 53

heart, 54/55 breast~milk, 54 udder > breast, 56 to suck, 57 blood, 58 (to be) red, 60 nose, 61 egg, 62b seed, 62c pip, 64 testicle, 66 wind, 67b spirit, 69a to flay, 71 to walk, 73 to see, 75a/b to hear~listen, 78 tooth, 79 tongue, 81 throat, 82 neck, 83 back, 84 shoulder, 86 left hand, 89 lung, 90 kidney, 91 rib, 92 bone, 93 hip bone, 94 anus, 96 penis, 97 vagina, 99 shit, 100 to shit, 101 pus, 101 to be rotten, 102 wound, 105 to die
- 2 uncertain:
12 heel, 68 bark of tree

2.2 Kx’aa

a) Proto-Kx’aa

- 8 robust:
2/9 finger/toenail, 16 thigh, 22/49 stomach/belly, 31 wife, 75a to hear, 78 tooth, 83 back, 96 penis
- 19 uncertain:
7 upper arm, 8 arm, 19 elbow, 40 mouth, 45 ear, 47/59 brain~snot, 51 inside, 57 blood, 58 (to be) red, 70 to cover, 72 to point, 73 to see, 79 tongue, 81 throat, 91 rib, 94 anus, 98 menstruation, 101 pus, 102 wound
- conceptual and compound patterns:
- 3 robust: 4 palm, 11 sole, 46 skull
- 4 uncertain: 10 toe, 12 heel, 35 beard~moustache, 76 eye brow

b) Proto-Ju (subbranch)

- 58 robust:
2 fingernail, 4 palm, 5 hand, 6 forearm, 8 arm, 11 sole, 13 foot, 14 calf of leg, 16/17a thigh/leg, 19 elbow (2), 20 knee, 23b root of tree, 24 skin, 27 person, 28 man~male (2), 30/31 woman~wife, 34 chin, 37 face, 38 top, 39 head, 40/41 mouth~lip~rim, 42 eye, 43 hair, 45 ear, 46 skull, 47 brain, 48 marrow, 49 stomach, 51 inside, 52 liver, 53 heart, 54/55 breast~milk, 58 (to be) red, 59 snot, 60 nose, 61 egg, 62b grain~seed, 64 testicle, 71 to walk, 73 to see, 74 to smell, 75a to hear, 76 eye brow, 77 tears, 78 tooth, 79 tongue, 81 throat, 82 neck, 83 back, 84 shoulder (2), 91 rib, 92 bone, 96 penis, 102 wound, 104/105 (to be) dead~to die
- 5 uncertain:
17 lower leg, 29 husband, 89 lung, 95 buttock, 99/100 shit~to shit
- conceptual and compound pattern:
- 6 robust: (4 palm), (11 sole), (46 skull), (64 testicle), (76 eye brow), (77 tears)
- 5 uncertain: 10 toe, 12 heel, 15 shin, 85 right, 86 left

2.3 Khoe-Kwadi

a) Proto-Khoe-Kwadi

- 17 robust:
16/17a thigh > leg, 24 skin, 27 person, 28 male, 38 top, 40 mouth, 43 hair, 53 heart, 55 milk, 57 blood, 60 nose, 71 to walk, 73 to see, 74 to smell, 75a to hear, 79 tongue, 81 throat~to swallow
- 6 uncertain:
28 young male, 30 female 1, 42 eye, 52 liver, 78 tooth, 105 to die

b) Proto-Khoe (subbranch)

- 42 robust:
2/9 finger/toenail, 6 forearm, 8 arm, 13 foot, 16 thigh, 17a leg, 20 knee, 24 skin, 26 body ~ meat, 27 person, 28 man (male), 33 jaw, 34 chin, 37 face, 38 top, 40 mouth, 42 eye, 43 hair, 44 forehead, 45 ear, 47 brain, 48 bone marrow, 52 liver, 53 heart, 54 breast, 55 milk, 56 to suck, 57 blood, 60 nose, 68 bark (of tree), 71 to walk, 73 to see, 74 to smell, 75a to hear, 78 tooth, 79 tongue, 81 throat, 82 neck, 89 lung, 99 shit ~ faeces, 102 wound 2, 105 to die
- 2 uncertain:
22/49/50 belly~ stomach~intestines, 102 wound 1

