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Lexicostatistical Studies in Khoisan I: The Ju-ǂHoan Relationship[1]

This paper is the first one in an intended series of publications on lexicostatistical relations between several linguistic groupings that have all been assigned by Joseph Greenberg to the hypothetical Khoisan macrofamily. Here, we examine the numbers and natures of various matches between the basic lexicon of two such groupings: the closely related cluster of Ju (North Khoisan) dialects and the Eastern ǂHoan language, formerly considered an isolate but now widely regarded as the closest, and only non-controversial, genetic relative of Ju. Based on both superficial and etymological analysis of the data (including the reconstruction of a Swadesh wordlist for Proto-Ju), we conclude that there are from 32% to 44% matches between Proto-Ju and ǂHoan (depending on the degree of strictness required from phonetic correspondences), which is translatable to a time depth comparable with such families as Fenno-Ugric and Kartvelian. Additionally, the distribution of cognates between the various stability layers of the basic lexicon is analyzed, leading to the conclusion that the matches are indeed indicative of genetic relationship rather than areal contact.

Keywords: Khoisan languages, Ju languages, Eastern ǂHoan language, lexicostatistics, glottochronology, comparative-historical method.

Introduction

Despite significant progress that has been achieved over the past few decades in our understanding of the linguistic nature and historical relationships of the various «Khoisan» languages[2], there is still very little consensus on deep level genetic connections between low-level linguistic groupings, traditionally viewed as «Khoisan». Although practically all the researchers now working in the field seem to agree that Joseph Greenberg's «Khoisan», including all the non-Bantu and non-Cushitic click languages of South and Central Africa, has not been convincingly shown to constitute a valid genetic entity, judgements differ significantly on what might be the deepest identifiable genetic links between the three commonly accepted «Khoisan» families (Northern, or Ju; Southern, or Tuu; Central, or Khoe) and the four known «Khoisan» language isolates (ǂHoan, Kwadi, Sandawe, and Hadza) — particularly because the criteria for testing the plausibility of such links often depend on the personal intuitions and preferences of researchers[3].

[1] This research has been carried out as part of the Evolution of Human Languages project, supported by the Santa Fe Institute. Special gratitude goes to Dr. Bonny Sands, who provided the author with numerous insightful comments, corrections, and additional references at the early draft stage.

[2] For a relatively complete summary of all these developments, see Rainer Vossen's and Henry Honken's succinct overviews in Vossen (ed.) 2013: 1–24.

[3] See Greenberg 1966 for a comprehensive set of arguments in favor of Khoisan as a genetic unity; Güldemann 2014 for an overview of the current state of Khoisan classification from a grammatical and typological angle. The principal conclusions («two hypotheses seem to be promising to pursue in the future. In the order of probability these would be to join Sandawe with Khoe-Kwadi, and Kx'a (= *Ju-ǂHoan* /G.S./) with Tuu», p. 35) are conveniently consistent with the lexicostatistical conclusions in Starostin 2013, except that I would reverse the order of the two probabilities.

A general unified framework for evaluating the various hypotheses on such links has been suggested in Starostin 2003, 2008, and further refined in Starostin 2013. It combines a formal lexicostatistical approach, serving as a common evaluation standard for all such hypotheses (applicable not only to «Khoisan» lineages but, in theory, to any of the world's language families), with elements of the traditional comparative method and Greenberg's multilateral comparison, and allows for a rough probabilistic ranking of competing hypotheses.

However, the framework has not really been fully applied to all relevant data. In particular, inter-group comparison in Starostin 2013 has only been conducted (a) based on the abridged 50-item, rather than the complete 100-item variant of the Swadesh wordlist; (b) based on an automated algorithm of comparison (utilising Aron Dolgopolsky's «consonant class method» of evaluating phonetic similarity[4]), rather than the more fine-grained and historically significant method of establishing recurrent patterns of phonetic correspondences. Both of these decisions were intentional and technically inevitable within the scope of a general preliminary survey, resulting in a first-approximation classification scheme that should then be subject to additional revisions and refinements.

The present paper is the first attempt at such a refinement, and is intended to provide additional insights into one of the most reliable and closest linkages confirmed by the overall survey, namely, the genetic connection between the Ju, or North Khoisan, cluster of closely related languages (or, perhaps, dialects of a single macro-language), and (Eastern) ǂHoan (= ǂHòã or ǂHuã), an isolated language of Botswana. Such a connection could already be suspected from the lexical comparisons presented by Anthony Traill in his pioneering study of ǂHoan (Traill 1973), and seemed plausible even to such a notorious «splitter» in the field of Khoisanology as E. O. J. Westphal (1974). Since then, the main proponents of a specific genetic (rather than areal) connection between Ju and ǂHoan have been Henry Honken (1977, 1988)[5] and George Starostin (2003, 2008)[6]. The most recent attempt for a comprehensive survey of the evidence relating the two small taxa is Heine & Honken 2010, where the authors provide their own reconstruction of the phonological system for Proto-Ju-ǂHoan[7], illustrating it with numerous lexical examples. All in all, the total amount of lexical and grammatical isoglosses between Ju and ǂHoan, coupled with numerous attested phonetic regularities between the observed etymological parallels, makes the Ju-ǂHoan relationship proposal one of the most reliable and highly probable historical hypotheses about Khoisan languages in general.

Nevertheless, in order to complete the formal testing of the hypothesis and to provide a stronger foundation for the *genetic*, rather than *areal*, interpretation of the evidence, we find it useful to present a detailed lexicostatistical evaluation of Ju-ǂHoan, in accordance with the basic methodological guidelines laid out in Starostin 2013. A first attempt at such an evaluation

[4] For an up-to-date description of the Dolgopolsky method, see Kassian et al. 2015: 307.

[5] In his first publication on historical Khoisan linguistics (1977), Honken classifies ǂHoan and Ju|'hoan as «Ž1» and «Ž2» respectively, implying their close relationship without specifically commenting on it. In Honken 1988: 59, he explicitly states: «I have put Eastern ǂhuã firmly in the Zhu family unlike Traill who regards it as a link between Zhu and Taa», providing several examples of lexical and phonetic isoglosses to strengthen his case.

[6] In both of these sources, the primary argument for a close relationship between Ju and ǂHoan is made on the basis of lexicostatistical analysis. However, Starostin 2008: 356–363 also presents a first approximation for a reconstruction of the «Proto-North-ǂHoan» phonological system.

[7] Heine and Honken have suggested the short name «Kx'a» to denote this taxon, based on the identical phonetic shape for the word 'earth' in both Ju and ǂHoan. This seems to be more of a mnemonic tactic than a substantial decision (why should Ju-ǂHoan be thought of as the 'earth family'?), and it also bypasses the fact that the same word for 'earth' (*kx'a*) is also used in the unrelated extinct Kwadi language of Angola, which would complicate the matter even further. We prefer to stick to 'Ju-ǂHoan' as a slightly more complex, but more accurate designation for this taxon.

was already carried out in Starostin 2003, where Proto-Ju (= Proto-North Khoisan) and ǂHoan were found to have 43% matches on the Swadesh list. However, that comparison was merely a part of a much larger general study, not allowing the author to focus on specific issues of finding and evaluating lexicostatistical and etymological matches between the two taxa; moreover, it did not properly take into account the possible effects of areal diffusion, and employed somewhat lax and properly undefined criteria for establishing phonetic correspondences. Another important limitation is that it relied too heavily on limited and not wholly accurate lexical data for ǂHoan, not being able to take into consideration a lot of data that have only been published over the past ten years (see our main sources below).

A significant improvement has been offered in Starostin 2013, which already made use of much better data for both ǂHoan and the different varieties of Ju. However, that study was also a general lexicostatistical evaluation of phonetic similarities (rather than regularities) between the different Khoisan lineages; and while the study itself, limited to the «ultra-stable» 50-item half of the Swadesh wordlist, *confirmed* the existence of a special link between Ju and ǂHoan, it did not truly *explore* that link the way a thorough joint lexicostatistical-etymological study should have done. Consequently, this paper is an attempt to remedy that situation and provide a *definitive* lexicostatistical evaluation of the evidence for Ju-ǂHoan, one that would allow us to formulate explicit historical statements about the relative chronology of these families, some particularities of their divergence, and their areal connections with other varieties of «Khoisan».

Data

Complete and most up-to-date versions of the 110-item wordlists[8] for six different languages/dialects of the Ju group and for (Eastern) ǂHoan, accompanied by detailed annotations, are currently available at the *Global Lexicostatistical Database* (http://starling.rinet.ru/new100). The Ju lists differ significantly in quality, since only two of them are drawn from relatively recent sources that benefit from greater phonetic and semantic accuracy[9]: Juǀ'hoan, based on Patrick Dickens' dictionary (Dickens 1994), and Northwestern (Ekoka) !Xun (!Xung), based on the glossary in König & Heine 2008 (and largely coinciding, pending certain phonetic discrepancies, with the data in Heikkinen 1986).

The availability of both these sources today is a strong advantage, since Juǀ'hoan and Ekoka represent two different sub-clusters of Ju dialects and are about as far removed from each other lexically as any two languages/dialects of Ju can be. However, for the sakes of etymological and lexicostatistical accuracy, and as a necessary condition for a reliable reconstruction of the basic lexicon for Proto-Ju, it is imperative to also make use of older data, namely, the vocabularies collected by Lucy Lloyd, Dorothea Bleek, and Clement Doke, all of them eventually integrated in D. Bleek's monumental comparative dictionary (Bleek 1956). We have specifically selected four varieties:

[8] The 110-item wordlist is a slightly expanded version of the standard 100-item Swadesh wordlist (with 10 additional items from the earlier 200-item version) commonly used in lexicostatistical studies conducted by the Moscow school of comparative linguistics. For specific details on the semantics of individual items and on the handling of potential synonyms, see Kassian et al. 2010.

[9] This should not be understood as implying that these works are completely free of phonetic errors: in most cases, it makes sense to compare transcriptions by different specialists where they are available. Nevertheless, qualitative differences between most of the modern sources look relatively negligible when compared with the first systematic attempts at transcribing Ju (and other Khoisan) phonologies in the early 20th century.

(a) Lucy Lloyd's «!Kung», recorded in 1879–1880 from four young informants from around lake Ngami; typically correlated with what has been termed the «Central Dialect Cluster» in Snyman 1997, Treis 1998, and Sands 2010, but more recently re-aligned with the «North-Central» cluster by Florian Lionnet (2009) because of specific lexical, phonetic, and grammatical isoglosses;

(b) Clement Doke's «!Hũ:» of Grootfontein (research originally published as Doke 1925), also typically grouped in the Central cluster (despite some significant discrepancies with Lloyd's data, although it is often hard to understand if these discrepancies are real or due to inaccurate fixation);

(c) Dorothea Bleek's «‖K'au‖en» or «ǂAu kwe» (the most modern transcription in Vossen 2013: 9 puts the dialect's name as ǂx'áó-‖'àeǹ), recorded in the early 1920s at Sandfontein; this dialect is typically assumed to belong to the Southern cluster as well (Treis 1998: 468), although the issue remains open due to lack of modern data from the same region (Sands 2010)[10];

(d) Dorothea Bleek's «!O!kung», recorded in Central Angola in 1925; this dialect is lexically and phonetically very close to Ekoka !Xun, as well as to «Angolan !Xũ», a brief account of which was published as Snyman 1980.

All four of these sources share the same advantages (sufficient in size to allow for a relatively complete and representative set of Swadesh-type wordlists; recorded a hundred or so years ago in communities slightly less linguistically susceptible to Khoe, Bantu, and European influence than they are today) and flaws (generally poor quality of transcription and possible semantic inaccuracies). In the case of this particular study, however, phonetic inaccuracies are not a significant problem as long as the necessary adjustments are made (i.e. there is a general understanding of what kinds of errors are typical for Lloyd's and Bleek's data); semantic inaccuracies are far more harmful for lexicostatistical data and can severely influence classifications and datings, but as long as the data may be compared with data from more recent and accurate sources, most of the potential errors may be successfully filtered out on the way from modern data to the reconstructed proto-wordlist[11].

No «official» dictionary has so far been published for Eastern ǂHoan, but enough lexical data have become available in the past few decades to make the language perfectly acceptable for lexicostatistical comparison. Most of that data have been collected by Jeffrey Gruber (G) and Chris Collins (C), our main source being the relatively recently published comparative grammar of the language (Collins, Gruber 2014), well illustrated by lexical and textual examples, and also heavily drawing upon previously published papers by the same authors (Collins 2001, 2002; Bell, Collins 2001; Gruber 1975). A few lacunae had to be filled in by data from the first ever published wordlist of ǂHoan that was put together by Anthony Traill (1973); overall comparison of Traill's data with Gruber's and Collins' materials shows that, while the quality of Traill's transcription leaves a lot to be desired, his elicitation of ǂHoan lexical equivalents for basic semantic notions was largely correct.

Naturally, some data sources for other Khoisan languages have to be taken into consideration as well, since any serious study on the etymology or lexicostatistics of Ju-ǂHoan has to take the areal factor into account. In particular, ǂHoan is known to have been in tight contact

[10] Work on the documentation of ǂx'áó-‖'àeǹ is currently being conducted by Lee Pratchett (2017), but outside of several papers dealing with specific phonetic and grammatical issues, no comprehensive data collections have yet been made publicly available.

[11] For the basic principles of reconstructing an «optimal» Swadesh-type proto-wordlist from attested lexical data (in accordance with which we reconstruct the Proto-Ju wordlist in this paper), see Starostin 2016.

with |Gui, a Kalahari Khoe language, and through it (and, perhaps, directly as well), also with !Xóõ, a Taa language (Traill & Nakagawa 2000); although some of the resemblances between ǂHoan and !Xóõ are not to be ruled out as potential evidence for genetic relationship on a deeper level than Ju-ǂHoan (Starostin's «Peripheral Khoisan»), specific binary isoglosses between the two languages without any parallels in the rest of «Peripheral Khoisan» are most likely explainable as results of diffusion. Most of the references to !Xóõ lexicon will be given according to Traill 1994; Kalahari Khoe references will be provided according to the reconstructions in Vossen 1997, except where specially noted.

For the sakes of general convenience, we utilize here a unified system of transcription as is currently adopted for the purposes of the *Global Lexicostatistical Database* project; for the most part, it does not differ from IPA, except for a few details (such as the use of single-graph vs. digraph transcriptions for affricates: IPA *ts* = *c*, IPA *tʃ* = *č*, IPA *tɕ* = *ɕ*, etc.). In our transcription of click accompaniments, we also follow the old transcriptional convention by Rainer Vossen (1997), where voiced clicks are transcribed as *ǀ̬*, *ǂ̬* etc. (instead of *gǀ*, *gǂ* or *ǀg*, *ǂg*, etc.) and nasalized are transcribed as *ǀ̃*, *ǂ̃* etc. (instead of *nǀ*, *nǂ* or *ǀn*, *ǀn* etc.).

Comparative procedure

For the sake of historical accuracy, lexicostatistical comparison between Ju languages and ǂHoan has to be carried out on the level of protolanguage reconstruction in the case of Ju[12]. Although some details of Proto-Ju and the phonetic laws that tie it to its modern descendants still remain poorly understood (mostly in the sphere of tonology and non-productive/fossilized nominal morphology), all the dialects are close enough to provide evidence for the basic phonetic shape of the protoforms, particularly with the aid of precious comparative data in J. Snyman's (1997) dialectal survey. It is very important not to rely exclusively on a single source, such as Patrick Dickens' exhaustive dictionary of Ju|'hoan, which, paradoxically, sometimes provides *too much* data for an accurate lexicostatistical analysis (for instance, many basic terms, such as body parts, are often represented in that dictionary by doublet forms — one inherited from Proto-Ju, one recently borrowed from Khoe; external comparison with other Ju dialects helps sort the situation out very easily).

Although a definitive areal/historical classification for Ju dialects is still lacking, it seems clear from both phonetic and lexical evidence that the sharpest dividing line separates the Southern cluster, represented most prominently by Ju|'hoan, from the Northern cluster, represented by Ekoka !Xun. The lexicostatistical implications are such that, quite often, one finds a binary opposition between Ju|'hoan (and related dialects) and Ekoka (and related dialects), where simple distributional considerations are not enough to understand which of the two roots is a better candidate for the respective «Swadesh meaning» on the Proto-Ju wordlist. In such cases, we resort to «extra-distributional rules»[13] to help resolve the situation, wherever they are applicable. When no reasonable choice can be made, we may count two roots as «technical synonyms» and subject both of them to comparison with ǂHoan.

[12] Theoretically, it is also possible to subject ǂHoan data to the reconstruction procedure, since we know of at least one additional dialectal variety, Sasi, somewhat divergent from ǂHoan proper; however, data on Sasi are extremely limited and, at best, show it to be slightly more archaic in terms of certain phonetic features, but not in terms of lexical stability. For more details on the differences between the two dialects, see Collins & Gruber 2014: 17–20.

[13] For a complete list of said rules, illustrated by examples, see Starostin 2016. These typically have to do with internal etymologization or external analysis (checking for borrowings, etc.).

Matches between Proto-Ju reconstructions and ǂHoan forms are evaluated on a somewhat fine-grained scale, allowing for a more insightful final analysis. The «evaluation marks» are as follows:

+ : *Definitive lexicostatistical matches*. To get a + mark, both parts of the comparison have to be reliably attested or reconstructed in the appropriate Swadesh meaning, *and* be phonetically compatible, i.e. agree with the basic correspondence patterns, identified in Starostin 2008 and in Heine & Honken 2010 (see below on the comparison between the two systems). «Phonetic compatibility» does not necessarily imply complete historical transparency of the correspondences between each of the segmental and suprasegmental features, but it does imply that the majority of segmental alignments should display pattern-like behavior[14].

± : *Potential lexicostatistical matches*. These pairings, also reliably attested or reconstructed in the appropriate Swadesh meaning, typically display a remarkable degree of phonetic similarity, but also feature at least one (preferably not more than one) major segmental discrepancy that cannot be explained according to our current understanding of the historical phonology of Ju-ǂHoan. Such matches cannot be taken as direct evidence for relationship and should not be included into the main round of lexicostatistical calculations, but since we cannot claim to know everything there is to know about regular vs. sporadic developments from Proto-Ju-ǂHoan to their modern descendants, it makes perfect sense to make note of such potential matches and include them in an alternate set of lexicostatistical calculations (see below).

≈ : *Etymostatistical (etymological) matches*. Since this study is carried out on the data of a compact, binary taxon, tied together by sets of phonetic correspondences, it makes sense to expand the strict lexicostatistical analysis (demanding exact semantic matches between compared items) by also taking into consideration those situations where a Proto-Ju Swadesh item finds a good phonetic/semantic match in ǂHoan (or vice versa), but the meanings are semantically related rather than semantically identical. Based on typological (and simply logical) arguments, in any situation of language relationship we should be able to find such matches in addition to direct lexicostatistical ones, and comparing their numbers and their character to those of direct lexicostatistical matches should provide additional insight into the degree and nature of their relationship.

- : *No matches*. There are no hitherto detected parallels between the compared items. (Given the deficiency of our knowledge on Ju and especially ǂHoan lexicon, any of these pairings could turn out to be etymostatistical matches in the future, but it is highly unlikely that they will ever turn out to be direct lexicostatistical matches).

? : *Insufficient data*. These are the cases where the respective item is not attested in our sources on ǂHoan (e.g. 'bark'), or is insufficiently well attested in Ju idioms to be reconstructible (e.g. 'round'). In all such cases, the Swadesh item is excluded from calculations, and any percentages are calculated out of the remaining items. The same also applies to a few cases where either the ǂHoan item (e.g. 'salt') or the Proto-Ju (or, rather, «Common Ju») item (e.g. 'fish') is highly likely to have been borrowed from a third source, such as !Xóõ or Khoe.

