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Modern Colloquial Eastern Elamite

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Abstract: This paper is a formal demonstration of cognation between Elamite, a major language of the ancient Near East, and Brahui, a language of Balochistan, spoken primarily in Pakistan but also in Iran and Afghanistan.¹ It is identifying Brahui as Modern Colloquial Eastern Elamite. Almost exactly two millennia have elapsed between the last recording of Elamite and the first recorded example of Brahui. While closely related, Brahui is not a descendant of classical Elamite. Rather, it is descended from an unattested eastern branch of Elamite. Part one deals with a full statement of the Comparative Method focusing on the root syllable. Part Two adds comparative morphology and detailed comparisons of the verb structure.

Keywords: Elamite, Brahui, Balochistan, Zagrosian, Dravidian languages.

Part One Cognation

1 History of Connection

1.1 Brahui has traditionally been considered a Dravidian language and was assigned to the North Dravidian [NDR] branch along with Kurux and Malto. My paper on North Dravidian (McAlpin 2003) demonstrated that while Kurux and Malto are closely related, Brahui could not be associated with them. It has been further shown by Martin Pfeiffer (2018: 448-50) that there are very few shared etyma and no uniquely shared lexemes in the proposed North-Dravidian. The NDR hypothesis fails for lack of evidence. While Brahui is clearly--if distantly--cognate with Dravidian, where does it fit?² My 2015 paper on PDR phonology (McAlpin 2015) showed that Brahui patterned with Elamite and that the Proto-Zagrosian hypothesis made sense. This hypothesis gives the following tree structure (McAlpin 2015: 553): Proto-Zagrosian [PZ] splits into Proto-Elamitic [PEI] and Proto-Dravidian [PDR]. PEI splits into Elamite and (pre-)Brahui. PDR splits into Proto-Kurux-Malto and Proto-Peninsular-Dravidian [PPD], the rest of the Dravidian

¹ I wish to thank Surya Sunjay for his comments on an earlier draft of this paper. The errors remain my own.

² Bray (1934, pt. 2) addresses the problems of relating Brahui to Dravidian as does Elfenbein (1983a). The problem is that while significant portions of the vocabulary can be systematically related, the grammar, especially the verb, poses real problems. Also, the location is a challenge.

languages in South India.³ Since the PPD languages remain in intimate contact, borrowing has been massive and continuous, making it difficult to discern the original cognate structure. This paper examines the relationship between Elamite and Brahui, largely ignoring Dravidian, and will give a formal demonstration that they are closely cognate, and that Brahui is modern Elamitic, although not a direct descendant of classical Elamite.

1.2 Brahui

1.2.1 This section is included for readers not familiar with Brahui. Brahui is primarily spoken in Baluchistan Province of Pakistan, in a belt running through the Brahui Hills from near Quetta through Kalat and up to Las Bela, and in adjacent areas of Afghanistan and eastern Iran, as far as the Marv oasis in Turkmenistan. Today, it is also spoken in Quetta, Karachi, and most of the cities of Sind Province (Elfenbein 1997b: 797; 1998: 388-89). Brahui is nowhere dominant and is always embedded in another language, usually Balochi, but any language of the area is possible. Bilingualism is the norm and multilingualism is common; see Elfenbein (1990) for ethnography and history with an annotated bibliography. The Brahuys are traditionally transhumant pastoralists who move with their flocks from the hills in summer to the plains of Sind (or elsewhere) in winter, and back again. They are also agriculturalists, and often combine or exchange the two lifestyles. The land they inhabit is semiarid and typical of the Iranian plateau, with desert-adapted plants. Brahuys traditionally straddle a cultural divide, spending the summer on the Iranian plateau and the winter in South Asia.

1.2.2 The Brahuys are members of a tribal confederation, usually the Brahui Confederation, but other Balochi confederations occur as well. Since the term Brahui can refer to a speaker of the language or a member of the Brahui Confederation, and the two are by no means coterminous, there is great confusion in the population counts. Reasonable estimates are from 4,000,000 in Pakistan, 200,000 in Afghanistan, and 20,000 in Iran (Lewis and Simmons 2013) to a tenth of that (Elfenbein 1998: 388-89). Similar problems of terminology are found in dialect numbers and boundaries.