2.4 Discussion

- consolidation of three well-established language families in the Kalahari Basin as well as their subfamilies - but clear differences in the number of lexical reconstructions
> hierarchy (robust/uncertain):[2]

Proto-Kx’aa (8/19) > **Proto-Khoe-Kwadi (17/6)** > **Proto-Tuu (21/17)** > Proto-!Ui (32/19) > Proto-Khoe (42/2) > Proto-Ju (58/5)> Proto-Taa (80/2)

+ degree of reconstructibility reflects the rate of lexical retention or conversely the amount of language change from the proto-language to its daughter languages, which in turn is determined primarily by the age and historical dynamics of a respective lineage
> likely correlation with the relative age of the families - approximate relative age hierarchy of southern African linguistic lineages:

Proto-Kx’aa > **Proto-Khoe-Kwadi** = **Proto-Tuu** > Proto-!Ui = Proto-Khoe = Proto-Ju > Proto-Taa

> as can be expected, subgroups generally appear to be historically younger than **families**

[2] The number of uncertain reconstructions would establish a partially inverse hierarchy than that of robust ones. A high number in the “uncertain” portion reflects a relatively low degree of understanding of reliable sound change rules.

+ historical age can be compared with geographical distribution - approximate size hierarchy of southern African linguistic lineages (see Map 1):

Khoe-Kwadi > KHOE > **Tuu** > **Kx’aa** = !Ui > Ju > Taa

> historical “puzzle”: Khoe subbranch of Khoe-Kwadi is geographically the second-largest lineage of southern Africa but at the same time historically relatively young, notably far younger than Kx’aa and Tuu
> indicates a relatively recent expansion that must have been propelled by relatively strong socio-linguistic forces (cf. Güldemann 2008b)

+ Kwadi shares additional items with Kalahari Khoe
- 3~4 robust: 13 foot, 39 head, 96 penis, (also outside questionnaire: to eat)
- 4 uncertain: 30 female 2, 83 back, 92 bone, 97 vagina~clitoris
> supports assumption that Khoe languages lost inherited vocabulary the more they encroached on areas further south(west) (cf. Güldemann 2008b)

3 Possible genealogical relations across the three lineages

3.1 The problem of “Pan-Khoisan” roots

- only very few words found in all three “Khoisan” lineages - 11 comparative series - **cf. Table 4 on separate handout**
> clearly outnumbered by family specific reconstructions (see §2 above)
> these fall into four different types, according to their historical interpretation:
(a) No lineage involves a robust reconstruction: 1 series - localized borrowing in the Central Kalahari (and possibly spurious association of !Ora form)
(b) One lineage involves a robust reconstruction: 3 series - borrowing from one lineage into single languages of the two other languages
- 102 wound: borrowings from different Khoe languages into individual Tuu and Kx’aa languages
- 32 cheek: localized borrowing in the Central Kalahari area, possibly but not necessarily from Taa into other languages
- 6/8 (fore)arm: unclear: possibly (?Early) Ju (?or Kx’aa) > Khoekhoe > N‖ng
(c) Two lineages involve a (robust) reconstruction: 5 (or 6) series (half of all cases) - involve exclusively Kx’aa and Khoe-(Kwadi)!!! - to be dealt with below, borrowings from different Khoe and Kx’aa languages into individual Tuu languages, mostly from Khoekhoe into !Ui (and possibly spurious association of ‖Xegwi form with 6/7/8 arm)
(d) All three lineages involve some reconstruction: only 2 series - involve doubtful associations of individual reconstructed forms
> not a single robust reconstruction for the highly doubtful “Proto-Khoisan”!!! - existence of different alternative explanations of wide distribution in terms of language contact

3.2 Binary comparisons between family reconstructions

+ identification of shared reconstructed forms between a pair of language families - **cf. Tables 5-7 on separate handout**

> deep historical relations between proto-languages/families, if any, differ considerably:
c) 9 Kx’aa~Khoe-(Kwadi) > b) 4 Tuu~Kx’aa > a) 2 Tuu~Khoe-(Kwadi)

a) Tuu~Khoe-(Kwadi) with only 2 series > **Table 5**:
- series 16/17a thigh/leg: although suggestive, a possibly spurious association in view of greater difference between Proto-Tuu *thain and earlier Proto-Khoe-Kwadi *tini
- series 35 beard~m.: likely borrowing from Tuu into Pre-Khoekhoe (cf. Güldemann 2006)