An additional factor to be taken into consideration is the distribution of detected cognates across the wordlist. In accordance with the well-known and empirically well confirmed «Yakhontov principle» (genetically related languages will share more matches on the more stable sub-

[14] For instance, the exact factors determining the lack or presence of voicing during click articulation in Ju-ǂHoan cognates remain obscure; however, recurrent examples are available for all four types of possible correlations, confirming their regularity. In other words, it is impossible at present to offer unequivocal Proto-Ju-ǂHoan reconstructions for such items (due to insufficient data or incomplete analysis of all the factors that could be involved), but it *is* possible to regard them as reliable cognates.

section of the lexicostatistical wordlist, while languages in contact will share more matches on the less stable sub-section), we separate the 100-item list in two halves and compare the numbers for all types of matches (definitive, potential, etymostatistical) separately, so that the nature of relationship between Ju and ǂHoan could be assessed according to that parameter — and so that the results could also contribute to establishing a general benchmark for all such types of situations.

Correspondences

Unlike deeper level lexicostatistical comparisons, where comparanda still have to be evaluated on the basis of phonetic similarity rather than phonetic correspondences, Proto-Ju and ǂHoan forms have the benefit of actually being linked together by recurrent phonetic isomorphisms, as shown in Starostin 2008 and Heine & Honken 2010. Due to data limitations and certain unresolved issues with Proto-Ju itself, these isomorphisms have not yet been processed to the stage of a definitive, all-encompassing phonological reconstruction of Proto-Ju-ǂHoan, but enough of them have been observed for us to be able to confidently propose common Ju-ǂHoan etymologies even in certain cases where the forms do not at all look alike.

In the notes section for each individual comparison, we typically comment on the degree of regularity that may be inferred for specific Ju-ǂHoan segments, particularly when these segments are not phonetically identical. Where necessary and/or possible, additional examples to confirm the recurrent nature of the pattern are drawn upon from the available corpus of Ju-ǂHoan etymological comparanda (most of it published either in Starostin 2008 or in Heine & Honken 2010). The complete list of correspondences observed between Ju and ǂHoan basic lexicon items is given in the Appendix, with each correspondence enumerated so that it can be briefly referred to in the main section of the paper.

A detailed description of the phonological systems of (Proto-)Ju and ǂHoan lies well beyond the scope of the current paper. See Miller 2013 for an up-to-date brief account of Ju phonology and phonetics, Honken 2013 for the same concerning Eastern ǂHoan, and the above-mentioned papers by Starostin and Heine/Honken for comparisons between the two.

Abbreviations

Language names: PJ = Proto-Ju; Ek. = Ekoka !Xun; Ju. = Juǀ'hoan; Kg. = (Lucy Lloyd's) !Kung; Kx. = ǂX'áó-ǁ'àeǹ; OK. = (Dorothea Bleek's) !O!Kung.

Sources: C = Ch. Collins (for ǂHoan); G = J. Gruber (for ǂHoan); S = B. Sands (for ǂHoan); HH = Heine, Honken 2010; SH = Sands, Honken 2014.

Ju/ǂHoan comparative wordlist

1. ALL (+)

- PJ: ***wòe-še (**Ju. *wè-šè*, Kx. *oá-si*, Gr. *we:še-sǹ*, OK. *wì-sè ~ wè-šè*, Ek. *wòhē-šē*). ◊ Preserved in all daughter dialects. No alternate stems. The reconstruction follows the Ekoka variant as phonetically more archaic in its vocalism; the variant **wè-še* is also possible. Extra low tone in Ekoka is not, however, confirmed by the rest of the data. The form is morphologically complex: the derivation is transparently seen in Ekoka, cf. *wòhà* 'for-

ever', *wòhè* 'some time ago, already, just'. The meaning of the suffix *-*še*, however, remains unknown.
- ǂHoan: **ùē** (G).
- Ju-ǂHoan: A phonetically similar and compatible match[15]. Since initial **w-* in PJ is not prothetic, we have to suppose simplification in ǂHoan (**woe* → *ue*). The suffix *-*še* may have been a PJ innovation. ◊ HH: 14.

2. ASHES (-)
- PJ: ***tò͡ˢ** (Ju. *tò͡ˢ*, Kx. *tɔː*, Kg. *tːɔː ~ tó*). ◊ Not attested in the Nothern dialects, except for the reduplicated variant *tào͡ˢ-tào͡ˢ* in Snyman 1980: 33. OK. *ǂ̰òā* 'ashes' = Ju. *ǂ̰òà*^{h} 'soap', both forms probably having been borrowed from Khoe sources, cf. Proto-Khoe **ǂ̰oa* 'ashes' (Vossen 1997: 417); Ek. *ǁ̰òhà* 'ashes' probably belongs here as well, but the click correspondence is irregular (possibly a transcription error).
- ǂHoan: **ǂ̃oe** (T). ◊ Only attested in Traill's records (as *ǂ̃oe ~ ǂ̃ue ~ ǂ̃ue*^{h}), so the precise phonological shape is uncertain; however, the word is clearly not a possible match for PJ.
- Ju-ǂHoan: No lexicostatistical or etymological matches.

3. BARK (?)
- PJ: ***ǁ̃o͡ˢʔrV**$_{A}$ (Ju. *ǁ̃o͡ˢʔòrò*, Ek. *ǁ̃ùlì*). ◊ Reliably reconstructible for the PJ stage, although in many dialects, particularly those found in Bleek's dictionary, the meaning 'bark' is usually merged with 'skin' (Kx. *ʗ̃o-si*, Kg. *ʗ̃ɔ̀ ~ ʗ̃ò ~ ʗ̃ɔ́wa*; see 'skin' below).
- ǂHoan: Not attested.

4. BELLY (+)
- PJ: ***ǃ̰ú (**Ju. *ǃ̰ú*, Kx. *ǃ̰ú*, Kg. *ǃ̰ù ~ ǃ̰ú*, Gr. *ǃ̰ú*, OK. *ǃ̰ú*, Ek. *ǃ̰ú*). ◊ Preserved in all daughter dialects. No alternate stems. Straightforward reconstruction.
- ǂHoan: **ǃō** (C, G); *ǃʊ́vʊ̄ ~ ǃóō ~ ǃʰúː* (S).
- Ju-ǂHoan: A phonetically similar and compatible match (see corr. #12, #38a). ◊ HH: 17[16].

5. BIG (≈)
- PJ: ***ǃ̃àʔà (**Ju. *ʗ̃ãʔã́*, Kx. *ʗ̃aː/ː/*, Kg. *ǁ̃ʔa*, Gr. *ŋ̀ǃ̃ʔaː*, OK. *ǁ̃a ~ ǁ̃á ~ ǁ̃aa*, Ek. *ǁ̃à ~ ǁ̃ãʔà*). ◊ Preserved in all daughter dialects. Correspondences are regular, indicating an original retroflex nasalized click and a glottal stop between the vowels.
- ǂHoan: (a) **ǂʰĭ**, (b) **ǂ̰ào** (C, G). ◊ Both of these words are consistently glossed as 'big' in available sources, but textual examples offer no hint at their semantic differences.
- Ju-ǂHoan: No direct matches. However, (a) is a transparent etymological match with PJ **ǂʰi* 'much, many' (Ju. *ǂʰáí*, OK. *ǂʰí*, etc.; see MANY); the semantic shift 'big' ↔ 'many' is quite trivial, although the direction of the shift remains unclear in this case.

[15] The vocalic correspondence is unique (if we are talking about the coda as a whole), but there are not a lot of cases of Proto-Ju *-*oe* with reliable parallels in ǂHoan. At least one attested case also involves ǂHoan -*ui* (PJ **šoe* 'to take out / take off' = ǂHoan *šui* 'to drop off').

[16] In Sands, Honken 2014: 252, the connection is put in doubt because of the incompatibility of Ju *ǃ̰-* and ǂHoan *ǃʰ-*, but it is not certain that the aspirated accompaniment is phonologically primary in this case (most of the other sources agree on zero accompaniment, and even Sands herself records phonetic variation between *ǃ-* and *ǃʰ-*).

6. BIRD (-)

- PJ: ***cᵓā(m)-mà** (Ju. *cᵓàmà*, Kx. *cama*, Kg. *caba*, Gr. *cᵓauà*, OK. *cama*, Ek. *čᵓámà*). ◊ Preserved in all daughter dialects. The word is morphologically complex; the second component is clearly identifiable as PJ **-ma* 'small; diminutive suffix', cf. the corresponding plural form *čᵓá-m̀̀ʰè* in Ek. Given the additional presence of Ek. *čᵓám* 'poultry, bird, aeroplane', it is possible, but not certain, that the original root shape was **cᵓām* rather than **cᵓā* (with subsequent contraction **-mm-* → *-m-* in most dialects).
- ǂHoan: **ǂǐ-sì:** (G). ◊ The suffix *-si* is a diminutive morpheme.
- Ju-ǂHoan: H. Honken (1988: 60) quotes the ǂHoan form *cʰà:ˢma* 'bird', apparently taken from Gruber's formally unpublished field records; if it really exists and has an ornithological meaning, it is clearly related to the PJ equivalent. However, no additional sources confirm this, and all text examples that can be elicited from existing sources clearly show that *ǂǐ-sì* is the most common and neutral generic term for 'bird' in this language. Pending further publications of data, we prefer to disregard this form for the time being.

7. BITE (±)

- PJ: ***ᵑǃ̃āē** (Ju. *ǃ̃áí*, Kx. *ǃ̃à ~ ǃ̃e(:)*, Kg. *ǃ̃e: ~ ǃ̃è:*, Ek. *ᵑǃ̃āē-ḿ*). ◊ The only divergent form is OK. *ǃ̃à*, unless Bleek's transcription of the dental click is erroneous (not highly likely). The Ek. form (a compound with *ḿ* 'eat' as the second part) is essential for the reconstruction, since this is the only dialect in which the preglottalized nasalized click has been explicitly elicited. Vocalic correspondences point to the diphthong **ae* rather than **ai* as the original constituent.
- ǂHoan: **ǃ̰ái** (C).
- Ju-ǂHoan: Despite obvious phonetic similarity (click influx and vocalism match perfectly), the two forms cannot be considered a solid etymological match, since the preglottalized nasal click in PJ always corresponds to a nasal click in ǂHoan as well (see HEAD below). Nevertheless, with two features matching out of three, the unique correspondence between click effluxes may reflect some undetected contamination, or even be part of a regular pattern, undetectable due to lack of data. We count this as a potential match with low probability.

8. BLACK (-)

- PJ: ***žō** (Ju. *žó*, Kx. *žɔ́:*, Kg. *žó ~ žò ~ žɔ̀*, OK. *žo ~ žu:*, Ek. *žō*).
- ǂHoan: **ǂkxau** (C).
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

9. BLOOD (+)

- PJ: ***|ᵑVŋ** (Ju. *|ᵑáŋ*, Kx. *|ᵑĩ*, Kg. *|ᵑĩ ~ |ᵑĩŋ*). ◊ Vocalic reconstruction is uncertain. This word is not attested in the Northern cluster, where the corresponding equivalents fluctuate between **‖oˢru* (Ek. *‖ōˢlú ~ ‖úˢlú*; cf. also Kg. *‖óru ~ ‖ɔru*) and **yaru* (OK. *yalo ~ yalu*, quoted as *yàlò ~ yűlà* in Snyman 1980: 34). The former of these is probably inherited, but its dialectal distribution is quite sparse compared to **|ᵑaŋ*; the latter has a phonetic shape that is highly atypical of Ju languages (with an initial *y-*) and is most likely of non-Ju origin.
- ǂHoan: **|qᵑí** (C), **|ᵑí**: (S).
- Ju-ǂHoan: A plausible lexicostatistical match with recurrent phonetic correspondences. ◊ SH: 238.

10. BONE (-)
- PJ: ***!ʔű** (Ju. *!ʔű*, Kx. *!ʔú:*, Kg. *!ù ~ !ú*, Gr. *!ʔú:*, OK. *!ʔu ~ !ʔo*, Ek. *!ʔú*). ◊ Preserved in all daughter dialects. Ju. shows the rare extra high tone on this root, possibly an archaic feature.
- ǂHoan: **ɕáːˢ** (C) ← ***táˢ**. ◊ Internal phonetic reconstruction derives all palatal plosives from original coronal stops.
- Ju-ǂHoan: No lexicostatistical matches; the closest etymological connection to PJ **!ʔű* in ǂHoan may be *!ʔui* 'spine' (C), but only provided that final *-i* can be explained away as an old suffixal extension, which is currently unclear. The ǂHoan word has no known Ju equivalents. ◊ In HH: 15, the comparison of PJ **!ʔű* to ǂHoan *!ʔui* is justified by reconstructing an obscure diphthong **-Vi* (cf. PJ **!xo* = ǂHoan *!xűi* 'elephant' for extra support), but this is not a phonologically viable explanation; it is more likely that morphological reasons are responsible for both cases.

11. BREAST (= CHEST /male/) (-)
- PJ: ***ǃòʔá** (Ju. *ǃòʔá*, Kx. *ǃwa:*). ◊ The reconstruction is approximate due to lack of data (initial click could have been **ǃǃ* instead of **ǃ*). Essentially an isogloss between Ju. and Kx.; a much less stable root than the far more widespread and perfectly reconstructible **ku* 'female breast; milk' (→ Ju. *kù*, Ek. *kūú* etc.). Nevertheless, the only alternate candidate for PJ '/male/ chest' is Ek. *čõ̃ã̃*, corresponding to various forms with the meaning 'lungs' in Ju dialects (Gr. *sũʔã*, Cuito/Cuando *šõʔã*, etc.) and probably representing the results of a metonymic semantic shift.
- ǂHoan: **!ɢàˢmā** (C, G). ◊ The meaning of this word is glossed as 'chest (of humans') in Collins 2001: 458; according to the same source, this item is lexically opposed to *ǃoʔe* 'chest (of animal)' and *ǂxūī* 'breast (of a non-human animal)'.
- Ju-ǂHoan: No lexicostatistical matches, although, interestingly enough, both words have parallels in Taa — ǂHoan *!ɢàˢmā* is practically the same item as !Xóõ *ǃqāʰma* 'sternum' (the parallel may reflect either a genetic or an areal connection), while PJ **ǃòʔá* is formally comparable with !Xóõ *ǁú:* 'chest').

12. BURN (tr.) (?)
- PJ: ***kūʔú** (Ju. *kùʔú*, Kx. *kou ~ kau*, Kg. *kuú ~ koú ~ kóù*, Ek. *kūʔú*). ◊ Preserved in all daughter dialects, often with polysemy 'to burn / to roast'.
- ǂHoan**:** Not attested in reliable sources. Traill (1973: 29) quotes two different forms, *ϴui* and *ʔ!ãm*, both with the meaning 'burn'. He does not specify, however, whether these stems are transitive or intransitive, and their existence has not yet been confirmed in published sources.

13. CLAW (= NAIL) (±)
- PJ: ***!!ūʔrú** (Ju. *!ùʔúrú*, Kx. *ǁuru*, Kg. *ǁuru*, Gr. *!!uɾù*, OK. *ǁulu ~ ǁɔnu*, Ek. *!ūlú*). ◊ Preserved everywhere. Reliably reconstructed with a retroflex click, although the Ek. reflex *!-* instead of *ǁ-* is irregular; it may reflect a secondary contamination with **!uru* 'quiver' (= Ju. *!ùrù*, etc.). Glottalic articulation in word-medial position is less certain (only attested in Ju.).
- ǂHoan: **!õˢ** (HH), **!oˢʔo** (C).
- Ju-ǂHoan: The potential relation between these two forms is problematic. The correspondence between Ju **ǃǃ* and ǂHoan *!* is supported by at least two more significant examples (PJ **ǃǃaʔma* 'to enter' — ǂHoan *!aˢm* 'to enter /plural action/'; PJ **ǃǃai* 'puff-adder' —

ǂHoan *ǰai* ‘snake’); however, the lack (or near-lack) of the second syllable in ǂHoan is suspicious, since intervocalic **-r-* is not supposed to get deleted in that language. On the other hand, it cannot be excluded that the **-ru* component in PJ goes back to an earlier suffix. For now, it is preferable to asssess the connection as questionable, but possible. ◊ In HH: 25, the etymology is accepted, but the PJ word is reconstructed with initial **!-* rather than **‼-*, following the Ek. variant, and also because, according to HH, PJ **‼-* : ǂHoan **!-* is not a valid correspondence. This seems a less likely solution, in light of the examples quoted above.

14. CLOUD (?)

- PJ: Not properly reconstructible. The best candidate is probably the PJ compound expression ***‼̃à=!kxúí**, literally ‘rain-hair’ (Ju. *ǰà=!kxúí*, Kx. *ǰà=kxwí-si*, etc.).
- ǂHoan: Not attested.

15. COLD (±)

- PJ: ***ǂàʔū** (Ju. *ǂàʔú*, Kg. *ǂáo ~ ǂaő*, Ek. *‼àò ~ ‼àʔō*). ◊ In the Southern cluster, this equivalent seems to have been replaced, cf. Kx. *ǂxi:*, Gr. *ǂxŋ:* ‘cold’, probably the same root as Ju. *ǂxa̰ã̀* ‘to tremble, to be frightened’ (thus, ‘cold’ = ‘shivery’). PJ **ǂàʔū* is better distributed across dialect clusters and has no semantics other than simply ‘cold’, which makes it the optimal candidate.
- ǂHoan: **ǂàˀa** (C). ◊ This seems to be the most basic equivalent for the term, well illustrated by textual examples and preferable over more rare synonyms such as *ǀaba* ‘cold’ (C) and *ǁqau* ‘cold; ice’ (C).
- Ju-ǂHoan: Although the click and the first vowel match perfectly, there are irreconcilable differences concerning the second mora; we have to assume that **-u* in PJ was an originally detachable morphological element in order to relate these two items, and there is no evidence for that so far. A serious counterargument comes from the side of external comparison, since the PJ form seems to be well correlated with !Xóõ (Taa) *ǁâʔũ* ‘cold’ (see Starostin 2008: 387), implying that the labial vowel in this etymon is archaic. Nevertheless, for formal reasons we do not completely exclude the partial match from comparison. Additionally, ǂHoan *ǀaba* ‘cold’ is well comparable to Ju. *ǀàbò* ‘to shiver’.

16. COME (≈)

- PJ: ***cí** (Ju. *cḭ́*, Kx. *cí ~ čí*, OK. *cí ~ či*). ◊ In many dialects, this meaning corresponds to two quasi-synonyms, the other one being PJ ***ǰàè**. In two sources at least, it even seems to be the primary equivalent for the meaning ‘come’: Kg. *ǰé ~ ǰé:*, Ek. *ǰè*. In Ju., however, the meaning of *ǰàè* is ‘to arrive (= reach the final destination)’ rather than ‘to come (to smbd.)’. In Ek., the old equivalent is still preserved in the imperative form (*čí* ‘come!’), indirectly confirming the original opposition of **cí* ‘come’ vs. **ǰàè* ‘arrive’.
- ǂHoan: **čā** (G, C).
- Ju-ǂHoan: Despite superficial similarity, the two forms do not regularly correspond to each other. A much better parallel for ǂHoan *čā* is Ju. *čá* ‘to go and fetch’, Ek. *čā* ‘to fetch’, indicating that ‘come’ may have been the original meaning of the root, but in PJ only an old fused form **ča-a* (where **-a* is the common Ju transitive suffix) has been preserved. As for Ju **cí* and **ǰàè*, neither of the two words finds any reliable etymological matches in ǂHoan.