Dialect variation is not major in Brahui, and is limited to a few phonological and grammatical markers. Terminology is fluid, and on the face of it, details can appear contradictory. This work will follow Bashir (1991: 4; 2003: 3), which has more details. Traditionally, only two documented subdialects are based solely on location: Kalati (a subdialect of Sarawan) and Nushki (a subdialect of Chagi). Kalat was the capital of the former Khanate, and Kalati is the standard dialect. The forms presented here follow Bray (1909) and reflect a “classical” style, usage at the court of Khan of Kalat in the early twentieth century. Brahui’s major dialects are based on traditionally migrating groups, consisting of Sarawan, north and east of Kalat (using the Bolan Pass to the Kacchi plain), and Jhalawan, south of Kalat (using the Mula Pass to lower Sind). To this, Bashir (1991: 4) adds Chagi in the west of Baluchistan and in Iran.

³ *Proto-Peninsular-Dravidian does not split cleanly into subgroups, and the working hypothesis is that they never truly separated. This results in a number of nodes that have internal relationships but cannot be systematically related to each other: South Dravidian (with clear Tamil-Kodagu, Kannada-Badaga, and Toda-Kota splits), Tulu-Koraga, Telugu-Gondi-Kuwi, and Kolami-Parji. What is pointless at this stage is trying to build a meaningful tree structure between these groups and PPD; cf. Krishnamurti 2003: 495. What are constructive are isoglosses on maps; see Krishnamurti 2003: 497-500.*

1.3 Elamite

1.3.1 Elamite was spoken in what is now southern Iran, in the Zagros Mountains and adjacent plains. Elam was essentially contemporaneous with neighboring Sumer in the development of civilization and writing, usually following by a generation or two, but sometimes leading. Writing began in Elam around 2,900 BCE out of the same use of tokens and bullae that were used in Sumer. The oldest script, Proto-Elamite, is quite distinct and separate from Sumerian. It has never been deciphered, and it is only by association that we believe it to be Elamite. This may be mistaken. A simplified version of this script, called Linear Elamite, came into use around 2,500 BCE and was used for several centuries. It has a single bilingual and a very tentative reading in Elamite. Around 2,300 BCE, the Sumero-Akkadian cuneiform script was borrowed intact from southern Mesopotamia. It is a lexico-syllabic system with complex rules for interpretation. Fortunately, Elamite ignored or discarded most of this and is mostly a syllabary based on (C)V(C) syllables. This formed the basis for all further writing in Elamite and is well understood.

1.3.2 Cuneiform Elamite can be divided into four periods or dialects. The first, Old Elamite [OE], was used in a few documents from Susa from the third millennium and early part of the second millennium BCE. After a long period of Babylonian domination and the use of Akkadian, the reemerging Elamite kingdom used Middle Elamite [ME] during the second half of the second millennium BCE. This was centered on Susa in the plains next to Mesopotamia. It is attested primarily on inscribed bricks, which are numerous, but very repetitive. In the first part of the next millennium BCE another variety, called New Elamite [NE], developed in the plains. A major dialect change is found in Achaemenid Elamite [AE], where Elamite functioned as the major administrative language of the Achaemenid Persian Empire, whose ceremonial capital was at Persepolis in the mountains. We now know that the site of Anshan, the second great center of Elam (besides Susa) is at Malyan, not far from Persepolis. There are two distinct usages in AE, the royal inscriptions and bureaucratic records. The first are mostly carefully written and include the great trilingual inscription of Darius I at Behistun [DB]. While some administrative records are carefully written, most are hastily written working notes. The last Elamite inscription comes from the last years of the Achaemenid Empire.

1.4 This work is a continuation of my 2015 article (McAlpin 2015). As such, most of the background discussion has been omitted as redundant. A major change is the publication of *The Elamite World* (Álvarez-Mon et al. 2018), an update of all Elamite scholarship. In general, precise markings of phonetic status will not be used, but when needed, slashes // are used for phonemes and angles < > are used for transliterations. Cuneiform conventions for fonts will be followed. All nonphonetic cuneiform (determinatives, etc.) will be superscripted.