> old and intimate historical relation unlikely - congruent with the geography and assumed colonization of Khoe-(Kwadi) within southern Africa from north(east) to south(west)

b) Tuu~Kx’aa with 4 series > **Table 6**:
- series 42 eye: possibly spurious
- involve mostly Proto-Ju, ?function of relatively small amount of Kx’aa reconstructions

> difficult to assess in terms of shared history but still open season to hypothesize either contact at an early language stage or a very ancient genealogical unity of these two families

c) Kx’aa~Khoe-(Kwadi) with 10 series > **Table 7**:
- doubtful series: 6/7/8 arm, 19/20 elbow/knee, 57 blood, 74 to smell, 79 tongue

> but an overall compelling case for some kind of historical relation; potential evidence for:
(I) a genealogical relation (viewed as unlikely on account of other data) or
(II) a Kx’aa substrate in Khoe (cf. Güldemann 2008a), or even Khoe-Kwadi (cf. 57 blood, 79 tongue, 81 throat)

4 Tangible localized borrowing across families

+ evidence for similar words representing a borrowing pair:
  - relevant languages are genealogically separate at a sufficient time depth
  - known contact history scenario
  - words generally not attested across different branches of the relevant lineage
  - phonological forms are more similar than for normal inherited items, reflecting a relatively shallow time depth (regular sound changes have not taken place)
+ evidence for borrowing direction:
  - kind of sociolinguistic relation (prestige language, language shift, etc.)
  - word in donor language goes back to a proto-form in the same lineage
  - word in borrowing language has close lexical doublets and/or unrelated proto-form

4.1 Tuu and Khoe-Kwadi

W Kalahari Khoe (Naro, G|ui) and Taa

No	English	Taa	W Kalahari Khoe
6/7	forearm/upperarm	W !Xoon: g’òmà ‘upperarm’	*gǃoma ‘forearm’
19	elbow	W !Xoon: g‡húní, E !Xoon: g‡qhúli	*‡huni
21/88	chest	E !Xoon: g‖úu	*g‖uu
23b	root of tree	E !Xoon: !kx’ái vs. *n‡”obi-si	G|ui: !qx’áí, Naro: !kx’abì ‘grass root’
41	upper lip	E !Xoon: dzúm	*ts’om also ‘beak’
77	tears	E !Xoon: dtshàle	*‡xai tshaa ‘eye-water’
(82)	neck	*‡qx’aM	*!qx’áó ~ *!kx’áó
102	wound	E Taa: thúa	*thui

Table 8: Likely borrowings from W Kalahari Khoe into Taa

No	English	Taa	W Kalahari Khoe
(20)	knee	E !Xoon: g‖xúũ |nàn	G|ui: g‖ú̱mì ‘kneecap’
32	cheek	*n|oqbi	G|ui: n|úbī vs. *g‖ai
35	beard ~ moustache	*n|um	Naro: n|om ts’om vs. *ts’om ‘upper lip’
(84)	shoulder	*(g)‖aqe	G|ui: ‖gárā ‘s. scapula + muscles’, Naro: n‖aqra

Table 9: Likely borrowings from Taa into W Kalahari Khoe

No	English	Taa	W Kalahari Khoe
(65)	breath	E !Xoon: ‖qhô’ã	G|ui: ‖ʰǘ̃ ‘to breathe’
68	bark of tree	E !Xoon: gúle ‘dry bark’	G|ui: gúrē
(72)	to point with finger	E !Xoon: ‖qhoa kM	G|ui: ‖ʰāā
76	eye brow	E !Xoon: |’ālo	Naro: |’aro
80	to lick	E !Xoon: |ɢu’i	G|ui: |qúrī

Table 10: Borrowing pairs between W Kalahari Khoe and Taa with unclear direction

N Khoekhoe and (W) Taa

No	English	Khoekhoe	Taa
67a	soul	*|’um-s	W !Xoon: |’ùm̀-te, Ukwi: |’um-te
(76)	eye brow	*|aun-	W !Xoon: |àhù-|àhù-sì
91	rib	|’ara-b N KK	W !Xoon: |’’árá