17. DIE (+)

- PJ: ***!!ae** (Ju. *!áí*, Kx. *ǂé: ~ ǂéi ~ ǂí*, Kg. *ǁé ~ ǁè*, Gr. *!!áí*, OK. *ǁé ~ ǁe*, Ek. *ǁāē ~ ǁē*). ◊ Preserved in all daughter dialects. Singular subject action verb; the corresponding plural form is ***!!ao** (Ju. *!àò*, Kx. *ǂau*, Kg. *ǁau*, OK. *ǁau*, Ek. *ǁàō*). Both stems are reliably reconstructed with the retroflex click, and it is tempting to trace them back to a single root (**!!a-*) with different vocalic extensions. However, there is not a single other example that could hint at the productivity of this morphological operation on the PJ level; considering that all other known pairs of singular vs. plural action verbs in PJ are completely suppletive, etymological relationship between **!!ae* and **!!ao* cannot be reliably demonstrated without supporting external data.
- ǂHoan: **šǐ** (G, C). ◊ The plural action equivalent is a composite form: *šī̃-t̃à*.
- Ju-ǂHoan: The correspondence between the PJ voiced/voiceless retroflex click and the ǂHoan voiced/voiceless palatal fricative is recurrent (see more examples in the entries for 'hand', 'water', corr. #35b); vocalic correspondences are also easily reconciled, and cases where sporadic nasalization in ǂHoan is missing in Ju. are well known (cf. PJ **ǁa* 'to stand /plural action/' = ǂHoan *ǁã* id., corr. #18). This is a sufficient basis to regard both forms as etymological and lexicostatistical matches. However, the singular/plural action suppletivism of Ju finds no parallels in ǂHoan.

18. DOG (-)

- PJ: ***ǂ̰ʰo-ĩ ~ *ǂ̰ʰo-e** (Ju. *ǂʰṹĩ́ ~ ǂʰòà*, Kx. *!ɔ*, Kg. *ǂʰwé ~ ǂwé*, Gr. *ǂˀʰwɪː ~ ŋǂˀʰwɪː*, OK. *ǂwé*, Ek. *ǂ̈ʰōē*). ◊ Preserved in all dialects; however, there are at least three different morphological variants of this stem, with **ǂ̰ʰo-ĩ* and **ǂ̰ʰo-e* being the most frequent ones, and **ǂ̰ʰo-a* only found in Ju. Although the origins of this diversity are unclear (probably a reflection of Pre-Proto-Ju's morphological productivity), the evidence seems to point to **ǂ̰ʰo-* as the original root for all these forms.
- ǂHoan: **ɕĕamà** (C, G) ← ***tema**. ◊ The old non-palatalized variant *tĕmà* is still preserved in the Sasi dialect.
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

19. DRINK (±)

- PJ: ***čʰi̯ŋ** (Ju. *čʰì*, Kx. *čí*, Kg. *šiŋ ~ čiŋ*, Gr. *šŋ̱ː*, OK. *čḯ*, Ek. *šŋ̈*). ◊ Preserved in all daughter dialects. Coda reconstruction is not fully secure, but loss of the final velar nasal in Ju. is a recurrent phenomenon, so all the listed forms are unquestionably related.
- ǂHoan: **čū** (C, G).
- Ju-ǂHoan: Despite some obvious phonetic similarity, it is hard to reconcile the codas: although cases in which a final velar nasal in PJ seems to leave no trace in ǂHoan are relatively numerous (see corr. #16), the vocalic correspondence «PJ **-i(ŋ)* : ǂHoan *-u*» remains unique. However, precise behavior of vowels in such specific contexts (between a palatal affricate and an unstable velar nasal coda) can hardly be predicted at the present time, and this means that the parallel can be provisionally accepted as a potential «weak» match.

20. DRY (-)

- PJ: ***!!kxau** (Ju. *!kxáú*, Kg. *!!áo ~ ǁ áo ~ ǁào ~ ǁkxáo*, Gr. *!!ʰau*, Ek. *ǁkxāō*). ◊ Preserved in all daughter dialects. Original retroflex click safely reconstructed based on the correspondence between Ju. and Ek.
- ǂHoan: **|qˀau** (C).

- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels. (An alternate synonym in Ju., *ǀˀò* 'dry', looks quite compatible with the form in ǂHoan, but has to be discarded as non-reconstructible for the PJ level and most likely recently borrowed from a Khoe source, along with numerous other secondary equivalents for basic terms in Ju.).

21. EAR (+)
- PJ: ***ǀˀʰúí** (Ju. *ǀˀʰúí*, Kx. *ǀwí*, Kg. *ǀúi*, Gr. *ǀʰwí*, OK. *ǀwí*, Ek. *ǀˀʰúí*). ◊ Preserved in all daughter dialects. PJ reconstruction relies on the full coincidence of the Ju. and Ek. forms.
- ǂHoan: **ǀqʰǒ̀ẽ̃** (C, G), **ǀqʰṍĩ̀** (SH).
- Ju-ǂHoan: Correspondences are completely regular, with the uvular component of the efflux in ǂHoan matching the glottalization in Ju (for a fully identical supporting example, cf. PJ **ǀˀʰũ* 'steenbok' = ǂHoan *ǀqʰǒ̃ő̃* id.); examples of «ǂHoan *oe* = Ju. *ui*» are scarce, but examples of «ǂHoan *o* = Ju *u*» are not (see corr. #12), so the vocalism is hardly problematic. ◊ HH: 29; SH: 253.

22. EARTH (+)
- PJ: ***kxà** (Ju. *kxà*, Kx. *kxa*, Kg. *kxá*, Gr. *kxá:*, OK. *kxa*, Ek. *kxà*). ◊ Preserved in all daughter dialects. Reconstruction is based on the completely coinciding forms in Ju. and Ek. Neither any of the modern dialects nor, as may be inferred, PJ itself make any clear lexical differentiation between 'earth' and 'sand', due to specific landscape conditions of the Ju people.
- ǂHoan: **kxà** (C, G).
- Ju-ǂHoan: An obvious match. Complete phonetic identity between both forms is interpretable in terms of regular phonetic correspondences, i.e. there is no need to assume areal diffusion, particularly since the isogloss is exclusive to Ju and ǂHoan, but not to Tuu or Khoe. Of note, however, is the presence of the same word for 'earth' in Kwadi (Westphal 1966: 144), a language that is unrelated or very distantly related to Ju-ǂHoan, so in this case areal diffusion is a likely scenario. ◊ HH: 13, 24.

23. EAT (+)
- PJ: ***ʔḿ** (Ju. *ʔḿ*, Kx. *m:* ~ *m*, Kg. *ḿ:* ~ *m̀:*, Gr. *ʔḿ:*, OK. *m* ~ *ḿ*, Ek. *ḿ*). ◊ Preserved in all daughter dialects. The root, just as it is attested in most dialects, should be reconstructed with a high-toned syllabic **ḿ* preceded by a glottal stop (or a single preglottalized nasal consonant).
- ǂHoan: **ʔám** (C, G).
- Ju-ǂHoan: A perfect match. ǂHoan, unlike Ju languages, seems to generally lack syllabic nasal consonants, so the shift **m* → *am* is more probable than the opposite. ◊ HH: 14 (advocating for the reconstruction **am*).

24. EGG (-)
- PJ: ***ǃ̃u** (Ju. *ǃ̀u*, Kx. *ǃ̃u:*, Kg. *ǃ̃ú*, OK. *ǃ̃u* ~ *ǃ̃ú*, Ek. *ǃ̀uū* ~ *ǃ̃ōú*). ◊ Preserved in all daughter dialects.
- ǂHoan: **kʰŏʔẽ̃** (C, G). ◊ The alternate form *čxui* ~ *ɕʰxui*, found in Traill 1973: 29, is not confirmed in newer sources.
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

25. EYE (+)
- PJ: ***ǀàʔā** (Ju. *ǀàʔá*, Kx. *ǀa*, Kg. *ǀá ~ ǀaǻ́ ~ ǀʾá*, Gr. *ǀəʔa ~ ǀʾa ~ ǀaʔa*, OK. *ǀa*, Ek. *ǀàʔā*). ◊ Preserved in all daughter dialects. Initial vowel is occasionally reduced, creating an odd «voiced glottalized» click effect (although such transcriptions are only attested in old sources).
- ǂHoan: **θōā**, pl. **θŏē** (C, G).
- Ju-ǂHoan: Despite the lack of phonetic similarity, both forms can be reconciled by means of recurrent correspondences. Examples of the ǂHoan labial click corresponding to PJ dental *ǀ also include such basic and semantically stable terms as 'head' q.v., 'sky' (ǂHoan *θ̃oaˢ* = PJ **ʃ̃aʔa*), 'duiker' (ǂHoan *θʾu* = PJ **ǀʾau*), and possibly 'one' q.v. For the lack of voiced articulation in ǂHoan, see corr. #38a. As for the diphthong *oa* in ǂHoan, labial articulation here, judging by all attested cases of words with labial clicks, is automatic after such a click (corr. #1a)[17]. The word should probably be reconstructed as **θaʔ-*, perhaps with an original paradigm of sg. **θaʔ-a*, pl. **θaʔ-i/N/*, levelled in PJ. ◊ HH: 18, 27.

26. FAT (-)
- PJ: ***ʃ̃ĭ** (Ju. *ʃ̃áí*, Kx. *ʃ̃í*, Kg. *ʃ̃í ~ ʃ̃ai ~ ʃ̃áie*, Gr. *ʃ̃áí*, OK. *ʃ̃í*, Ek. *ʃ̃éí ~ ʃ̃í*). ◊ Preserved in all daughter dialects (sometimes glossed as 'fat', sometimes as 'oil'; there seems to be no lexical differentiation between the two meanings). Original **-i* diphthongized in Ju. and several other dialects.
- ǂHoan: **ǀui** ~ **ǀʾui** (T). ◊ Not very reliable (attested only in A. Traill's old publication).
- Ju-ǂHoan: If Traill's notation for ǂHoan is correct (although the strange variation between click effluxes makes it doubtful), the form is incompatible with the Ju. equivalent.

27. FEATHER (-)
- PJ: Same word as 'hair' q.v. (sometimes used in conjunction with 'bird' q.v.).
- ǂHoan: Same word as 'hair' q.v.
- Ju-ǂHoan: Same lack of lexicostatistical/etymological matches as in 'hair' q.v.

28. FIRE (-)
- PJ: ***dàʔá** (Ju. *dàʔá*, Kx. *dà*, Kg. *daː ~ dːa ~ daǻ́*, Gr. *dəʔa ~ daʔa*, OK. *dà ~ dàa*, Ek. *dàʔà*). ◊ Preserved in all daughter dialects. First vowel sometimes gets reduced (see 'eye' for the same structure).
- ǂHoan: *ǭoa* (C, G).
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

29. FISH (?)
- PJ: Technically reconstructible for the PJ stage as **ǁʾau* (Ju. *ǁʾàù*, Kg. *ǁʾauː*, OK. *ǁʾau*, Ek. *ǁʾáú*). However, all attested forms are plausibly interpreted as borrowings from a Khoe source (cf. Proto-Khoe **ǁʾau* 'fish'); these borrowings may have taken place either before the disintegration of PJ or already after, but there is no reason to think of them as inherited from a Proto-Ju-ǂHoan, let alone earlier, stage of development. Ek. *ǃòlō* 'fish' is different, but etymologically obscure.

[17] In HH: 18, labial articulation of the vowel is considered to be primary in such cases, with the authors reconstructing Proto-Kxa **-oCa* → ǂHoan *-o-a*, Ju **-a-a*. However, since all of their examples involve items with ǂHoan labial clicks or, at least, another labial consonant in the vicinity, it makes more sense to assume secondary labialization of the vowel in ǂHoan.

- ǂHoan: Not attested.
- Ju-ǂHoan: Not reconstructible. The generic term 'fish' may not have existed in the protolanguage at all, given the geographical localisation of its descendants.

30. FLY (-)
- PJ: Technically not reconstructible; a slightly more probable candidate for proto-status is PJ ***ǃ̃om** (Ju. *ǃ̃òm̀* 'to fly', *ǃ̃òm̀-à̰* 'to fly over (a village)' = Kx. *ǃ̃o:a* ← **ǃ̃om-a* 'to fly about /of birds/', OK. *ǃ̃oa* 'to mount up (in the sky)'), although all the parallels to the Ju. form are only attested in D. Bleek's old records and are somewhat questionable, both phonetically and semantically. In Ek., no separate lexical root for the meaning 'to fly' is attested; cf., perhaps, *čāō* 'to wake up, rise, stand up, fly up, jump up' = Ju. *šáú* 'to rise, get up'. Kx. *tẽ*, OK. *tẽ:* (as in *soŋgu tẽ:* 'the arrow flies') are not confirmed in modern sources.
- ǂHoan: **kàlā** (C, G). ◊ This form is clearly related to !Xóõ *kála* 'to go round, circle as vultures', but the nature of the relationship (genetic? borrowing? if yes, in what direction?) remains unclear.
- Ju-ǂHoan: No lexicostatistical or etymological parallels. Overall, an unstable item that may not have had its own unique lexical representation at the Ju-ǂHoan level.

31. FOOT (≈)
- PJ: ***|kxáí** (Ju. *|kxáí*, Kx. *|e ~ |xe:*, Kg. *|kxe ~ |kxi ~ |xí ~ |e ~ |í*, Gr. *|ˀáí ~ |xáí*, OK. *|kxe ~ kxɛ*, Ek. *|kxáí*). ◊ Preserved in all daughter languages.
- ǂHoan: **ǃ̰áʔū** (C, G). ◊ Plural: *ǃ̰ăʔũ*.
- Ju-ǂHoan: No lexicostatistical parallels. However, the form in ǂHoan is comparable to PJ **ǃǃu^h* 'track, footprint' (Ju. *!ù^h*, Ek. *ǁù*); consonantal correspondences here are recurrent (see corr. #35, #37a), and although the vocalic correspondence is rare (corr. #5), it is not totally unique (cf. also at least ǂHoan *θˀu* = PJ **|ˀau* 'duiker'), so we do not have any firm grounds to definitively reject the comparison. Acceptance of this etymology would imply that the ǂHoan form is more archaic in the meaning 'foot', since the semantic development 'footprint' → 'foot' is typologically far less likely than the opposite.

32. FULL (?)
- PJ: ***ǃ̰àʔŋ** (Ju. *ǃ̰ãʔí*, Kx. *ǃ̰ẽ ~ ǃ̰ẽĩ*, Ek. *ǃ̰àʔŋ̄*). ◊ Preserved in all daughter dialects.
- ǂHoan**:** Not attested.

33. GIVE (-)
- PJ: ***|aʔa** (Ju. *|ˀã̀*, Kx. *|ˀã ~ |ˀa:*, Kg. *|ˀá ~ |ˀà ~ |ˀã̀ ~ |á*, OK. *|a ~ |a:*, Ek. *|àʔā ~ |à*). ◊ This is the most common equivalent for 'give' in most of the dialects. Vocalic reconstruction is unclear: technically, the coda *-aʔa* accounts for most of the attested variations, but some of the developments would still have to be irregular (such as the contraction **|aʔa → |ˀa* in some of the dialects). It is also unclear whether nasalization of the vowel has to be set up as a PJ feature or if it appears in Ju. and some other dialects secondarily. An additional PJ root is **na ~ *neʔe*, whose functions seem to be restricted to the imperative throughout: Ju. *nà*, Kx. *na*, Gr. *na:*, OK. *na*, Ek. *nèʔè*. Finally, Kx. and Gr. yield evidence for a third root, **au* 'give', whose semantic difference from **|aʔa* cannot be established from available sources; strange enough, it is not confirmed at all by more modern and reliable sources on Ju dialects.
- ǂHoan: **šú** (C, G).
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

34. GOOD (-)

- PJ: ***žã** (Ju. *žã̀*, Kg. *žã ~ ža*, Gr. *ža: ~ ža:*). ◊ This is the most common and probably the inherited term for 'good' in Ju dialects. Several other phonetically similar forms, such as Kx. *!ãĩ*, Ek. *kãhĩ́*, Gr. *gãĩ*, etc., do not correspond regularly to each other and are most plausibly explained as borrowings from various Khoe sources; cf. Proto-Khoe **!ãĩ̂* 'good' → Nama *ǃãĩ*, !Ora, Naro *!ãĩ*, East Khoe **kãĩ*, etc. (Vossen 1997: 445).
- ǂHoan: **qʰǎẽ** (C, G).
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels. The ǂHoan form is clearly the same word as !Xóõ *qáĩ* 'pretty, beautiful, nice', but whether the similarity is due to common ancestry or recent borrowing remains unclear.

35. GREEN (-)

- PJ: ***|àŋu** (Ju. *|ã̀ũ̀ʰ*, Kx. *|ãũ*, Kg. *|áŋ ~ |àŋ ~ |ʌŋ ~ |ũŋ*, OK. *|ãŋ*, Ek. *|ʰàŋ̀*). ◊ Judging by available semantic notation, the root must have denoted the entire 'blue/green/yellow' spectrum in PJ. Reconstruction of the coda **-aŋu* is set up to account for the correspondence between Ju *-ãũ* and Ek. *-aŋ*.
- ǂHoan: **zaˢʔa** (T). ◊ Attested only in A. Traill's old publication, so somewhat dubious.
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

36. HAIR (-)

- PJ: ***!kxúí** (Ju. *!kxúí*, Kx. *!kxwe ~ !kxwi ~ !kwi*, Kg. *!kxwé ~ !kxwí*, Gr. *!kxwi*, OK. *kxwi ~ !wi*, Ek. *!kxúí*). ◊ Preserved in all daughter dialects. No lexical difference between 'head hair' and 'body hair'.
- ǂHoan: **ǂ̃u** (C), **ǂ̃ù** (SH).
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

37. HAND (+)

- PJ: ***ǃǃau** (Ju. *ǃáú*, Kx. *ǃou ~ ǃau*, Kg. *ǁau*, Gr. *ǃǃàù*, OK. *ǁau*, Ek. *ǁàò ~ ǁāō*). ◊ Preserved in all daughter dialects. Correspondences indicate an original voiced retroflex click, still preserved in the Grootfontein dialect.
- ǂHoan: **šíu** (C, G), **síu** (SH). ◊ The more archaic Sasi form is *šáu*. Odd consonantal gradation in the plural form: *čẽõ-qà* (C, G).
- Ju-ǂHoan: PJ **ǃǃau* and ǂHoan *šíu* are tied together by reccurent correspondences (#5a, #35b, #38a) and can be reliably traced back to the same proto-root. Cf. a perfect near-homonymous example in Ju. *ǃàú* 'to dig' (←**ǃǃau*?) = ǂHoan *šiu* (C) 'to dig'. ◊ The possible connection is mentioned, but rejected in HH: 17, because the authors have not located the additional evidence for this correspondence.

38. HEAD (+)

- PJ: ***ˀǂ̃ē** (Ju. *ǂ̃áí*, Kx. *ǂ̃e ~ ǂ̃é ~ ǂ̃i ~ ǂ̃í*, Kg. *ǂ̃é*, Gr. *ǂ̃é:*, OK. *ǂ̃é*, Ek. *ˀǂ̃ē*). ◊ Preserved in all daughter dialects. Preglottalized nasal click is reconstructed based on Ekoka data.
- ǂHoan: **ˀθ̃ű̃** (C, G), **θ̃ű̃** (SH).
- Ju-ǂHoan: Despite the lack of phonetic similarity, Ju and ǂHoan forms are connected by recurrent correspondences. The labial click in ǂHoan corresponds to the dental click in Ju (corr. #32a), while the preglottalized nasalized efflux in Ek. and ǂHoan coincide precisely. Labial vowel articulation in ǂHoan is automatic after a labial click, and nasalization of the vowel may be secondary (influence of the nasal click, or a trace of some old

morphological feature). The hypothetical protoform would presumably look like *ʔõe- on the Proto-Ju-ǂHoan level[18].