1.5 This connection between Elamite and Brahui is not a new one. Ferdinand Bork (1925: 82-83) and I. M. Diakonoff (1967: 110-12) explicitly pointed out parallels between them, but did not make a case for cognation. My earlier work, McAlpin (1981: 115-17) and McAlpin (1994), had Brahui floating between Elamite and Dravidian, but their emphasis was elsewhere. The purpose of this paper is to focus on Brahui and Elamite, giving a full formal proof of the cognation between them. Dravidian will be brought in only where it can elucidate details for the primary concern. As part of this, the methodology for handling and discussing chance will be expanded.

2 Root and Stem Structure

2.1 For all the languages involved, the simple description of the root is the initial CVC. In fact, it is slightly more complicated than this. From South-Dravidian [SDr] verbs with copious examples, we know the overall shape of verb stems is $(^1C)^1V(^2C)(^2V((^3C)C)) + ((^3V)^4CC)$ where $^1C^1V^2C$ is the root, $^2V^3C$ is the stem augment, and 4C is the stem extension with epenthetic 3V if required. Stem extensions may be repeated. Since the distribution of phonemes changes radically by position, the C or V with superscript notation becomes a convenient shorthand for the environment. For example, 1C and 2C must be single with no geminates or clusters, but 3C may have homorganic clusters while 4C is normally geminate. 1C has no

alveolars or retroflexes, while ²C is rich with them. The stem augment has no discernible meaning, while the extensions are involved with causatives and other valency changes.

2.2 Cautiously extending this structure to PEI, the initial root with ¹C¹V²C is basic. Since in both Dravidian and Elamitic, the absence of a consonant patterns in frequency and distribution very much the same as another consonant, the cover symbol (#) is used for this, simplifying the phonological statements; a root with an initial vowel is noted as #VC. This leads to the first consideration. Elamite has situations where an initial vowel metathesizes with a following single consonant. Only *ar > ra is attested in this corpus, but further examples are given in McAlpin 2015: 556-57.⁴ Also, as in SDr, there are cases where ²V seems to be part of the root. The thematic vowels in Brahui may be involved here; see §15.2. Thus, the complete root structure for Elamitic seems to be (¹C)¹V(²C(²V)) where the thematic ²V can usually be ignored. With the space symbol convention, this can be written as CVC.

2.3 In Dravidian languages, the root portion of the verb stem is extremely stable while it remains the first stressed syllable. In particular, ¹V resists most changes.⁵ This is not true of Elamitic. In Elamite, the so-called reduplication process makes systematic changes to the verb root. Specifically, ¹C¹V²C becomes ¹C¹V¹C²C; *pela* > *pepla*, etc. Although not common, both Elamite and Brahui allow limited prefixes; the particle *ha-* is the obvious example for both; see §11: B01.

2.4 This root structure has immediate implications for this work. The roots are stable, but the stems with added augments are much less so. An example will make this clearer. Elamite, Brahui, and Tamil share an etymon for ‘shore, bank’; note PEI **ǵar* ‘shore, bank’ (PEI **ǵ* > El *š* : Br *k*); see §7: A32. The directly attested terms are AE *šarit* (^h*šà-ri-ut*), Brahui *karrak*, Tamil *karai* (< PDr **karay*), all meaning ‘shore, bank’. It is obvious that the languages share the root, **ǵar*, but not the next syllable. This pattern is commonly repeated, so much so that cases where an entire morpheme is cognate become special cases. This is desirable for the comparative method. Roots with systematic sound changes imply cognation; full morphemes may be loanwords.