Table 11: Likely borrowings from Khoekhoe into (W) Taa

Khoekhoe and W !Ui-Lower Nossob

No	English	Khoekhoe	W !Ui	Lower Nossob
1	claw	*‖oro-	N‖ng: ‖qoro, |Xam: ‖uru	
2	fingernail	*‖oro-	N‖ng: ‖qoro, |Xam: ‖uru	‖ora also ‘toe’
6	forearm	N KK: ǂhaan-b	N‖ng: ǂ’haan-si	
9	toenail	*‖oro-	N‖ng: ‖qoro, |Xam: ‖uru	
12	heel	N KK: n!oan-s	N‖ng: n!oa-si	
16	thigh	*tĩ- ~ *tain	*thain	
(19)	elbow	N KK: !’uni-b	(*!’uni)	
20	knee	*‖oa-		‖oi‖oi
26	body	N KK: soro-		soru hráka
33	jaw	*n!ani-	N‖ng: n!ali-ke	
34	chin	*!ann-	N‖ng: g!ann ~ g!any	
58	(to be) red	*|kx’aba	N‖ng: |kx’aba	
67a	soul	*|’um-s	N‖ng: |’um-si	
68	bark (of tree)	*‖kx’uun	N‖ng: ‖kx’uun-si	‖̄kõ
(71)	to walk	*!uun		‖ũ
76	eye brow	*|aun-s	N‖ng: g|aun-si	g|aun-s
81	throat	*dom-mi	N‖ng: dyum, |Xam: dom	
86	left hand	*‖’are	N‖ng: ‖’are, |Xam: ‖’are	
89	lung	*soV-b	|Xam: soo	
102	wound	*thui-	|Xam: t(h)ui	

Table 12: Likely borrowings from Khoekhoe into W !Ui and Lower-Nossob languages

No	English	Khoekhoe	W !Ui
(19)	elbow	N KK: !’uni-b	*!’uni
35	beard ~ moustache	*n|um-bi	Proto-Tuu: *n|um

Table 13: Likely borrowing from !Ui into (Pre)-Khoekhoe

4.2 Tuu and Kx’aa

ǂHoan and (E) Taa

No	English	Taa	ǂHoan
19	elbow	E Taa: *(g)ǂxubi	ǂxúbí
21	chest	E !Xoon: g!āma	g!àmà
23b	root of tree	E !Xoon: !kx’ái vs. *nǂ’’obi-si	!q?ɑi-!q?ɑi qɑ ‘roots’
32	cheek	*n|oqbi ~ *n|uqbi	ŋ|óʕßí
(36a)	front	*ǂhaan ‘to be in front’	nǂhhāà
41	upper lip	E !Xoon: dzúm	(d)zú'ɑ́m̀
(65)	breath	E !Xoon: ‖qhô’ã	‖hōèn
68	bark	E Taa: *gule	gūrē
(77)	tears	E !Xoon: dtshàle	tsxānē
81	throat	*’n|uqm	n|oq'o ~ nǂoqli
100	to shit	*qa’i	qa’e

Table 14: Borrowing pairs between Taa and ǂHoan with diverse/unclear direction

S Ju|’hoan and W Taa: not yet surveyed systematically

4.3 Kx’aa and Khoe-Kwadi

N Khoekhoe and Ju|’hoan

No	English	North Khoekhoe	Ju|’hoan
40	mouth	*k’am/ *kxˀam	kx’ám (+ *t’sii)
44	forehead	*!ˀã	kòà tsí !’ànkè
45	ear	*ǂai	!oan-ǂáé
53	heart	*ǂao	ǂáó (+ *!kx’á)
60	nose	*ǂui	ǂuìhn (+ *ts’VN)
68	bark	*‖xˀũ	n‖oq’òrò
(89)	lung	*so	tcoq’ò