39. HEAR (+)

- PJ: ***sàʔā** (Ju. *càʔá*, Kx. *cá ~ čʔa*, Kg. *sá ~ ssá ~ ssaā́ ~ saā́*, Gr. *sə́ʔá*, OK. *sáa ~ saa*, Ek. *čà ~ čàʔā*). ◊ Preserved in all daughter dialects. Fluctuation between affricate (*c-*) and fricative (*s-*) articulation is resolved in favor of the fricative articulation as original; affricativization probably occurs under the influence of the glottal stop, especially considering that the first half of the complex vowel sequence is frequently reduced or even completely deleted in the actual articulation.
- ǂHoan: **cā̃** (C, G).
- Ju-ǂHoan: The forms are perfectly compatible (ǂHoan *c-* is a regular correspondence for PJ **s-*; lack of the glottal stop in ǂHoan is the same as in 'eye' q.v.). ◊ HH: 23 (reconstructed with **c-*).

40. HEART (-)

- PJ: ***!kxā** (Ju. *!kxá*, Kx. *!a*, Kg. *!kxá ~ !xá*, Gr. *!ʔa*, OK. *kxa*, Ek. *!kxā*). ◊ Preserved in all daughter dialects. The velar affricate efflux is transcribed inconsistently in old sources, but these inconsistencies are not enough to amend the reconstruction, based on modern data from Ju. and Ek. Most of the dialects also reflect polysemy 'heart/inside', likely inherited from the PJ state.
- ǂHoan: **!qʔõ̃** (C, G).
- Ju-ǂHoan: There are no other plausible cases where PJ **kx* (either as a non-click phoneme or as a click efflux) could be correlated with ǂHoan **qʔ*; vocalic correspondences cannot be properly resolved, either, implying that the two forms are not related.

41. HORN (+)

- PJ: ***!ʰú** (Ju. *!ʰű́*, Kx. *!uː ~ !ú*, Kg. *!ú ~ !ʰú ~ !xú*, Gr. *!!ú*, OK. *!ʰú*, Ek. *!ʰú*). ◊ Preserved in all daughter dialects. Doke's transcription of a retroflex click for the Grootfontein dialect, instead of an alveolar one, is most likely erroneous, since it is not supported by any data outside that source.
- ǂHoan: **!ʰǒ** (G). ◊ Also attested in the reduplicated variant *!ʰo-!ʰo*.
- Ju-ǂHoan: A perfect etymological/lexicostatistical match with regular correspondences. ◊ HH: 28.

42. I (+)

- PJ: ***mí** (Ju. *mí*, Kx. *m ~ me ~ mi*, Kg. *m ~ mé ~ mi ~ mĩ́*, Gr. *mí*, OK. *m ~ me ~ mi*, Ek. *mí ~ mā*). ◊ Preserved in all daughter dialects, along with the emphatic stem **mi-hi*. A very rare case of word-initial **m-*, reliably reconstructed for the PJ level.
- ǂHoan: **ma** (C, G). ◊ Cf. also the possessive form: *ʔàm* 'my'.
- Ju-ǂHoan: A clear match, although the vocalism remains unclear. Considering that both *mí* and *mā* are encountered in Ek., partially distributed depending on syntactic function (König & Heine 2001: 49), it is possible that both variants were already present in Proto-Ju-ǂHoan. ◊ HH: 14.

[18] In [Sands, Honken 2014: 249] it is tentatively suggested that the ǂHoan form may be related to !Xóõ *õű́ːˀ* 'louse' as a loan. Despite the phonetic similarity (involving a relatively rarely encountered labial click), a semantic shift from 'head' to 'louse' or vice versa is so completely unprecedented that the Ju-ǂHoan etymology must take precedence here.

43. KILL (+)

- PJ: ***!ʰű́** (Ju. *!ʰű́*, Kx. *!ũ*, Kg. *!úŋ ~ !ʰů ~ !ʰúŋ ~ !xű́*, Gr. *!ʰũ:*, OK. *!ũ ~ !xũ*, Ek. *!ʰúŋ ~ !ʰű́*). ◊ Singular action stem; the corresponding plural action stem is harder to reconstruct, since the two main attested forms, Ju. *!ʔõ̋ã̋* (← **!!ʔõã*, cf. Kx. *‖ʔoã* id.) and Ek. *‖ʔŋ́*, do not properly correspond to each other. Amendment of the reconstruction to **!ʰuŋ* (cf. the variation in Ek.) is not out of the question, but on the whole, the correspondences seem rather suggestive of a nasalized vowel as the original coda.
- ǂHoan: **!ʰǒ** (G). ◊ Singular action stem; the plural correlate is *θōā* (C, G).
- Ju-ǂHoan: Singular action stems correspond to each other precisely; their plural action correlates seem to be less stable and are historically incompatible. ◊ HH: 19, 28.

44. KNEE (≈)

- PJ: ***!xòà** (Ju. *!xòà*, Kx. *!wa-ʗí*, Kg. *!óä ~ !xóä*, Gr. *!xwa*, Ek. *!xòã̀*). ◊ In OK., the only attested equivalent for 'knee' is *!ɔ̀m ~ gɔ̀m* (the second variant shows irregular click loss) = Ek. *!ɔ̀ˢḿ* 'knee-cap'; this is possibly an archaic root with this meaning, whereas most of the modern dialects use the compound form 'knee-head' (e.g. Ek. *!xòã̀ ʔʗ̃ē*; cf. also the form in Kx.) instead.
- ǂHoan: **ǂʔʰɛ̀mē** (C, G). ◊ Cf. also *‖òam* 'to kneel'.
- Ju-ǂHoan: No lexicostatistical matches. However, the ǂHoan form is comparable to Ju. *ǂʔʰɔ̀m* 'to kneel' (no known parallels in other Ju dialects); discrepancies in vocalism may imply that the ǂHoan form is an old derivative from the verb 'to kneel' — **ǂʔʰɔ̀m-e* → *ǂʔʰɛ̀m-ē* with assimilation (of note is the ultra-low tonal characteristics in both languages).

45. KNOW (-)

- PJ: ***!ʔʰã̀** (Ju. *!ʔʰã̀*, Kg. *!ʔʰã ~ !ʰã́*, Gr. *!!ʔʰã*). ◊ This root is only preserved in the Southern dialect cluster. Its main alternative is OK. *ʗ̃i*, Ek. *ʔ!!ʗ̃ēhī ~ ʔ!!ʗ̃ìhēì ~ ʔ!!ʗ̃ìhī*, which corresponds to the widespread (but not attested in Ju.) root **ʔʗ̃ai* (Snyman 1997: 94) that means 'to be able to, to know how (to do smth.)' in several other dialects. This lexical distinction may be set up for the PJ level (**!ʔʰã* 'to know smth.' — **ʔʗ̃ai* 'to know how to do smth.').
- ǂHoan: **cí** (C, G). ◊ Probably the same word as 'to see' q.v.; distinct from *ʔʗ̃ǐ* 'to know how'.
- Ju-ǂHoan: PJ **ʔʗ̃ai* is clearly the same root as ǂHoan *ʔʗ̃ǐ*, reflecting a common Proto-Ju-ǂHoan root with the meaning 'to be able, to know how' (HH: 28). However, there are no direct lexicostatistical matches for the required meaning 'to know (smth.)': ǂHoan has seemingly merged this meaning with 'to see', whereas PJ **!ʔʰã* is either archaic or may be itself borrowed from a Khoe source (cf. Proto-Khoe **!ʔã* 'to know').

46. LEAF (-)

- PJ: (?) ***!xoa** (Kg. *!xwá*, Ek. *!xòàˢ*). ◊ The basic form for 'leaf' in Ek. corresponds to Ju. *!xòà* 'wet leaf' (with a slight irregularity, since there is no pharyngealization in Ju.) and possibly to OK. *gòa:* 'leaf' with irregular click loss. The following alternate roots have been excluded from comparison for various reasons: (a) Ju. *dòaˢrà*, Kx. *dòra* 'leaf'; this is an areal isogloss with Naro *toàˢrà* 'leaf', a word that also lacks a proper Common Khoe etymology and should probably be ascribed to some local substrate, affecting geographically contiguous areas occupied by Ju|hoan and Naro speakers; (b) Kg. *ʗ̃óˢbbu*, Gr. *ʗ̃úbú* 'leaf' = Ju. *ʗ̃ùʔúbú* 'to come into leaf (vb.); leaf, cabbage (n.)', a root that is hard to separate from the phonetically similar *!xùʔúbú* 'to swell, be bloated' and whose primary meaning is most likely verbal.

- ǂHoan: *ʒòˢbā* (C, G). ◊ Cf. Sasi *dòˢβā* id., reflecting the original coronal articulation.
- Ju-ǂHoan: No lexicostatistical matches. It is tempting to compare Ju. *dòaˢrà* with Sasi *dòˢβā*, since the first syllable of both words is identical (right down to the pharyngealized articulation of the vowel); however, the second syllable is a stark mismatch, and given the observations about the areal connection between Ju|hoan and Naro, it is possible that the ǂHoan form was borrowed separately from a distinct dialect of the same substrate (e.g. if **doˢ-ra* and **doˢ-ba* were morphologically different variants in these dialects). In any case, unless more correspondences between nominal structures **CV-ra* and **CV-ba* are discovered between Ju and ǂHoan, it is premature to speak about common inherited lexemes in this particular case. ◊ In HH: 19, the Ju-ǂHoan match is accepted, but no explanation is provided for the morphological differences, and the areal distribution of the Ju form is not taken into account either.

47. LIE (-)

- PJ: ***šú** (Ju. *šú*, Kx. *šu ~ šú*, Kg. *šú ~ šù*, Gr. *šuː*, OK. *šú ~ ču*, Ek. *šú*). ◊ Singular action verb; its plural action correlate is PJ **ǂà* (Ju. *ǂà*, Ek. *ǃǃà*). Preserved in all daughter dialects.
- ǂHoan: **ǂqíʔi** (C, G). ◊ Singular action verb; plural action correlate is *!qʰău*.
- Ju-ǂHoan: No lexicostatistical matches. It is possible to compare ǂHoan *!qʰău* 'to lie (pl.)' with PJ **ǀʰo* 'to sit (pl.)' (q.v.), with a slight semantic shift and generally regular phonetic correspondences; however, no clear etymological parallels for ǂHoan *ǂqíʔi* have been found in PJ.

48. LIVER (-)

- PJ: ***čiŋ́** (Ju. *čʰĩ́*, Kx. *čĩ*, Kg. *čiŋ*, Gr. *šŋ́ː*, OK. *čĩ*, Ek. *šŋ́*). ◊ Preserved in all daughter dialects. The correspondence between Ju. *č(ʰ)-* and Ek. *š-* is irregular, possibly reflecting a specific development **č- → š-* before a syllabic nasal.
- ǂHoan: **kúi** (C, G).
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

49. LONG (-)

- PJ: ***ǂaʔŋ** (Ju. *ǂãʔĩ́*, Kx. *ǀẽ*, Kg. *ǂaʔáŋ ~ ǂáʔŋ ~ ǀaʔŋ́*, Gr. *ǂaʔŋ ~ ǂəʔʌŋ*, Ek. *ǃǃãʔŋ̄*). ◊ Preserved in the majority of daughter dialects; the only deviation is found in OK., where Bleek lists *ǂxana* as the main equivalent for 'long' = Ju. *ǂxã́* 'far', perhaps with additional suffixation. Coda reconstruction is not entirely secure, but the presence of a segmental nasal **-ŋ* most certainly is.
- ǂHoan: **čàʔa** (C, G). ◊ Usually glossed as 'tall', but also as 'long' in Traill 1973: 30; there is no reason to suspect any lexical differentiation between the two submeanings.
- Ju-ǂHoan: No additional evidence has been uncovered so far for the possibility of click affricativization **ǂ → č* in ǂHoan, so the two forms have to be judged as incompatible.

50. LOUSE (+)

- PJ: ***cʔíŋ́** (Ju. *cʔĩ́*, Ek. *ǯʔŋ́*). ◊ Attested only in modern sources, but well reconstructible for PJ based on the Ju.-Ek. isogloss, although the voicing in Ek. is irregular (additional dialectal forms in Snyman 1997 show that voiceless **cʔ-* is primary).
- ǂHoan: **cʔí** (G). ◊ After Honken 1988: 64, cf. also *cʔiː* in Traill 1973: 30.
- Ju-ǂHoan: Both forms are perfectly compatible (see corr. #16 for the lack of the nasal coda in ǂHoan).

51. MAN (-)

- PJ: ***!ˀʰõã̀** (Ju. *!ˀʰõ̀ã́*, Kx. *!wã*, Kg. *!ũ̀ ~ !ù ~ !ùŋ ~ !ʰṹ*, OK. *!ũ*). ◊ In some dialects, the only form attested in the meaning 'man = male human being / husband' is PJ **ǃǃoˢ* (Gr. *ǃǃo:*, Ek. *ǃǃò*); in Ju. and several other dialects, however, the two roots are well distinguished, so that **!ˀʰõã̀* has the more narrow meaning 'male human being' and **ǃǃoˢ* has the wider meaning 'male' (including, or sometimes restricted to, male animals). This is likely to have been the situation in PJ. Phonetically, the reconstruction **!ˀʰõã̀* is problematic; attested variants presuppose at least four irreconcilable variants (Ju. *!ˀʰõã*, Kx. **!õã*, Kg. **!ũ*, OK. /Snyman/ *!xũ* = Ek. *!xũ̄ṹ* '!Xun person'). Mechanistically tracing them back to four different proto-entries does not make sense; it is more likely that the Ju. variant is the most archaic, whereas the old sources fail to properly transcribe aspiration. As for the velar fricative efflux *-x-* in the Northern cluster, it may have appeared secondarily through contamination with **!xuni* 'to live, reside' (cf. Ek. *!xúnní*, etc.). Finally, worth noting is the suppletive plural form **ǁae*ˢ 'men, males': Ju. *ǁàèˢ*, Gr. *ǁàì*, Ek. *ǁàē*.
- ǂHoan: **ʔǎˢrī-ʒà** (C, G). ◊ Suppletive plural: *ʃ̃àò* 'men'. The second part of this compound by itself (*ʒà*) is used in the meaning 'husband'.
- Ju-ǂHoan: No lexicostatistical or clearly defined etymological parallels.

52. MANY (≈)

- PJ: ***ǂʰí** (Ju. *ǂʰáí*, Kx. *ǂʰí*, Kg. *ǂʰí ~ ǂxí ~ ǂxì*, Gr. *ǂˀʰí*, OK. *ǂʰí ~ ǀʰí ~ ǂʰí-ǂʰí*, Ek. *ǃˀʰí*). ◊ Preserved in all daughter dialects. Click efflux is reconstructed as simple aspiration, despite the (probably erroneous) transcription with a glottal stop in Doke's Grootfontein materials. The original vowel is **-i*, undergoing regular diphthongization in Ju.
- ǂHoan: **kí=ʒòa** (C, G). ◊ Cf. the form without the plural prefix in Traill 1973: 30: *ʒua ~ ʒũã*.
- Ju-ǂHoan: No lexicostatistical parallels, but PJ **ǂʰí* is cognate with ǂHoan *ǂʰĭ* 'big' q.v.

53. MEAT (≈)

- PJ: ***ǃǃʰā** (Ju. *ǃʰá*, Kx. *ǃʰa: ~ ǃá ~ ǁá: ~ ǂa*, Kg. *ǁʰá ~ ǁʰà ~ ǁa*, Gr. *ǃǃhá ~ ǁa:*, OK. *ǁʰa*, Ek. *ǁʰā*). ◊ Preserved in all daughter dialects; correspondences indicate an original retroflex click, still preserved in the Grootfontein dialect.
- ǂHoan: **ǁàeˢ** (C, G). ◊ Cf. also *ǁa:* 'animal' (Traill 1973: 29): possibly the same root or even the same word (mistranscribed?), considering the natural polysemy 'meat/animal' in South African languages.
- Ju-ǂHoan: In HH: 14, the ǂHoan form is compared with Ju. *ǁàʔé* 'to slaughter; to cut meat'; this is acceptable if the ǂHoan noun originally meant something like 'stripe/ slice of meat', i.e. represented a nominalization of the original verb. However, this is obviously not a lexicostatistical match.

54. MOON (≈)

- PJ: ***ǃǃúí** (Ju. *ʃ̃úí*, Kx. *ʃ̃wi*, Kg. *ʃ̃ǁwí ~ ʃ̃ǁwái ~ǂ̃wi*, Gr. *ǃǃɔi*, OK. *ʃ̃ǁwi ~ ʃ̃ǁwe*, Ek. *ʃ̃ǁúí*). ◊ Preserved in all daughter dialects. Correspondences clearly indicate a retroflex click in PJ.
- ǂHoan: **ǂ̃ìbī** (C, G).
- Ju-ǂHoan: No lexicostatistical parallels. However, the ǂHoan form is comparable with Ju. *ǂàʔàbè* 'shiny'; all correspondences are recurrent (for the possible assimilative development **CaCI → CiCI* in ǂHoan, see 'knee / to kneel' above plus additional examples, e.g. ǂHoan *ǂʰibi* 'dove' = Ju. *ǂáí-ǂábí* id., ǂHoan *ʃ̃iʔni* 'to refuse' = Ju. *ʃ̃àní* 'to dissuade',

corr. #1b), and the semantic shift from 'to shine, shiny' to 'moon' belongs to the trivial type. This would imply that the PJ equivalent for 'moon' may be more archaic. An alternate (but, it must be noted, not necessarily mutually exclusive) comparison for Ju. *ǂàʔàbè* is ǂHoan *ǂàˀʔnna* 'white' q.v.

55. MOUNTAIN (-)

- PJ: ***ˀǃ̃òm** (Ju. *ǃ̃òm*, Kx. *ǃ̃um*, Kg. *ǃ̃um*, Gr. *ǃ̃ù:m*, OK. *ǃ̃um*, Ek. *ˀǃ̃òḿ*). ◊ Preserved in all daughter dialects. There is, however, an unresolved problem connected with the polysemy 'stone/mountain'. Both of the major sources on Ekoka (König & Heine 2008; Heikkinen 1986) agree that this word, glossed as 'hill', is pronounced with a preglottalized nasal click rather than the regular nasal click, while 'stone' just has the regular nasal click — i.e. that we are dealing with two different roots. This is a very odd observation, considering the frequent and natural character of the 'stone/mountain' polysemy in African (and world) languages and, at the same time, the impossibility to explain this difference in terms of morphological derivation. It may be further noted that C. Doke also marks a difference between the two words, but in his notation it is purely tonal (*ǃ̃ù:m* 'mountain' vs. *ǃ̃ū:m* 'stone'), and while such a differentiation may be easier to explain in terms of historical derivation (tonal alternations actually exist in Ju), it can hardly be correlated with the difference in click effluxes as observed in Ekoka. Naturally, since Ekoka is the only dialect in which the difference between the two types of nasal clicks has been systematically observed and notated, in all the other dialects **ˀǃ̃òm* 'mountain' and **ǃ̃òm* 'stone' would be expected to look completely identical.
- ǂHoan: **ǃʰu** (C).
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

56. MOUTH (±)

- PJ: ***cˀí** (Ju. *cˀíˀ*, Kx. *ci ~ ci:*, Kg. *ci ~ cì*, Gr. *cˀí:*, OK. *cí ~ cí:*, Ek. *čˀí*). ◊ Preserved in all daughter dialects.
- ǂHoan: **ššì:** (C, G).
- Ju-ǂHoan: Although the basic consonantal structures (as well as the main vowel) for both forms are perfectly compatible, and nasalization in ǂHoan is negligible, proper common etymologization is seriously hampered by the fact that PJ **cˀ-* would be expected to correspond to ǂHoan *cˀ-* rather than *š-* (see 'sleep', 'tooth'), whereas ǂHoan *š-*, in turn, corresponds to either PJ **š-* or a retroflex click, but not **cˀ-*. The only way to circumvent this issue would be to set up a more complex protoform, e.g. **siʔi*, with an irregular (or a contextually unique) reduction + affricativization → **səˀi* → **cˀi* in PJ and contraction + palatalization → **si:* → *ši:* in ǂHoan. Whether this scenario can be plausibly justified remains to be seen; however, it is not out of the question, and given the undeniable phonetic similarity between the two words, we can count this entry as a potential «weak» match.

57. NAME (+)

- PJ: ***ǃú** (Ju. *ǃúˀ*, Kx. *ǃú ~ ǃʰú*, Kg. *ǃù ~ ǃú ~ ǃ̰ú*, Gr. *ǃ̰ú*, OK. *ǃú*, Ek. *ǃú*). ◊ Preserved in all daughter dialects. Unexpected dental (rather than alveolar) click transcription in Doke's Grootfontein data might simply be a misprint.
- ǂHoan: **ǃō** (C, G).
- Ju-ǂHoan: A perfect etymological and lexicostatistical match. ◊ HH: 17, 25 (reconstructed with the dipthong **ou* to reflect the regular correspondence between Ju **u* and ǂHoan **o*).

58. NECK (-)

- PJ: ***!!àŋi** (Ju. *!ãĩ̀*, Kx. *!ẽĩ*, Kg. *‖ãŋ ~ ‖ãũŋ*, Gr. *!!ãŋ*, OK. *‖ãŋ*, Ek. *‖àŋ*). ◊ Preserved in all daughter dialects. Retroflex click securely reconstructed, based on regular correspondences between Ju., Gr., and Ek. Coda correspondences fall under the recurrent pattern «Ju. *-ãĩ ~ -ãũ* : Ek. *-aŋ*» that we provisionally mark as reflecting PJ **-aŋi* and **-aŋu* respectively.
- ǂHoan: **ɕʰyìā ~ ɕʰa** (C, G).
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

59. NEW (+)

- PJ: ***ʒe** (Ju. *zé ~ zàiˀ*, Kx. *zé*, Kg. *zɛ-ma*, Gr. *ze:*, OK. *ʒe*, Ek. *ǯèhè*). ◊ Preserved in all daughter dialects. Correspondences are mostly regular and trivial, with the exception of the tonal pattern that ranges from simple rising in Ju. to ultra-low in Ek. It is not quite clear if the Ju. form *zàiˀ*, with a dipthong and pharyngealization, is merely a dialectal variant or a different root.
- ǂHoan: **zà** (C, G).
- Ju-ǂHoan: An acceptable lexicostatistical match. The vocalic correspondence between PJ **e* and ǂHoan *a* (rather than *e* or *i*) is almost unique, but it should be noted that monophthongic **e* is very rare in PJ, and examples of PJ-ǂHoan matches where it is present are even more scarce; for possible confirmation of regularity, cf. PJ **h=e* — ǂHoan *ha* 'this' q.v., PJ **ge* 'to stay /in a place/' — ǂHoan *ga* 'to rise /pl./' (although the latter example is semantically questionable). Additionally, it is not excluded that PJ **ʒe* ← **ʒa-I* with suffixation (cf. in that respect the odd variant *zàiˀ* in Ju.).

60. NIGHT (-)

- PJ: ***ǀú** (Ju. *ǀú*, Kx. *ǀu ~ ǀu: ~ ǀú*, Kg. *ǀú ~ ǀu*, Gr. *ǀú:*, OK. *ǀú*, Ek. *ǀú*). ◊ Preserved in all daughter dialects.
- ǂHoan: **cʰà̀o** (C, G).
- Ju-ǂHoan: No lexicostatistical matches. Cf., perhaps, ǂHoan *ǀu* (C) 'yesterday' as a possible etymological match for the PJ form (although the semantic link is problematic).

61. NOSE (-)

- PJ: ***ckxúŋ́** (Ju. *cʔű*, Kx. *čũ*, Kg. *sːũ̀ ~ cũ̀ ~ càŋ ~ cã́ű́*, Gr. *cʔũ*, OK. *cuŋ ~ cáŋ ~ čn*, Ek. *čkxáŋ ~ čʔŋ́*). ◊ Preserved in all daughter dialects; however, correspondences here are rare and complex. In the initial position, Ek. and some other dialects point to an original affricate cluster **ckx-* that must have been phonologically opposed to the simple glottalized affricate **čʔ-* in PJ. The coda contains a velar nasal, presumably with a preceding labial vowel (reflecting the correspondence «Ju. *-ũ* : Ek. *-(a)ŋ*»), although this particular part of the reconstruction is provisional.
- ǂHoan: **!qʔǒ̃** (C, G).
- Ju-ǂHoan: Despite some phonetic similarity between the two forms (vocalism, glottalic articulation, etc.), there is no evidence to support click loss in PJ (or secondary click formation in ǂHoan).

62. NOT (+)

- PJ: ***ǀōā** (Ju. *ǀóá*, Kx. *ǀwa ~ ǀuaː ~ ǀá*, Kg. *ǀúä ~ ǀúi*, OK. *ǀwa ~ ǀwe ~ ǀwí ~ kwé ~ kwí*, Ek. *ǀōā*). ◊ Preserved in all daughter dialects. Note irregular click loss in some OK. subdialects, possibly caused by frequent usage of this auxiliary morpheme.

- ǂHoan: **|ˀᵑ̊õ ~ |ᵑ̊õʔõ** (C, G). ◊ The Sasi form is recorded as *ʃ̃ũ:*.
- Ju-ǂHoan: Although correspondences between click effluxes are clearly irregular, unexplained fluctuation is already observable on the synchronic level within ǂHoan itself; taking into consideration the auxiliary (grammatical) function of this negative particle, making it more prone to various irregular developments (e.g. of an assimilative nature, or resulting from undetected contractions with other auxiliary morphemes, etc.), we tentatively count this pair, reduced to the basic shape **|U-*, as an etymological and lexicostatistical match.

63. ONE (+)

- PJ: ***ʃ̃èʔe** (Ju. *ʃ̃èʔé*, Kx. *ʃ̃e ~ ʃ̃eé*, Kg. *ʃ̃eé*, Gr. *ŋʃ̃ʔé*, OK. *ʃ̃é*, Ek. *ʃ̃èʔè ~ ʃ̃è*). ◊ Preserved in all daughter dialects.
- ǂHoan: **θ̃ú** (C, G).
- Ju-ǂHoan: Despite apparent phonetic dissimilarity, correspondences between these two items are actually quite regular: ǂHoan *θ̃* is a perfect match for PJ **ʃ̃*, and differences in vocalism are explained by the general labialization of vowels in ǂHoan after a labial click (actually, this is the same correspondence as in 'head' q.v.).

64. PERSON (≈)

- PJ: ***ǯù** (Ju. *žù*, Kx. *žu*, Kg. *žú ~ ǯú*, OK. *ǯu ~ žu*). ◊ This is one of the few Ju words that may have relied on tonal alternations to form the plural, something that is still preserved in modern Ju. (pl. *žú*); cf., however, such plural forms as Kx. *žu:-si*, Kg. *žu:-siŋ*, indicating productive analogical reformation in various dialects. The word occasionally gets lost or semantically shifted: cf. Gr. *atà* 'person' (an unclear replacement, seemingly of non-native origin due to its violation of standard Ju phonotactics; in the plural number, however, the old word is still retained as *žù: ~ ǯù:* 'people'); Ek. *!xũ̄ṹ* 'person', with the old word *ǯù* apparently shifting to the pronominal meaning 'we /excl./'. Special mention must be made of the compound form **ǯù-|ʰõã*, lit. 'true person', denoting North Khoisan-speaking people; given its presence in both Ju. and Ek., it is reconstructible for PJ as an archaic ethnic self-designation.
- ǂHoan: **ǂˀàm-kò꞉e** (G). ◊ Clearly a compound; second part may be a general morpheme for denoting people (cf. *ʃ̃áᶢ-kò꞉e* 'Bushman') and is possibly of Central Khoisan origin (cf. Proto-Khoe **kʰoe* 'person'). The first part, however, cannot be explained away as a borrowing. Suppletive plural: *čòō-!āʔē* 'people' (C, G).
- Ju-ǂHoan: No lexicostatistical matches. In Ju., the word *ǂˀàm* means 'south'; this agrees with the etymology of the exoethnonym 'ǂHoan' (= !Xóõ *ǂqʰūã* 'south') and formally permits to reconstruct Proto-Ju-ǂHoan **ǂˀam* 'South'. If so, the Ju equivalent for 'person' is probably more archaic, which is made even more likely by its non-trivial paradigmatic features (tonal alternation as a grammatical means). Unfortunately, regular correspondences to PJ **ǯ-* in ǂHoan remain unknown, so the word **ǯù* could be compared to either (a) ǂHoan *čòō-* in *čòō-!āʔē* 'people' (where the second component is an additional plural marker) or (b) ǂHoan *ža* 'husband'. Comparison (b) is more phonetically similar in respect to consonantism, but not vocalism; comparison (a) is cumulatively better both phonetically and semantically, but would still need to be confirmed by further examples. In the absence of contradictory cases, we may still count it as a tentative etymological match.

65. RAIN (-)

- PJ: ***!!à** (Ju. *!à*, Kx. *!à*, Kg. *‖a ~ !!a*, Gr. *ŋ̀!!a*, OK. *‖a ~ ‖à ~ ga:*, Ek. *‖à*). ◊ Preserved in all daughter dialects. For future purposes (such as tracing various morphophonological processes in the history of Khoisan linguistic lineages), it is perhaps worth noticing the similarity with **!!ú* 'water' (see below), although the two roots were clearly distinct even on the PJ level.
- ǂHoan: *čōʔā* (C, G).
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

66. RED (+)

- PJ: ***!ã̀** ~ ***!ae** (Ju. *!ã̀:*, Kx. *!ã:*, Kg. *!ã ~ !a*, Gr. *!ãʔã*, OK. *!ài*, Ek. *!àē*). ◊ Preserved in all daughter dialects. However, while the Northern dialect cluster points to PJ **!ae*, the rest of the dialects rather agree on PJ **!ã*. This may be interpreted either as a rare, non-trivial combination of features (e.g. some special nasalized diphthong), or, more likely, as two morphological variants, indicating that the original root was simply **!a-* and that it became fused with two different suffixal extensions (**!a-e* vs. **!a-N*).
- ǂHoan: **!àʔa** (C, G).
- Ju-ǂHoan: A perfect lexicostatistical and etymological match, especially if we interpret internal Ju evidence as reflecting original **!a-*. For the correspondence between PJ voiced and ǂHoan voiceless effluxes, see corr. #38a.

67. ROAD (?)

- PJ: ***ǂʰà** (Ju. *ǂʰà* 'path', Kx. *|a:*, Kg. *ǂʰa*, OK. *|à:*, Ek. *ǂʰà*). ◊ This is almost certainly the original PJ root denoting the default means of getting from one place to another (Dorothea Bleek seems to have mistranscribed a dental click for both Kx. and OK. instead of palatal articulation — a rather common error in her records). For modern languages, dictionaries occasionally observe lexicalized oppositions between the older 'path' and the more recent 'road' (= 'enlarged path between settlements'), cf. Ju. *!ãmà* (no etymology); Kg. *kú*, Ek. *kùhù* (originally, perhaps, = 'footprint', as this meaning is also attested for Kg.). Such oppositions are likely to reflect quite recent developments.
- ǂHoan: **ʒ̀èo** (C, G) ← ***dao**. ◊ The more archaic form *dăo* is still preserved in the Sasi dialect.
- Ju-ǂHoan: ǂHoan **dao* 'path, road' is phonetically identical with !Xóõ *dào* and, further still, with Proto-Khoe **dao* 'road'; this is an areal word, ultimately of Khoe origin, that has replaced the original ǂHoan term for this Swadesh meaning and must be excluded from lexicostatistical comparison.

68. ROOT (-)

- PJ: (?) ***!ani (**Ju. *!ànì*, Kx. *!ãĩ*). ◊ This Swadesh meaning is unstable in Ju, and semantic reconstruction is hindered by inadequacy of existing semantic descriptions. An alternate candidate for PJ status is the root **‖ari*, cf. Ek. *‖ālí* 'root; handle', OK. *‖ale ~ ‖are* 'branch (?); root fibre', Kx. *‖ari* 'root fibre', Kg. *‖eri* 'root fibre', Ju. *‖àrì* 'root' (copied by Dickens from the earlier dictionary of J. Snyman); it is, however, seen here that most of the old sources have it in the specific meaning 'root fibre', so it is unclear if it should be properly eligible for straightforward semantic comparison. Cf. also Kg. *!ubbe* 'root', of unclear origin, perhaps = Ju. *!úbè* 'species of shrub'. We very tentatively go along with Dickens' data on Ju., setting up **!ani* (or **!!ani*, since diagnostic parallels in Northern dialects are lacking) as the potential protoform.

- ǂHoan: **!qˀai** (C). ◊ Since the form is not attested in texts, it is not clear whether this is truly the generic term for 'root' in the language. Cf. other attested terms meaning 'a kind of root', e. g. *!one*, *ǁgama* etc.
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

69. ROUND (?)
- This meaning is almost never attested in any of the available lexicographic sources on either Ju or ǂHoan languages; the very concept of 'roundness' of an object is seemingly not inherent to these lineages, aside from a few very recent borrowings.

70. SAND (?)
- PJ: ***kxà**. ◊ Same word as 'earth' q.v.
- **ǂHoan:** Not attested. Possibly also same word as 'earth'.

71. SAY (±)
- PJ: ***kò** (Ju. *kò*, OK. *ka ~ ke*, Ek. *kòè ~ kwèé ~ kūyā*). ◊ Reconstructed based on the isogloss between OK. and Ek.; original root vocalism is not quite certain due to elements of suffixation in daughter dialects (cf. *ka ~ ke* in OK.). Another technically possible candidate is recorded in older sources: Kx. *o=kxwi*, Kg. *o=kxwi ~ o=kxwì*, Gr. *o=kxwĭ̀*. It is a transparent compound from PJ **o* 'to do, make' + PJ **kxúí*, and both for Ju. and Ek. it is translated as 'speak, talk (about smth.)' rather than 'say (smth. specific)'. Furthermore, Dickens even assigns the morpheme *kxúí* a pronominal rather than verbal meaning: 'be thus, be so (e. g. of the sound, sight or way of doing something)', although a more detailed analysis of contexts is needed to clarify the situation.
- ǂHoan: **kǐ̀ʔī** (C, G).
- Ju-ǂHoan: PJ **kò* and ǂHoan *kǐ̀ʔī* constitute formal consonantal class matches, but root vowel correspondences are highly irregular. Despite this, we may count the pair as a «weak» etymological match, due to the semi-auxiliary nature of the word and, consequently, the possibility of undetected suffixes or enclitics to influence its vocalism in either of the two compared taxa.

72. SEE (+)
- PJ: ***séŋ́** ~ ***héŋ́ (**Kx. *seː ~ sɛː*, Kg. *sːíŋ*, Gr. *sn̨*, OK. *siŋ ~ síŋ ~ süŋ ~ hŋ*, Ek. *hŋ́ ~ hń ~ šŋ́*). ◊ For Ju. proper, Dickens translates the cognate form *sé* as 'to look (at), look after, investigate', while reserving the meaning 'to see' for Ju. *hǒ* ← PJ **hǒ(ò)* 'to find' (cf. Ek. *hǒ-hò* id.). Phonological reconstruction is problematic. Ju. and Kx. drop the nasal part of the coda in this root just as they do for the verb 'to drink' q.v., for not quite clear reasons; nevertheless, most of the dialects, including additional data from Snyman's general survey, confirm original **-ŋ*. Vocalism is tentatively reconstructed as **-e-* based on Ju. data (in most dialects the two codas, *-iŋ* and *-eŋ*, seem to have merged). Initial **s-* is occasionally found lenited to *h-*; this either means a unique positional development before a syllabic nasal, or reflects an original aspirated **sʰ-* (not enough data to reach a definite conclusion).
- ǂHoan: **cí** (C, G).
- Ju-ǂHoan: A solid lexicostatistical and etymological match; correspondences are regular (for PJ **s* : ǂHoan **c*, see 'hear'; deletion of velar nasal coda in ǂHoan is all-pervasive, see corr. #16).

73. SEED (?)

- PJ: (?) ***!ó** (OK. *!ɔ́*, Ek. *!ó*). ◊ Outside the Northern branch, this word is elicited as Ju. *!ó* 'pip', confirming PJ reconstructibility with a highly natural semantic narrowing in Ju. On the other hand, Ju. *ǁàʔá* 'seed, kernel, marrow', with the former meaning more precisely expressed by the compound *ǁxàrà-ǁàʔá* 'plant seed', corresponds to Ek. *ǁãʔã̀* 'bone marrow', suggesting a more general/abstract semantics of 'pith, core substance' for the protolevel. In older sources, the meaning is attested quite poorly.
- ǂHoan: (?) **!uru**: (T). ◊ Attested only in Traill 1973. Unreliable.
- Ju-ǂHoan: It is preferable to exclude this word from comparison, since PJ reconstruction is not particularly secure, and neither is the ǂHoan entry. The Swadesh meaning 'seed' (as a general term) is quite unstable in Ju-Taa languages on the whole.

74. SIT (+)

- PJ: ***ˀǁV́ŋ́ (**Ju. *ǁáŋ*, Kx. *ǁi ~ ǁí*, Kg. *ǁĩ ~ ǁĩ ~ ǁíŋ-a*, Gr. *ǁŋ́ː*, OK. *ǀŋ ~ ǀŋ́*, Ek. *ŋ́|ŋ́*). ◊ Preserved in all daughter dialects. Northern forms indicate an original preglottalized nasal click (cf. also the variants *ˀǁíŋ* /Western/, *ǁíŋ* /Eastern/ in Heikkinen 1986: 23). Coda is probably the same as in 'blood' q.v. Singular action form; the corresponding plural stem is PJ **ǂʰo* (Ju. *ǂʰŏ*, Ek. *ǂʰō*, Kx. *ǂòː*, OK. *!oː*, etc.).
- ǂHoan: **ˀǁā** (C, G). ◊ Suppletive plural action form: *kí=ǁà* (C, G).
- Ju-ǂHoan: A perfect lexicostatistical match; note the corresponding preglottalized nasal clicks. The plural action stems, however, do not correspond to each other and cannot be etymologized on a mutual basis. ◊ HH: 21, 28.

75. SKIN (-)

- PJ: ***ǁō** (Ju. *ǁó*, Kx. *ǁo*, Kg. *ǁɔ̀ ~ ǁò ~ ǁɔ́wa ~ ǁóä*, Gr. *ǁoː ~ ǁowà*, OK. *ǁo ~ ǁó*, Ek. *ǁō*). ◊ Preserved in all daughter dialects. Correspondences are regular. Some old sources seem to reflect an additional suffixal variant **ǁo-a* (or *ǁo-ba*?) that is not confirmed in more recently transcribed material.
- ǂHoan: **čˀú** (C, G).
- Ju-ǂHoan: No lexicostatistical or etymological parallels. Of note, perhaps, is the complete segmental correlation between ǂHoan *čˀú* 'skin' and PJ **čˀu* 'house', but since traditional San houses are made of branches and reeds rather than animal skins, the connection is highly dubious on semantic grounds.

76. SLEEP (+)

- PJ: ***cˀā** (Ju. *cˀá*, Kx. *cá ~ cˀaː*, Kg. *cà ~ cá*, Gr. *cˀaː*, OK. *cˀa ~ ca*, Ek. *čˀā*). ◊ Correspondences are regular and trivial, including the development **cˀ-* → *čˀ-* in Ekoka.
- ǂHoan: **cˀã̄** (C, G). ◊ HH: 21, 23.
- Ju-ǂHoan: A phonetically perfect lexicostatistical match. See corr. #18 for lack of nasalization in ǂHoan.