Table 15: Likely borrowings from N Khoekhoe into Ju|’hoan

Khwe and (NE) Ju: not yet surveyed systematically

Naro and (S) Ju|’hoan: not yet surveyed systematically

Hai‖’om-ǂ’Aakhoe and (W) Ju: not yet surveyed systematically

W Kalahari Khoe (G|ui, Naro) and ǂHoan

No	English	G|ui	ǂHoan
5	hand	tsʰéū < *tshau	sīū
6	forearm	g!úmà < *g!uma	g!ūmā (? < *(g)!oma ~ *(g)!uma)
8	arm	‖ʔúə̀ə̀ < *‖’ōā	‖"òà n|ē ‘upper arm’
23b	root	!qx’áí	!qʔɑi-!qʔɑi qɑ ‘roots’
(27)	person	kʰóè < *khoe	ǂ"ām kōē
32	cheek	ŋ|ú̱bī [ŋ|u̱ą̱bɪ]	ŋ|úɬßí
41	upper lip, beak	ts’úm̄ < *ts’om	(d)zú'ám̀
56	suck	|úm̄ < *|om	|ám̄ ‘suck breast’
65	breath	‖ʰűī̄ ‘to breathe’	‖hōèn
68	bark	gúrē	gūrē
69a	to skin	|áá < *|a	|àà ‘to skin while turning inside out’
70	to cover	ɟíbú	ɟißu
72	to point	‖ʰāā	kí ‖hàā (? < *‖haM)
(77)	tears	ǂxáí-tsʰáā ‘eye-water’	tsxānē
80	lick	ɟínī	dʒɪni
102	wound	cʰúī < *thui	tyùī

Table 16: Borrowing pairs between G|ui and ǂHoan with diverse/unclear direction

No	English	Naro	ǂHoan
10	toe	n!àrè |xónó ‘foot toe’	!gà'ú |xʊ̀nì ‘foot toes’
(50)	intestine	(g‖ae) |õqé	⊙'ó'í
(70)	to cover	!xabu	!xòàm (? < *!xoam)
	scapula	‖hoabà	‖ʰʊ̀ßà:
	space between shoulder blades	‖xábà < *‖xaba	‖xə̀ßà: ná
	gall bladder	txabi	cxɑm (si) !o'ɑ

Table 17: Additional borrowing pairs involving Naro and ǂHoan

4.4 Discussion

\+ two types of more recent contact patterns:
(a) widespread lexical influence of prestige languages of pastoral Khoekhoe into San languages (notably Tuu and in the Cape linguistic area), involving ultimate language shift (attested for N‖ng and Lower Nossob) > **Tables 11, 12 15**
(b) localized contact areas among San forager languages:
- Central Kalahari (**inner core in bold**): **ǂHoan**, **Taa**, **G|ui**, Naro, Ju|’hoan
23b root of tree, 32 cheek, 41 upper lip, (65) breath, 68 bark, (77) tears
> **Tables 8, 9, 10, 14, 16, 17**

\+ languages may display synchronically as many borrowing pairs (with unclear direction) as inherited vocabulary!!!
> cf. extreme case of ǂHoan - 8 secure + 19 uncertain reflexes of Proto-Kx’aa contrast with:
- 8 secure + 3 uncertain borrowing pairs with Taa > **Table 14**
- 18 secure + 4 uncertain borrowing pairs with W Kalahari Khoe (!incl. Naro) > **Table 16**
- apparent predominant direction from other languages into ǂHoan but not always clear
> phenomenon superficially disguises the true genealogical relationship

5 Summary

(1) Body part vocabulary shared across the Kalahari Basin is sparse at best and corroborates the current untenability of a “South African Khoisan” family.

(2) Body part vocabulary provides corroborating evidence for the three established linguistic lineages Tuu, Khoe-Kwadi, and Kx’aa (in the order of certainty).

(3) Cross-family isoglosses can be explained to a large extent by different types of language contact with a crucial historical role falling to Khoe-Kwadi
a) (recent/ongoing) localized borrowing between foarger language pairs, sociolinguistic dynamics still poorly understood but language expansion and shift is also relevant
b) multiple borrowing from pastoral into forager languages on a wider regional level
c) early lexical transfer from a forager substrate into different stages of Khoe-Kwadi in different phases of its assumed expansion and diversification in southern Africa (cf. Güldemann 2006, 2008a)

These new linguistic data are overall compatible with a scenario according to which Khoe-Kwadi as a linguistic population colonized southern Africa relatively recently propelled by a new food-producing subsistence involving in particular animal husbandry.

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