77. SMALL (≈)

- PJ: ***cˀe** ~ ***cˀe-mà** (Ju. *cˀè/-mà/*, Kx. *ceː-ma ~ ce-ma*, Kg. *cé-ma ~ céː-ma*, Gr. *cˀeː-ma*, OK. *ceː-ma*, Ek. *čˀē-mà*. ◊ In Ju., the simple form *cˀè* is used after nouns with diminutive suffixes (e.g. *čˀu-ma cˀè* 'small house'); the compound form *cˀè-mà* (where *-mà* itself is a diminutive suffix) is used more frequently. Considering the data from the rest of the dialects, this situation is reconstructible for the PJ level, i.e. the PJ root **cˀe* must have been most frequently used with the diminutive suffix **-mà*. There is also no solid evidence for **mà*

having ever functioned as an independent adjective 'small' on the same chronological level (some old sources list *ma* 'small' as a separate word, but textual examples always show it as a diminutive suffix, appended to nominal roots).

- ǂHoan: **|xʾǔi** (C, G). ◊ Glossed as 'narrow' in some sources, but cf. *tĕma-si |xʾǔi* 'the dog is small', etc. (hardly 'narrow'). Of special note is the common diminutive suffix *-sì* (C, G), as well as *ʒ̀ina* (Sasi *dàna*) 'small /child/' (used primarily in the submeaning 'young', but also seemingly attested in auxiliary functions, cf. Sasi *dana-si* 'a little').
- Ju-ǂHoan: No direct lexicostatistical matches. However, ǂHoan *|xʾǔi* may be tentatively compared with Ju. *|ùʔí*, Kg. *|wí* 'thin (e.g. of paper)', even though the click efflux correspondences are irregular; it is possible to suggest some rare type of dissimilation (e.g. **|xʾuʔi* → *|uʔi* in PJ) to get past this obstacle. Likewise, it is not excluded that PJ **cʾe* is the same morpheme as the diminutive suffix *-si* in ǂHoan, but this also requires explaining an irregular correspondence (lenition due to the shifted clitical/suffixal status of the morpheme?). At least one of these etymologizations has a good chance of being correct, so we accept the situation as reflecting a «partial» match.

78. SMOKE (≈)

- PJ: ***šórè** ~ ***šórà** (Ju. *šórà*, Kx. *šore ~ šori*, Kg. *šórre ~ šure*, Gr. *šoːɽì*, Ek. *šúlè*). ◊ Preserved in most daughter dialects; only for OK. Bleek lists the form *|ɔnu*, of unclear origin (the original root is still preserved as *čule ~ čuli* 'tobacco, snuff'). Correspondences are largely trivial, except for the unclear vocalic variation in the second syllable (cf. also Ju. *šòrò* 'tobacco', with yet another variant).
- ǂHoan: **ʒ̨óeˢ** (H&H) ← ***dóeˢ**.
- Ju-ǂHoan: The ǂHoan form corresponds precisely to Ju. *dðèˢ* 'to smoke out (bees), to make someone inhale smoke for medicinal purposes, etc.'. Since the overall semantics of the Ju. word may be generalized as 'to make use of smoke', zero-derivation of this verb from an original noun 'smoke' seems far more likely than the opposite scenario, in which case PJ **šórV̀* should be understood as an innovation (could 'tobacco' actually be the original meaning here?). ◊ HH: 14, 22.

79. STAND (≈)

- PJ: ***/ʾ/!ǘ** (Ju. *!ǘ*, Kx. *!ú*, Kg. *!ù ~ !ũ ~ !úŋ-a*, OK. *!wa ~ !a*, Ek. *!ú́ ~ !ǘ*). ◊ Preserved in all daughter dialects. The Ek. form is listed as *ʾ!ǘ* (Western dialect) vs. *!ǘ* (Eastern dialect) in Heikkinen 1986: 25, conflicting with König & Heine's transcription of a simple nasalized click and impeding a precise reconstruction. Note that this is the singular subject action verb; the corresponding suppletive plural stem is PJ **ǂ̃a* (Ju. *ǂ̃à*, Ek. *ǂ̃à*, etc.).
- ǂHoan: **!úi** (C, G). Suppletive plural action form: *ǂ̃á* (ibid.).
- Ju-ǂHoan: This is a rare situation where a precise etymological match may be set up for the plural action stem (PJ **ǂ̃a* = ǂHoan *ǂ̃ã*), but not for the singular one: despite a certain degree of phonetic similarity, discrepancies between click effluxes and codas remain unexplainable (the vowel at least could be explained away as extra suffixation, but the total lack of nasality in the ǂHoan form is a grave problem that prevents common etymologization of both items). ◊ HH: 21, 27 (plural action stem).

80. STAR (+)

- PJ: ***ǂǖ̃** (Ju. *ǂũʰ*, Kx. *ǂ̃õẽ*, Kg. *ǂõ ~ ǂũ*, Gr. *ǂùŋ*, OK. *ǂǜ̃ ~ ǂɔ̃ ~ !ũ̃*, Ek. *!!ǖ̃*. ◊ Preserved in all daughter dialects.
- ǂHoan: **ǂô̰** (C, G). ◊ Recorded as *ǂṵ̂* for the Sasi dialect.

- Ju-ǂHoan: A perfect lexicostatistical match with fully regular correspondences. ◊ HH: 19, 25.

81. STONE (≈)
- PJ: ***ǃ̃òm̀ ~ *ǃ̃ùm̀** (Ju. *ǃ̃òm*, Kx. *ǃ̃um*, Kg. *ǃ̃um ~ ǃ̃om*, Gr. *ǃ̃uːm*, OK. *ǃ̃um*, Ek. *ǃ̃m̀ ~ ǃ̃ùm̀ ~ ǃ̃òm̀*). ◊ Preserved in all daughter dialects. See notes on 'mountain' for a possible lexical distinction between it and 'stone'.
- ǂHoan: **ǁʰǹāˢ** (C, G).
- Ju-ǂHoan: The ǂHoan form is compared by Heine and Honken with Ju. *ǁǁõˢʔà* 'stone used to stroke the shaft of an arrow in order to straighten it'; word-initial correspondences are not perfectly regular, but may point to a complex click efflux (**ǁǁʰ-*) with different paths of simplification in both branches. For semantics, cf. also the Ju. compound form *ǁǁõˢʔà-!ɔàè* 'stony veld', indicating that 'stone' (neutral/generic) may have been the original meaning. PJ **ǃ̃òm̀ ~ *ǃ̃ùm̀*, on the other hand, finds no etymological parallels in ǂHoan.

82. SUN (-)
- PJ: ***|ám̀** (Ju. *|ám*, Kx. *|ʌm*, Kg. *|ʌm*, Gr. *|áːm*, OK. *|ʌm*). ◊ The situation with this root is somewhat complicated from an areal perspective. In Ek., *|ám* is only attested in the meaning 'day, hour' (König & Heine 2008: 73), while the standard equivalent for 'sun' is *gàò ~ gàʔō*. This looks suspicious in light of the existence of Proto-Khoe **|ám̀* 'sun' (Vossen 1997: 492), which could theoretically be borrowed into the far younger PJ or into individual Ju dialects already post-separation. However, a more scrupulous analysis reveals that: (a) within Khoekhoe — the subgroup of Khoe that includes Nama and serves as the most common source for recent Khoe borrowings into Ju, the actual term for 'sun' is **sore-*; (b) the general distribution very clearly speaks in favor of Proto-Ju status of **|ám̀*, regardless of whether its further connections with Khoe are horizontal or vertical; (c) Ek. *gàò* is quite likely related to Ju. *gàʔáró*, glossed as 'to drink too little to quench one's thirst' (Dickens 1994: 200), i. e. basically '(still) be thirsty', implying that 'thirst' might be the original meaning for this root (the semantic shift 'thirst' → 'sun' is unusual, but not impossible considering the widespread polysemy 'sun/thirst' in the San area. It seems that there are no clinching arguments at the moment to prove that PJ **|ám̀* was borrowed from Khoe, or vice versa.
- ǂHoan: **čʔā** (C, G). ◊ With polysemy: 'sun/day'.
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

83. SWIM (?)
- PJ: ***dõ̀m̀** ~ ***dùm̀ (**Kg. *duḿm*, Ek. *dʰòm̀*). ◊ This root, found in at least two different subgroups of Ju, is also attested in various water-related meanings, such as 'wash', 'bathe', even 'shelter from rain'. Other dialects all show their own individual equivalents for the meaning 'swim', e.g. Ju. *ǯxà* (no etymology); OK. *ǃ̃ɔva ~ ǃ̃òba* (meaning given by D. Bleek as 'to row across, swim across'). As with other San groups, the concept of 'swimming' is clearly not basic enough in Ju due to natural constraints.
- **ǂHoan:** Not attested.

84. TAIL (±)
- PJ: ***!!xōē** (Ju. *!xúí*, Kx. *!ʰʁwí ~ ǂwi*, Kg. *ǁʰʁwé ~ !!ʰʁwé ~ ǁkxʁwè ~ ǁkxʁwé*, OK. *ǁʁwé*, Ek. *ǁxōē*). ◊ Preserved in all daughter dialects. Click correspondences clearly indicate original retroflex articulation.

- ǂHoan: **θxūī** (C, G).
- Ju-ǂHoan: PJ and ǂHoan forms perfectly match each other in everything (even tone!) except for the most important segment — the regular correspondence for ǂHoan *θ-* in Ju is */-* rather than *ǃǃ-*. Strictly speaking, this should invalidate the comparison (it is not found, for instance, in Heine & Honken's list of comparanda), but since the discrepancy concerns a rare type of click phonation that is absent in Ju languages altogether, it is not 100% certain that PJ **/-* : ǂHoan *θ-* exhausts all possible types of correspondences before a complete list of parallels, based on a representative ǂHoan dictionary, is presented. For now, it cannot be ruled out that ǂHoan *θ-* is an innovation rather than an archaism (for instance, caused by labialization of the click efflux in certain contexts before labial vowels), which means that, in theory, *θ-* could correspond to more than one click type in Ju. Taking this into consideration, we may define this pairing as a potential match[19].

85. THAT (+)

- PJ: ***toʔà** ~ ***ndoʔà** (Ju. *tòʔà*, Kg. *doǎ*, OK. *doa*, Ek. *ndùʔà ~ ndòʔà ~ tùʔà ~ tòʔà*). ◊ Since word-initial nasal clusters are generally prohibited in Ju, the variation *t- ~ d- ~ nd-* must probably result from morphemic contraction: it is reasonable to assume that **to-* represents the original root, while *ndo- ~ do-* are variants with an additional preposed deictic morpheme (← **NV-to- ~ *VN-to*?). Final *-à* is a general relative morpheme.
- ǂHoan: **ɕǒa** (C, G). ◊ The more archaic variant *tǒa* is preserved in the Sasi dialect (Collins & Gruber 2014: 40).
- Ju-ǂHoan: A perfect lexicostatistical match. ǂHoan shows no signs of voicing or nasalization as seen in Ju dialects, indirectly confirming that these variants are secondary.

86. THIS (±)

- PJ: (A) ***e** (Ju. *=è*, Kg. *e ~ é:ya*, Ek. *ē*); (B) ***ŋ** (OK. *ŋ*, Ek. *ǖŋ̀*). ◊ Ekoka is the only Ju dialect in which both of these simple morphemes are attested: according to König & Heine, *ǖŋ̀* "refers to objects close to the speaker or deictic centre" as well as *ē*, but *ē* "has a contrastive function ('this, rather than any other one')" (König & Heine 2001: 64–65). Even if this opposition is not confirmed beyond the Northern cluster, both pronominal forms look sufficiently archaic to suggest that it may have been inherited from PJ, with South-Central dialects simplifying it in favor of **e* (at least in Ju.: the situation with the other dialects remains insufficiently well described).
- ǂHoan: **hā** (C, G).
- Ju-ǂHoan: Despite some phonetic similarity (mostly in terms of root structure), it is not easy to trace PJ **e* and ǂHoan *hā* back to a single protoform. However, the vocalic correspondence is not unique (corr. #6), and ǂHoan *h-* may theoretically be equated with the Ju class prefix *h=* that typically precedes the pronominal morpheme (*h=è* 'this' for classes 1–4, opposed to *k=è* 'this' for class 5).

[19] In a recent presentation, Sands (2018) mentions this parallel together with an additional possible example (Ju *ɻàˁ* 'burp' : ǂHoan *ʘəuˁ* 'heartburn') as possible evidence for a special series of labio-velar clicks in Proto-Ju-ǂHoan. This actually echoes an earlier idea suggested in Starostin 2008: 358 («...some old influencing factor, for instance, a particular type of labial articulation after the click (either the click itself or the following vowel could be strongly labialized)»). However, due to the relative scarceness of evidence and lack of local typological support for separate labiovelarized clicks the suggestion remains somewhat speculative for now.

87. THOU (-)

- PJ: ***a** (Ju. *à*, Kx. *a-hi*, Kg. *a ~ á*, Gr. *à:*, OK. *a ~ a-hi*, Ek. *à*). ◊ Preserved in all dialects, being encountered either as a simple monophonemic variant or in the emphatic variant **a-hŋ ~ *a-hi*. Curiously, in a few dialects an additional variant with an extra labial phoneme is attested: (a) for Kg., Bleek lists a special subject form *mʔa*, distinguishing it from the more common object and possessive form *a*; (b) for Ek., König & Heine list a special subject form *bà*, especially in sentence-internal position. These phenomena most likely have a common origin, but the exact provenance of this labial prefix and its shape in PJ remain to be clarified.
- ǂHoan: **ù** (C, G). ◊ In the Sasi dialect, there is also an additional "in-focus" form *bù ~ bù:* (Collins & Gruber 2014: 77).
- Ju-ǂHoan: Unlike the 1st p. sg. pronoun, forms for the 2nd p. sg. pronoun in Ju and ǂHoan cannot be reconciled with each other. The situation could make sense from a more comprehensive perspective that also includes !Ui-Taa (South Khoisan) languages as part of the same family: considering that the system there is reconstructible as **a* 'thou' (sg.) vs. **u* 'you' (pl.), it is likely that Ju has preserved the original singular form, whereas ǂHoan may have replaced it with the original plural. However, this solution formally lies beyond the scope of this binary analysis. It is also curious to note the similarity of the *b-* "in-focus" Sasi prefix to the *m- ~ b-* subject prefix in certain Ju dialects, even if the prefixes in question are joined to different root morphemes.

88. TONGUE (±)

- PJ: ***Thari** (Ju. *dhàrì*, Kx. *tarí*, Kg. *tɛ́rri*, Gr. *n̪thálı*, OK. *tali*, Ek. *dhàlí*). ◊ Preserved in all daughter dialects. Correspondences between the initial consonant show irregular fluctuation of laryngeal features, including even a completely unexpected and very rare case of prenasalization in Gr., as recorded by Doke. This is consistent with the typologically aberrant (both for Africa and other world areas) phonetic behavior of the word 'tongue', reflecting an odd phonosemantic phenomenon that is difficult to explain in historical terms.
- ǂHoan: **cèlā** (C, G), **cìɾà**: (SH). ◊ Recorded as *càla* in the Sasi dialect.
- Ju-ǂHoan: Judgement on whether PJ **Thari* and ǂHoan *cèlā* are cognate or not has to be postponed. On one hand, the correspondences are notably irregular, since ǂHoan *c-* (rather than *ɕ-* ← **t-*) is always found in roots where PJ has affricates or sibilants (see 'hear', 'see' on this list); vocalic patterns do not present a clear match, either. On the other hand, since the word-initial consonant or cluster in PJ remains altogether unclear, and since the word 'tongue' tends to behave irregularly in Khoisan languages on the whole, unique historical developments in this case seem highly likely; probability of cognacy is weak, but should not be ruled out.

89. TOOTH (+)

- PJ: ***cᵛau** (Ju. *cᵛàù*, Kx. *cᵛou ~ cou ~ cau*, Kg. *cːau ~ caù*, Gr. *cᵛáú:*, OK. *cau*, Ek. *čᵛāō*). ◊ Preserved in all daughter dialects.
- ǂHoan: **cᵛíú** (C, G), **cᵛíù** (SH). ◊ Plural form: *cᵛěõ* (G), *cᵛàõ̃-qà* (SH). Recorded as *cᵛáu* in the Sasi dialect.
- Ju-ǂHoan: A perfect lexicostatistical match with trivial correspondences. ◊ HH: 17, 23.

90. TREE (-)

- PJ: ***ǃʰàŋi** (Ju. *!ãĩʰ*, Kx. *ǃãĩ*, Kg. *!áŋ ~ !áŋ-a ~ !ãũ ~ ǃaŋ*, Gr. *ǃãŋ*, OK. *ǃáű ~ ǃã ~ gáű*, Ek. *!àhŋ̄ ~ !ʰàŋ̄*). ◊ Preserved in all daughter dialects. However, phonetic correspondences here

are complex and, in some aspects, unique. The basic structure of the word is more or less the same as in 'neck' q.v., which is reflected in the reconstruction of the coda **-aŋi* for both items. Seemingly random fluctuations are, however, observed in click efflux articulation (ranging from simple velar release to prevoicing to aspiration), additional vowel properties (breathy articulation in Ju.) and in the tonal scheme. The provisional reconstruction with **ǁʰ̰-* and ultra-low tone on the first mora merely reflects the fact that some particularly complex bag of features must have been present on the proto-level in order to yield such a large variety of reflexes.

- ǂHoan: **ǀˀőő** (C, G). ◊ Recorded as *ǀˀű́* in the Sasi dialect.
- Ju-ǂHoan: It is worth noting that ǂHoan *ǀˀő́* (Sasi *ǀˀű́*) is a perfect phonetic match for Ju. *ǀˀű́* 'hunting bow'; semantically, such a link is possible, since traditional Bushman bows were «as a rule prepared from the wood of the *Grewia flava*» (Schapera 1930: 128), but requires setting up a chain of semantic shifts that is hard to accept without additional evidence. Ju **ǁʰ̰àŋi* finds no cognates in ǂHoan.

91. TWO (-)

- PJ: ***cā ~ *cã̄ ~ *cã̄ˢ** (Ju. *cā́ ~ cā́ˢ*, Kx. *ca ~ ča*, Kg. *sã ~ sãˢ ~ sːa ~ ca ~ cã ~ caːˢ ~ zā́ˢ*, Gr. *sãː*, OK. *cá ~ ca ~ ča*, Ek. *čā*). ◊ Fluctuation between different types of vocalic features remains unexplained (different variants are sometimes attested within the same well-described dialect, e.g. Ju.).
- ǂHoan: **θōā** (C, G).
- Ju-ǂHoan: Unless the PJ entry can be shown to represent a rare case of click affricativization (**ǀ̄ˢ → *cā̄ˢ*), which is not altogether excluded but requires far more confirming evidence, PJ and ǂHoan forms have to be kept apart from each other.

92. WALK (GO) (±)

- PJ: ***ú** (Ju. *ű́*, Kx. *ú*, Kg. *ù ~ ùː*, Gr. *iú ~ ʔúː*, OK. *ú*, Ek. *ú*). ◊ Preserved in all daughter dialects.
- ǂHoan: **ɕàoˢ** (C, G). ◊ Attested as *tàoˢ* in the Sasi dialect.
- Ju-ǂHoan: The ǂHoan verb **tàoˢ* may be tentatively analyzed as a fused formation from an early root **ta* (which is still in use as an auxiliary pre-verb, indicating motion with the purpose of completing an action) and an unspecified second component — which, incidentally, could be fairly well associated with PJ **ú* 'to go' (vocalic correspondences would be perfect except for unexplained pharyngealization). However, there are no definitive grounds for such a segmentation, and given the short monovocalic nature of the compared root, we can only accept this match as highly tentative (in any case, even if the suggested fusion were correct, it would constitute a near-complete lexical replacement in ǂHoan).

93. WARM (HOT) (-)

- PJ: ***khúí** (Ju. *khúí*, Kx. *kwí ~ khwí*, Kg. *kwí ~ kwì ~ kwìya*, OK. *khwí*, Ek. *khúí*). ◊ Preserved in all daughter dialects. In all well documented sources the meaning is explicitly noted as 'hot' (antonymous to **ǂàʔū* 'cold'), and in PJ it seems to have been well distinguished from **ǁˀű́* 'warm' (Ju., Ek. *ǁˀű́*, etc.).
- ǂHoan: **kŭru** (C, G). ◊ Always glossed as 'hot'; the word is probably distinct from 'warm', for which cf. *ǁoː ~ ǁ̰uo* 'warm' in Traill 1973: 32, possibly = *ǁqˀo* 'warmth' (C).
- Ju-ǂHoan: The words for 'hot' in PJ and ǂHoan, despite some phonetic similarity, are probably not related (initial consonants do not perfectly correspond to each other, and

fossilized morphology has to be assumed for both groups to justify the connection). The words for 'warm', on the other hand, are most likely cognates, but better data are needed for ǂHoan to ascertain the semantics.

94. WATER (+)

- PJ: ***ǃ̰ǃ̰ú** (Ju. *ǃ̰ű́*, Kx. *ǃ̰ú ~ ǁu ~ ǁú*, Kg. *ǁù ~ ǁú*, Gr. *ǃ̰ũ*, OK. *ǁú ~ ǁó*, Ek. *ǁú*). ◊ Preserved in all daughter dialects. Retroflex click articulation is seen in the Grootfontein dialect and is unambiguously reconstructible for the proto-level.
- ǂHoan: **ǯ̀ò** (C, G).
- Ju-ǂHoan: The correspondence between a retroflex click in PJ and an affricate in ǂHoan (in this case, both phonemes even share the same characteristics of +voiced) is essentially the same as in the word for 'hand' (see above). Although the phonological and phonetic implications of this correspondence remain unclear, observing it specifically in two highly stable elements of the Swadesh wordlist makes coincidence highly unlikely. We count this as a direct lexicostatistical match.

95. WE (±)

- PJ: [exclusive] ***è** (Ju. *è*, Kx. *e*, Kg. *e*, OK. *e ~ e-hŋ*, Ek. **è**); [inclusive] ***m̀** (Ju. *m̀*, Kg. *hm*, Ek. *m̀-hm̀*). ◊ The basic opposition between exclusive and inclusive forms of the 1st p. pl. pronoun is observed in the majority of Ju dialects. For Ekoka, it is noted that *è* is now perceived as an archaic form, with speakers generally preferring the innovation *ǯù* (= 'people', see 'person' above). Both pronouns also have expanded (emphatic?) variants, well attested in Ju. (*è-ǃá*, *m̀-ǃá*) and several other dialects. Special dual forms are more rare and transparently recent (Ju. *è-cá*, *m̀-cá* 'the two of us', compounded with 'two' q.v.).
- ǂHoan: [exclusive] **n-ǃāʔē** (C, G); [inclusive] **qàˢā** (C, G). ◊ The variant of the inclusive pronoun in the Sasi dialect is slightly shorter: *qà* (Collins & Gruber 2014: 77).
- Ju-ǂHoan: There are no clear-cut isomorphisms between the 1st p. pl. sub-systems in PJ and ǂHoan. Surprisingly, the closest morphemes are the suffixal extensions — PJ **-ǃa* and ǂHoan *-ǃāʔē*, which cannot be easily traced back to any recent grammaticalization patterns (but are probably further related to the productive diminutive plural ending *-ǃàʔā* in ǂHoan). It is likewise reasonable to suggest a link between ǂHoan *qàˢā* and the regular plural ending *-qà* in the same language, but the exact nature of it is a matter of guesswork (one possible scenario, for instance, is that the original pronominal root was contracted/deleted before the ending, i.e. **n-qa → qa*).

  It is also worth noting that a special dual variant of the pronoun is attested in ǂHoan, where the nasal monophonemic root is represented by a labial allophone: *m-θōā* 'us two' (Collins & Gruber 2014: 71). This can be easily ascribed to assimilative influence of the following labial click (← **n-θōā*); on the other hand, the opposite scenario cannot be excluded, either, i.e. delabialization in front of a tightly adjacent non-labial click: **m-ǃāʔē → *n-ǃāʔē*. Due to the uniqueness of this phonotactic environment, no examples are available to confirm or disprove such a development, meaning that it is possible to set up a tentative weak match between the exclusive pronoun in ǂHoan and the inclusive pronoun in Ju (the disagreement in clusivity should not be a problem, since ǂHoan must have remodeled the old opposition anyway).

96. WHAT (+)

- PJ: ***hà-čí** (Ju. *hà-čé*) / (?) ***m-** (Ek. *m̄-*). ◊ Interrogatives in Ju are usually complex, consisting of a general interrogative marker, a nominal root, and (optionally) a final particle:

thus, Ju. *hǎ-čé* = *ha* (question marker) + *či* 'thing' + *-e* (final particle). There is significant variation between dialects concerning the selection of the components: thus, Ek. and some other Northern dialects show *m* instead of *ha*, cf. OK. *m-pai* (D. Bleek's data, second component is unique and unclear); Ek. *m̄-čá ~ m̄-čē ~ m̄-čí*. Data from J. Snyman's comparative survey of Ju subdialects, although restricted to 'who?' rather than 'what?', show that variants of interrogative pronouns with initial *ha-* have a much wider distribution than variants with *m-*, the latter being largely restricted to the area between the Cuito and Cuando rivers. It may be suspected that *m*-initial forms are secondary in the Northern dialects, having penetrated them under the influence of Khoe, where **mã ~ *ma* 'who?, which?' is one of the main interrogative stems (Vossen 1997: 379). However, this evidence is inconclusive; it is likewise possible that **m-* is archaic, surviving on the Northern and Northwestern periphery of the Ju cluster.

- ǂHoan: **ʔǎˢrī-yà** (C, G). ◊ Apparently, ǂHoã has chosen the rare strategy of neutralizing the lexical opposition between 'who?' and 'what?' in favor of 'who?' (see notes on 'who?' below). The morpheme *yà* is a general question particle. Cf. also *ɕini* 'what?' in Traill 1973: 32, not confirmed in any of the later sources. The Sasi equivalent for 'what?' is *ndā*, "a question word which does not exist in ǂHoã" (Collins & Gruber 2014: 192).
- Ju-ǂHoan: Any comparisons between Ju and ǂHoan interrogatives may be made only on the level of the general interrogative particle. Etymological identity of PJ **hà* and ǂHoan *yà* seems quite likely in light of the completely identical correspondence between PJ **ha* '3rd p. sg.' and ǂHoan *ya* id. (although the deictic/personal and interrogative morphemes themselves are probably just homonyms). The nominal extensions of the pronouns are different, due to the lexical renewals of the words for 'thing' and 'person' in one or both subgroups after the split. Nevertheless, since the main interrogative meaning is carried by the *ha*/*ya* morpheme, we count both 'what?' and 'who?' as lexicostatistical matches between PJ and ǂHoan.

97. WHITE (≈)

- PJ: ***!àʔū** (Ju. *!àʔú*, Kx. *!áú*, Kg. *!áó ~ !kˀáó ~ !kxáó*, Gr. *!ə̯ʔàù*, OK. *!áú*, Ek. *!àʔō*). ◊ The structure of the stem, including a glottal stop between the two vowels, is very well confirmed by most modern sources (Ju., Ek.) as well as Doke's Grootfontein data. It also explains the variation observed between the forms recorded for Kg., where the glottal stop may have been incorrectly interpreted as part of the click efflux. The item is well attested in the majority of dialects and safely reconstructible for the PJ level.
- ǂHoan: **ǂàˢʔnna** (H&H). ◊ Listed as *ǂxaˢna ~ ǂaˢana* in Traill 1973: 32.
- **Ju-ǂHoan**: No lexicostatistical matches. PJ **!àʔū* 'white' is most likely somehow linked to Proto-Khoe **!ˀú* 'white' (Vossen 1997: 506), well represented in Kalahari Khoe and also preserved in Nama with an additional suffix (*!u-ri*). Borrowing from Proto-Khoe into PJ does not seem likely, since it is unclear why an original **!ˀu* should have yielded a more complicated vocalic structure in PJ; more probable is the reverse situation (PJ **!àʔū* → Proto-Khoe **!ˀú* with simplification of an unusual structure), or even the scenario according to which both forms are retained from a common ancestor of PJ and Proto-Khoe (in which case, of course, the PJ equivalent should automatically be projected onto the Proto-Ju-ǂHoan stage as well).

  As for ǂHoan *ǂàˢʔnna*, this is a rare case of a **CVna* structure for a ǂHoan adjective; provided that *-na* is historically of suffixal origin, a possible parallel may be seen in Ju. *ǂaˢʔàbè* 'shiny', further relatable to !Xóõ (Taa) *ǂàˢba* id. Our understanding of the productivity aspects of early Peripheral Khoisan derivational morphology is insufficient to

assess the plausibility of two different derivational suffixes for the same root, but since there is ample evidence to back up the very presence of such derivational patterns at those stages, the etymological match between *ǂa^{ʕ}ʔ-*na* and ǂa^{ʕ}ʔ-*be* is acceptable. (Note that it does not necessarily invalidate the comparison of the Ju word with ǂHoan 'moon', discussed above, since both forms can ultimately go back to the same root with different suffixes).

98. WHO (+)

- PJ: ***hà-ǯù** (Ju. *hǎ-žòè*, Kg. *a-ǯu*) / (?) ***m-** (Ek. *m̄-ǯē ~ m̄-ǯōē*). ◊ In all Ju dialects, the animate interrogative pronoun is formed from the general interrogative morpheme + **ǯù* 'person' q.v. (sometimes also further extended with the deictic stem **-e*: **hà-ǯù-e* → Ju. *ha-žoe*). For discussion of the interrogative morpheme, see 'what' above.
- ǂHoan: **ʔǎ^{ʕ}rī-yà** (C, G). ◊ In the Sasi dialect, the phonetic shape is *ʔǎlī-yà*. A compound form, consisting of *ʔǎ^{ʕ}rī* 'man' q.v. and the general interrogative particle *yà*. See 'what?' for further notes.
- Ju-ǂHoan: A lexicostatistical match on the level of the general interrogative particle. See 'what?' for a more detailed commentary.

99. WOMAN (≈)

- PJ: ***ʒ^{h}au** (Ju. *ʒ^{h}àú*, Kx. *ʒau ~ ʒou ~ ʒóú*, Kg. *ʒau ~ záú ~ sáú*, Gr. *zsháú:*, OK. *cau ~ cáú*, Ek. *ǯ^{h}āō*). ◊ Preserved in all daughter dialects. Correspondences are generally regular and trivial; PJ **ʒ^{h}-* automatically becomes preglottalized in Ju., so there is no need to carry it over onto the proto-level as a phonological feature. In most modern dialects the word unambiguously denotes a female human being, and should be distinguished as such from PJ **de ~ *di* 'female (in general, incl. animals etc.)'.
- ǂHoan: **ʔǎ^{ʕ}ri=‖ái^{ʕ}** (C, G). ◊ A compound form; the first part is *ʔǎ^{ʕ}ri* 'man' q.v., while the second part, when in independent usage, means 'female' (listed as *‖a^{ʕ}ai ~ ‖ai^{ʕ}* in Traill 1973: 32). Suppletive plural form: *|q^{h}à* 'women' (Collins & Gruber 2014: 21). Distinct from *ǯǐu* 'wife' (Collins & Gruber 2014: 92).
- **Ju-ǂHoan**: PJ **ʒ^{h}au* 'woman' is a perfect etymological match for ǂHoan *ǯǐu* 'wife' (HH: 17), and it is safe to assume that this term may have been polysemous in the ancestral language ('woman /in general/' = 'married woman'). Another transparent cognate from the same semantic field is PJ **de ~ *di* 'female' = ǂHoan *ʒe* 'mother' (HH: 16). Nevertheless, ǂHoan seems to have undergone lexical replacement, substituting the original term for 'woman' for a compound expression in which the 'feminine' part of the meaning is now denoted by the morpheme *‖ái^{ʕ}*, very likely diffused in ǂHoan under Taa influence, cf. !Xóõ *‖ái^{ʕ}* 'female', also N|u‖en *tu ‖ai* 'woman', lit. 'person-female', i. e. the same model of compounding as in ǂHoan. Therefore, we cannot qualify this situation as a lexicostatistical match.

100. YELLOW (-)

- PJ: ***|ànŋu** (Kx. *|ãũ̃*, Kg. *|áŋ ~ |àŋ*, Gr. *|a:ŋ ~ |ãŋ*, OK. *|ãŋ*). ◊ Same word as 'green' q.v.; most of the old sources on Ju dialects indicate no lexical distinction between the basic 'green', 'blue', and 'yellow'. In more modern and more detailed sources, we occasionally encounter separate entries for 'yellow', e.g. Ju *‖ð^{ʕ}nì-!ú*, lit. '/the color of/ the jewel beetle's (*‖ð^{ʕ}nì*) belly (*!ú*)', and Ek. *ʔ̃ùū* = 'egg' q.v. Naturally, these have to be interpreted as recent (completely transparent) semantic innovations.

- ǂHoan: **za^{ʕ}ʔa** (T). ◊ Same word as ‘green’; attested only in Traill 1973, thus not highly reliable from the phonetic or semantic aspect.
- Ju-ǂHoan: No lexicostatistical or etymological matches.

101. FAR (-)
- PJ: ***ǂxã** (Ju. *ǂxã́*, Kx. *ǂxã́ː ~ ǂaː ~ ǂaː ~ !ãː ~ !^{h}ãː ~ |xãː ~ |ã*, Kg. *ǂxã̀ ~ ǂxá ~ ǂa*, OK. *ǂxa ~ |xa*, Ek. *‼xã̄*). ◊ The reconstruction is based on precise correspondences between Ju. and Ek. Old sources show a lot of fluctuation between the palatal and the dental (more rarely, the alveolar) click; this is not well understood (palatal clicks are frequently transcribed erroneously by L. Lloyd, D. Bleek and others, but the fluctuations look rather extreme in this particular case).
- ǂHoan: **ǂ̰ŏa** (C, G).
- Ju-ǂHoan: No lexicostatistical or etymological matches.

102. HEAVY (-)
- PJ: ***tì^{h}** (Ju. *tì^{h}*, Kx. *ti*, Kg. *tí ~ tːí*, Ek. *tìhì*). ◊ Preserved in all daughter dialects (where attested). Reconstructible for PJ with breathy vowel articulation and ultra-low tone.
- ǂHoan: **ǁqô** (C, G).
- Ju-ǂHoan: No lexicostatistical or etymological matches.

103. NEAR (+)
- PJ: ***toʔm** (Ju. *tòʔm*, Kx. *tɔm ~ toma ~ tum ~ dom*, Kg. *tːᵑumm ~ tumma ~ tamma*, OK. *tum*, Ek. *tōʔḿ*). ◊ Preserved in all daughter dialects. Some of the attested forms represent the complex «junctive» variant **toʔm-a* (supposedly followed by a complement).
- ǂHoan: **ɕāˢm** (C, G). ◊ Should go back to an earlier **taˢm*.
- Ju-ǂHoan: Consonantal correspondences between PJ and ǂHoan are perfect; vocalism remains more complicated, but cf. HH: 18, where several additional examples of the same pattern (PJ **o* : ǂHoan *a*) are adduced. The authors provisionally interpret them as reflecting Ju-ǂHoan **ao*, without mentioning that all such instances occur exclusively before the labial nasal coda (e. g. ǂHoan *ˀ|naˢm* ‘springhare’ = PJ **ˀ|̃oˢm* id., ǂHoan *ǃ̃ám* ‘ripe, cooked’ = PJ **ǃ̃om* id., etc.). The likeliest solution is that the coda simply influenced the original vocalism in PJ. Less clear is the correlation between glottalic articulation of the vowel in PJ vs. pharyngealization in ǂHoan, but this, too, is not unprecedented (cf. ‘cold’ above, or PJ **‼̰aʔma* ‘to enter’ — ǂHoan *ǃaˢm* id.). Overall, while the phonological and phonetic details still deserve closer scrutiny, the etymology as a whole can be evaluated as highly reliable. ◊ HH: 22.

104. SALT (?)
- PJ: ***gúí** (Ju. *gúí*, Kg. *gwì*, OK. *gwí*, Ek. *gúí*). ◊ This is the most widespread and the least etymologically suspicious equivalent for ‘salt’ in Ju. Another root, attested as Kx. *dabe*, Ju. *díbí* and also recorded by Snyman for several other Ju subdialects, is most likely of Khoe origin (cf. Proto-Khoe **dobe* ‘salt’ in Vossen 1997: 481).
- ǂHoan: **qāʔnā** (C, G). ◊ Clearly the same word as !Xóõ *qáʔna* ‘salt’.
- Ju-ǂHoan: No lexicostatistical or etymological matches. Judging by the situation in Ju, the meaning ‘salt’ is rather easily diffused across different Khoisan lineages, so it is highly likely that ǂHoan *qāʔnā* is a borrowing from Taa (rather than both being inherited from Proto-Peripheral Khoisan).

105. SHORT (-)

- PJ: ***!ò ~ *!ò-mà** (Ju. *!ò-mà*, Kx. *ǃò:*, Kg. *!o-ma ~ !o:-ma*, OK. *!o-!o*, Ek. *!ò*). ◊ Preserved in most dialects. The root can be used by itself or in conjunction with the diminutive suffix **-ma*.
- ǂHoan: **ǂéū** (C, G).
- Ju-ǂHoan: ǂHoan *ǂéū* is etymologically comparable with Ju. *ǂàò*^{h} 'to lack, be short of' (front vocalism in ǂHoan is apparently caused by palatal influence of the click), but the Ju. form itself is not safely reconstructible for PJ. Additionally, there are still problems with phonetics (prosody) and semantics, so the etymology is not fully convincing.

106. SNAKE (≈)

- PJ: ***ǂˀǎ̀gà ~ *ǂˀǎ̀wà** (Ju. *ǂˀǎ̀gà-mà ~ ǂˀà:-mà*, Gr. *ǂˀǎ̀wǎ̀*, Ek. *ǃǂˀǎ̀wà*). ◊ The generic term for 'snake', reconstructible for PJ, has an atypical bisyllabic structure, since **-ga ~ *-wa* is not one of the few common syllables allowed in coda position. Most likely, the form is originally a compound, although the phonetic and semantic properties of its source morphemes are unclear. There are several terms denoting specific types of snakes in PJ that are even more widespread and simpler in structure, e.g. **ǂ̃ŋ* 'python', **ǁkxãũ* 'blind snake', **ǃ̰e* 'puff-adder'; the common word for the entire suborder may be some descriptive term (of a euphemistic nature?). It is useful to note that some old sources occasionally quote words for specific types of snakes in the general meaning 'snake': e.g. Kx. *ǃe: ~ ǃ̃i* 'snake' (= 'puff-adder'), OK. *ǁãṹ ~ ǁwẽ* 'snake' (= 'blind snake'). Naturally, it is impossible to correctly assess the semantic scope of these forms from existing data.
- ǂHoan: **ǃ̰ái** (C, G).
- Ju-ǂHoan: The ǂHoan term for 'snake' is a near-perfect correspondence for PJ **ǃ̰ai* 'puff-adder' (see 'claw /nail/' on the possible correspondence between PJ **ǃǃ* and ǂHoan *ǃ*), but there are no parallels in ǂHoan for PJ **ǂˀǎ̀gà* — another indirect hint at the non-archaic nature of this compound.

107. THIN (-)

- PJ: ***ǯ̀aˢm** (Ju. *ǯ̀aˢm*, Kx. *ǯaˢm*, Kg. *ǯaḿm*, Gr. *ǯam*). ◊ A common Ju morpheme. The Ek. equivalent is *ǁkxàí*, perfectly corresponding to Ju. *ǁkxàì* 'wrinkled' and probably semantically innovative.
- ǂHoan: **ǀxolo** (C).
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

108. WIND (-)

- PJ: (?) ***ǂˀa** (Kx. *ǂˀã ~ ǂˀa:*, Kg. *ǂˀa ~ ǂˀã*). ◊ Although this root is quite widely distributed throughout the dialects (judging by J. Snyman's comparative data), it is oddly missing in both of the best described Ju varieties. In Ju., it has been replaced by *màˢ*, originally a verbal stem with the meaning 'to blow /of wind/' (cf. Ek. *màˢ* 'to blow', etc.). In some of the Northern dialects we see a different replacement: OK. *ǁuli*, Ek. *ǁòhlì ~ ǁòhlì-gō*, likely cognate with Ju. *ǁòrò* 'whirlwind', i.e. originally 'strong wind'. On the other hand, the similarity between this root and Proto-Khoe **ǂˀã* 'wind' (Vossen 1997: 507) suggests an alternate scenario — namely, areal borrowing from Khoe sources along the same lines as 'fish' q.v. If so, PJ **maˢ* could have very well been both a verbal ('blow') and nominal ('wind') root, with narrow specialization to verbal usage after the nominal functions were taken over by the Khoe borrowing. A more insightful evaluation of the probabilities will only be possible in the context of a general study on the scope and nature of Ju-Khoe areal contacts.

- ǂHoan: **ǂqˀui** (C). ◊ Similarity with !Xóõ *ǂqʰùe* 'wind' is hardly accidental, but in this case, borrowing is not an immediately obvious explanation, since there are visible phonetic discrepancies (glottalized click efflux in ǂHoan vs. aspirated in !Xóõ) that should not be characteristic of recent contact.
- Ju-ǂHoan: No lexicostatistical or etymological parallels (regardless of whether the comparison is made with PJ **ǂˀa* or **maˀ*).

109. WORM (?)
- PJ: Not properly reconstructible due to lack of attestation. Only the Ju. word is known: *ǂ̃ùʔú́*.
- ǂHoan: *ǃõʔõː ~ ǃũʔũː ~ ǃəʔuː* (T). ◊ Not attested in any reliable sources.
- Ju-ǂHoan: Although there is too little information for an etymological or lexicostatistical decision, it is curious that the Ju. and ǂHoan forms are extremely similar to each other. However, the correspondence between a palatal click in Ju. (or PJ) and an alveolar click in ǂHoan would be highly irregular, unless Traill's phonological transcription is in error — but no other examples of such errors could be detected upon careful analysis of the data in Traill 1973.

110. YEAR (-)
- PJ: (?) ***kuri** (Ju. *kúrí*, Kx. *kuri*, OK. *kuri*). ◊ Although the form is quite widely spread across Ju dialects, its projection onto the PJ level is highly dubious — like 'fish' and possibly 'wind' (see above), this is most likely a borrowing from Khoe **kúrí* 'year' (Vossen 1997: 454). There is, however, very limited data on alternate candidates. In Ek., the meaning 'year' is expressed by the same word as 'rain' (*ǁ̃à*) — possibly an archaism, but explicitly limited to just one dialect. For the Grootfontein dialect, Doke records *ǃ̃ãù* 'year', an isolated form with no parallels whatsoever.
- ǂHoan: **kʰə̀ã̀ẽ̀** (C, G).
- Ju-ǂHoan: No lexicostatistical or etymological parallels.

Data analysis

The table below summarizes all our findings, once again classifying all matches into «solid» (confirmed by recurrent correspondence patterns), «dubious» (containing no more than one strong violation of observed patterns), «etymological» (potential cognates are only attested with a semantic shift), and non-existent. The 10 additional items (101–110) are marked separately (e. g. «8+1» means that there are 8 matches in the main wordlist and 1 more among the ten additional items).

Match type	List half	Cases	Wordlist items
Solid	1st	21	'blood', 'die', 'ear', 'eat', 'eye', 'hand', 'head', 'hear', 'horn', 'I', 'kill', 'louse', 'name', 'new', 'not', 'one', 'star', 'tooth', 'water', 'what', 'who'
Solid	2nd	8 + 1	'all', 'belly', 'earth', 'red', 'see', 'sit', 'sleep', 'that', 'near'
Dubious	1st	6	'claw /nail/', 'drink', 'mouth', 'tail', 'tongue', 'we'
Dubious	2nd	5	'bite', 'cold', 'say', 'this', 'walk /go/'
Etymological	1st	5	'foot', 'meat', 'moon', 'smoke', 'stone'
Etymological	2nd	9 + 1	'big', 'come', 'knee', 'many', 'person', 'small', 'stand', 'white', 'woman', 'snake'
No matches	1st	18	'ashes', 'bird', 'black', 'bone', 'dog', 'dry', 'egg', 'fire', 'hair', 'heart', 'leaf', 'night', 'nose', 'rain', 'sun', 'thou', 'tree', 'two'

Match type	List half	Cases	Wordlist items
No matches	2nd	18 + 6	'breast', 'fat', 'feather', 'fly', 'give', 'good', 'green', 'know', 'lie', 'liver', 'long', 'man', 'mountain', 'neck', 'root', 'skin', 'warm /hot/', 'yellow', 'far', 'heavy', 'short', 'thin', 'wind', 'year'
Excluded (lack of data)		8 + 1	'bark', 'burn', 'cloud', 'full', 'round', 'sand', 'seed', 'swim', 'worm'
Excluded (borrowings)		2 + 1	'fish', 'road', 'salt'

The following conclusions may be drawn from these statistics.

1. Percentage of lexicostatistical matches between Proto-Ju and ǂHoan on the 100-item wordlist may vary from 32% (29/90, only counting the «solid» matches) to 44% (40/90, counting «solid» and «dubious» matches together).

Since the disintegration of Proto-Ju itself, based on lexicostatistical calculations between modern dialects, is tentatively dated to about 200 AD (Starostin 2013: 321), with the average Ju dialect replacing about 10–12% by the present day, this, according to Sergei Starostin's glottochronological method, yields a highly approximate figure of about 5000–5500 years of separation between modern Ju varieties and ǂHoan in the worst case (all «dubious» matches discarded), or of about 4000–4500 years in the best case (all «dubious» matches included). The latter is an age roughly comparable with the most common glottochronological datings for such Eurasian families as, for instance, Fenno-Ugric (without Samoyed) or Kartvelian (together with the highly divergent Svan).

2. The number of direct solid lexicostatistical matches within the first («more stable») half of the Swadesh list vastly exceeds the number of such matches within the second half (21 against 8). This is significant evidence in favor of a genetic rather than areal connection between Ju and ǂHoan, with the imminent underlying assumption of a common linguistic ancestor.

3. Conversely, the number of «etymological» matches is higher for the «less stable» part of the wordlist (9 against 5). This is an interesting observation that seems to agree with basic logic, since «less stable» lexical items should be expected to also be more prone to semantic change, in addition to outright elimination; however, it remains to be seen whether it may be generalized, since statistical data on this type of correlation has yet to be collected for representative samples.

4. There is currently no evidence that a majority, or even a significant portion, of lexical replacements that took place between Proto-Ju-ǂHoan and Proto-Ju or modern ǂHoan are due to massive borrowing from other sources. We have been able to reliably identify no more than three borrowed items (of Taa or Khoe origin), and suspicions have been raised about a few more (e.g. 'sun'), but on the whole, it seems as if the general process of disintegration was largely driven by internal factors.

Finally, in light of the «Ju-Taa», or «Peripheral Khoisan», hypothesis that interprets the similarities between North Khoisan (Ju) and South Khoisan (!Ui-Taa) in terms of genetic relationship, the following observations must be made:

— on one hand, binary comparisons between Ju and !Ui-Taa that do not find any parallels in ǂHoan should not be regarded as significantly less reliable, since ǂHoan is an isolated language, and its percentage of irretrievably lost Proto-Ju-Taa items should predictably be higher;

— on the other hand, caution must be exercised when dealing with exclusive ǂHoan-Taa isoglosses (such as 'salt', etc.) that do not find parallels in either !Ui or Ju languages, particularly when these isoglosses are exact or near-exact phonetic matches; most likely, such cases reflect recent contact that should not distort our general perspective of distant genetic relationship between these taxa.

Appendix: List of observed phonetic correspondences between Ju and ǂHoan

The table below lists all cases of phonetic correspondences that have been observed between Proto-Ju and Eastern ǂHoan on the data of basic (Swadesh) lexical items *and* additional lexical items discussed in the main body of the paper (non-Swadesh meanings are listed in italics).

It must be noted that this list does not aim at systematic completeness; thus, there are quite a few segments reconstructible for Proto-Ju (mostly in the non-click consonant domain) that find no ǂHoan correlates in this table, and vice versa. Likewise, the table does not contain a special column for Proto-Ju-ǂHoan reconstructed phonemes, and while in quite a few cases one-to-many correspondence types are commented upon as to the issue of possible complementary distribution of reflexes, this is not always the case — for instance, there is currently no clear understanding of the principles that govern the reflexes of such vowel qualities as nasalization, glottalization, and pharyngealization, or of the seemingly chaotic distribution of voiced and voiceless reflexes of click phonemes. Such principles may or may not be uncovered at the next stages of etymological research on Ju-ǂHoan; in the meantime, what matters most is the *recurrent* nature of such correspondences, proving or at least increasing the probability of their non-accidental nature.

The following types of correlations are included in the table:

(a) phonetically identical segments between ǂHoan and Proto-Ju (for such cases, especially if the involved phonemes are rare, recurrence is not necessarily required);

(b) phonetically similar segments between ǂHoan and Proto-Ju, differing by no more than one distinctive and commonly unstable feature[20] such as +/– voice (for consonants) or +/– raised (for vowels). If the correlation is one-to-one, with no alternate correspondences for either member of the pair, recurrence is not required. If there are conflicting one-to-many correspondences, it is recommended to establish complementary distribution (cf. #1 vs. #1a vs. #1b), or to provide at least as many examples as there are for group (c) cases;

(c) «non-trivial» correspondences, such as #35b, in which the segments differ significantly from each other. To judge such cases as recurrent correspondences, we need to have no fewer than three examples of each (with precise matching semantics or meanings connected by the most trivial of semantic shifts).

For additional examples of possible correspondences and additional comments on those listed in the table below, see Starostin 2008 and Heine & Honken 2010.

Ju	ǂHoan	Items	#
a	a	‘cold’, ‘come/fetch’, ‘earth’, ‘hear’, ‘red’, ‘sleep’, ‘stand’, ‘interr. morpheme’, ‘*3rd p. sg.*’, ‘*enter*’	1
	oa	‘eye’, ‘*sky*’[21]	1a
	i	‘moon/shiny’, ‘*dove*’, ‘*refuse/dissuade*’ [22]	1b
ae	ae	‘meat/cut meat’	2
	i	‘die’	2a
ai	ai	‘puff-adder/snake’	3
	i	‘*be able*’	3a

[20] Unstability of features is well demonstrable through the analysis of closely related dialectal forms attested in the Khoisan-speaking area, where fluctuations between voiced/voiceless or high/mid articulation are well known, but the laws that govern such fluctuations have not been described to general satisfaction.

[21] Regular development after labial clicks.

[22] As a result of assimilation in *CaCi ~ *CaCe type structures.

Ju	ǂHoan	Items	#
ao	eu	‘short/lack’	4
au	u	‘foot/track’, ‘*duiker*’	5
	iu	‘hand’, ‘tooth’, ‘woman/wife’, ‘*dig*’ [23]	5a
e	e	‘*female/mother*’	6
	a	‘new’, ‘this’	6a
	u	‘head’, ‘one’ [24]	6b
i	i	‘big/many’, ‘mouth’	7
o	o	‘not’	8
	au	‘lie/sit’	8a
oa	oa	‘stone’, ‘that’	9
oe	oe	‘smoke’	10
	ue	‘all’	10a
	ui	‘tail’, ‘*take off / drop off*’	10b
om	am	‘near’, ‘*springhare*’, ‘*ripe/cooked*’	11
	em	‘knee/kneel’ [25]	11a
u	o	‘belly’, ‘nail’, ‘horn’, ‘kill’, ‘name’, ‘star’, ‘water’, ‘*steenbok*’ [26]	12
ui	ui	‘small/thin’	13
	oe	‘ear’	13a
-m̥	-am	‘eat’	14
-m	-m	‘*enter*’	15
-/V/ŋ	-i	‘blood’, ‘louse’, ‘see’	16
	-a	‘sit’	16a
Vˀ	V	‘eye’, ‘moon/shiny’, ‘one’, ‘small/thin’, ‘that’ [27]	17
	Vˢ	‘cold’, ‘nail’, ‘meat/cut meat’, ‘*enter*’, ‘*sky*’	17a
V	Ṽ	‘die’, ‘ear’, ‘head’, ‘hear’, ‘mouth’, ‘not’, ‘sleep’, ‘stand’	18
	Vˀ	‘foot/track’, ‘red’, ‘*refuse/dissuade*’	18a
Ṽ	Ṽ	‘kill’, ‘star’, ‘*steenbok*’	19
	V	‘stone’	19a
Vˢ	Vˢ	‘smoke’, ‘*springhare*’	20
Vˢˀ	Vˢ	‘stone’	21
m	m	‘I’	22

[23] Regular development after coronal affricates and fricatives.

[24] Possibly a regular development after labial clicks.

[25] Only as a result of assimilation before an additional front vowel suffix.

[26] Mid vowel *o* is a much more frequent ǂHoan correspondence for PJ **u* than ǂHoan *u*, which is why HH's interpretation of this correspondence as reflecting a typologically unusual diphthong **ou* in Proto-Ju-ǂHoan (HH: 17) is barely credible. There are a few reliable cases of ǂHoan *u* : PJ **u* attested as well (HH: 16), but if it turns out to be impossible to prove complementary distribution, it is more likely that additional vowel qualities will have to be set up for the ancestral state, e.g. +/–ATR differentiations (these are known to be phonologically relevant at least for Khoe languages, unlike labial diphthongs such as *ou* or *uo*, virtually unknown in Khoisan languages).

[27] Correlations between different types of vowel phonation in PJ and ǂHoan are clearly very complex. The complexity may be caused by different combinations of features in the protolanguage; the base timbre of the vowel they are associated with; and various types of assimilative / dissimilative interactions with click accompaniments. At present, we lack the data to conduct a more thorough investigation, and list all the possible patterns without evaluating them on behalf of the degree of their regularity.

Ju	ǂHoan	Items	#
t	*t → ɕ	‘that’, ‘near’	23
d	*d → ʒ	‘smoke’, ‘*female/mother*’	24
cˀ	cˀ	‘louse’, ‘sleep’, ‘tooth’	25
č	č	‘come/fetch’	26
s	c	‘hear’, ‘see’	27
ʒ	z	‘new’	28
ʒʰ	ǯ	‘woman/wife’	29
kx	kx	‘earth’	30
h	y	‘interr. morpheme’, ‘*3rd p. sg.*’	31
ǀ	ǀ	‘blood’, ‘ear’, ‘not’, ‘sit’, ‘small/thin’, ‘*refuse/dissuade*’, ‘*steenbok*’	32
	θ	‘eye’, ‘head’, ‘one’, ‘*sky*’, ‘*duiker*’	32a
ǃ	ǃ	‘belly’, ‘bone/spine’, ‘horn’, ‘kill’, ‘lie/sit’, ‘name’, ‘red’, ‘*ripe/cooked*’	33
ǂ	ǂ	‘big/many’, ‘cold’, ‘knee/kneel’, ‘moon/shiny’, ‘star’, ‘short/lack’, ‘*be able*’, ‘*dove*’	34
ǃǃ	ǃ	‘nail’, ‘puff-adder/snake’, ‘foot/track’, ‘*enter*’	35
	ʘ	‘tail’ [28]	35a
	š/ǯ	‘die’, ‘hand’, ‘water’, ‘*dig*’	35b
ǁ	ǁ	‘meat / cut meat’, ‘stand’, ‘stone’	36
C	C	‘nail’, ‘cold’, ‘die’	37
	Ç	‘moon/shiny’, ‘foot/track’	37a
	Cʰ	‘not’, ‘*dove*’ [29]	37b
	Cxˀ	‘small/thin’	37c
Ç	Ç	‘puff-adder/snake’, ‘stand’, ‘water’	38
	C	‘belly’, ‘eye’, ‘hand’, ‘red’, ‘*enter*’, ‘*dig*’	38a
C̃	C̃	‘*ripe/cooked*’, ‘*sky*’	39
	Cʰ	‘stone’	39a
Cˀ	Cˀ	‘bone/spine’, ‘*duiker*’	40
	Cqˀ	‘blood’ [30]	40a
Cʰ	Cʰ	‘big/many’, ‘horn’, ‘kill’	41
Çʰ	Cqʰ	‘lie/sit’ [31]	42
Cˀʰ	Cˀʰ	‘knee/kneel’	43
	Cqʰ	‘ear’, ‘*steenbok*’	43a
Cx	Cx	‘tail’	44
ˀC̃	ˀC̃	‘head’, ‘sit’, ‘*be able*’, ‘*springhare*’	45

[28] Very dubious, based on one example only; however, all the other segments in ‘tail’ match each other so precisely that it is tempting to suggest some sort of rare positional development (perhaps labialization of an original retroflex click before a labial vowel?).

[29] Cf. also #39 below. This conflicts with #41, where aspiration is supposed to be preserved in both branches of the family. However, the examples are too semantically precise to be dismissed.

[30] PJ does not differentiate between glottal stop and post-velar accompaniments; presumably, ǂHoan is more archaic here, whereas in PJ they generally merged without a trace (see also corr. #43a).

[31] Dubious, not because of the distinction in voice, but rather because uvular accompaniments in ǂHoan would rather be expected to yield glottalization in PJ (see #43a). Nevertheless, Heine & Honken list several additional examples of similar cases (HH: 29), so this does look like a realistic correlation whose conditions are yet to be properly investigated.

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*Г. С. Старостин. Л*ексикостатистические исследования по койсанским языкам I: родство между языками жу и ǂхоан

Статья представляет собой первое из серии планируемых исследований по сравнительной лексикостатистике ряда языковых семей, традиционно (со времен Дж. Гринберга) причисляемых к гипотетической койсанской макросемье. В настоящей публикации проводится детальный лексикостатистический анализ данных по двум таксонам: языкам жу, или севернокойсанским (пучок относительно близкородственных диалектов), и языку восточный ǂхоан, который до недавнего времени рассматривался как изолят, но сегодня все же скорее считается ближайшим родственником языков жу. На основании как поверхностного (фонетические сходства), так и этимологического (фонетические соответствия) анализа возможных когнатов между языками жу и ǂхоан число лексикостатистических схождений между ними определяется в диапазоне от 32% до 44%, что примерно соответствует такой же глубине родства, как между финно-угорскими или картвельскими языками. Помимо этого, анализируется также дистрибуция когнатов между различными слоями базисной лексики (более/менее устойчивыми), что дает основание утверждать именно о генетическом родстве, а не об ареальных связях между обоими таксонами.

Ключевые слова: койсанские языки, жу языки, язык ǂхоан, лексикостатистика, глоттохронология, сравнительно-исторический метод.