2.5 This leads to the next innovation, the rhizeme.⁶ As the next section makes clear, it is important for the units that we are comparing to be countable. We need a clear concept of a root, very much in the pattern of Proto-Indo-European [PIE]. As opposed to a root, the rhizeme is restricted to a single meaning and to a single morphology. If a root has more than one basic meaning, it is split into multiple rhizemes. Similarly, if there is a variance in morphology, the root must be split.⁷ In closely cognate languages, for a single root they will often share a cluster of rhizemes for shared (but distinct) meanings. Loanwords, on the other hand, will normally be restricted to a single rhizeme. Any case of suppletion will, of course, entail multiple

⁴ While parallel to changes in groups of languages in Proto Peninsular Dravidian called apical displacement, this is a separate process.

⁵ A major exception is Dravidian metaphony where the distinction between high and mid vowels in ¹V is lost when ²V is /a/, resulting only in mid vowels (Kannada, colloquial Tamil) or high vowels (Literary Tamil); see William Bright 1966.

⁶ The rhizeme terminology is based on structural linguistics and the phoneme. It is possible to have rhizomorphemes and rhizophonemes, such as the laryngeals of PIE. The phoneme is still a fundamental concept of the comparative method; see Don Ringe 2004:1115-16.

⁷ An example of this is the English verb *hang*. When it refers to a picture, the past is *hung*; when it refers to a person, the past is *hanged*. This indicates two rhizemes.

rhizemes. Rhizemes will be preceded by a root sign ($\sqrt{\quad}$). They will dispense with the asterisk (*) as an unattested form and the slashes (/ /) of phonemes as redundant.

2.6 When comparing languages with limited attestations, it is possible to prepare a finite list of all the useable rhizemes in each corpus. This was done for Elamite, limited to the forms listed in the *Elamisches Wörterbuch* [EW] (Hinz and Koch 1987) with occasional comments from Hallock (1969), and for Brahui, limited to native words in Bray (1934, pt. 3), with additions from Elfenbein (1983b), deletions from Rossi (1979), and updates from the *Dravidian Etymological Dictionary, Revised Edition* [DEDR] (Burrow and Emeneau 1984). Known loans were excluded; ambiguous and complex loans were retained. Each language had a working list of about a thousand rhizemes (1779 for Elamite, 1114 for Brahui). The Elamite count is padded by spelling variants. About half the rhizemes in each group were unusable due to a lack of semantic matches. Brahui has the administrative terminology to parallel Elamite, but they are all Persian loans. The remainder became the basis for the comparative study.

3 Cognation Hypothesis

3.1 The comparative method is the most powerful of the tools used in diachronic linguistics. It rests on the truism that similarities in the morphemes of two languages, A and B, can be due to four—and only four—reasons: (1) that the similar words are cognate, i.e., they are both descendants of a common source, $C > A : B$, (2) that the similar words are borrowings either from one another or from some common source, $A \rightarrow B$, $B \rightarrow A$, or $C \rightarrow A$ and $C \rightarrow B$, (3) that the similarities are due to chance, and (4) that they are due to special circumstances such as the nursery phenomenon or deictics, which will be discussed below. The comparative method works to establish cognation by finding regular systematic changes that are not tied to meaning and distinguishing from borrowing, which is particular, local, and tied to specific morphemes. There is also the caveat that old massive borrowing can be difficult to distinguish from cognation.

3.2 Since there is a great deal of often bad reasoning in what is presented as diachronic linguistics, it seems prudent to review the actual procedure. The first step, and the one often left out of the textbooks, is generating a hypothesis of cognation. This part is free form. Starting from pairs with similar meanings, look for any patterns in the phonology. Starting with relatable phonologies, look for similarity in meaning. It is very iterative, and there are many variations on this procedure. Slowly, if the languages are cognate, groups of paired morphemes will start to coalesce. Then, from these groups, a reasonable phonology for the protolanguage must be reconstructed. When formalized, this becomes a working hypothesis of cognation. There can be a wide range of detail and sophistication in these hypotheses. However, none is a formal demonstration of cognation. This requires the full-blown comparative method, but they are statements that similarities exist. Without this free-form search for new possibilities, diachronic linguistics is reduced to restatements of the proven, endlessly reworking the same information.

3.3 The hypothesis has shown that similarities exist; the comparative method establishes that these are due to cognation, rather than borrowing or chance. The comparative method (*Stammbaumtheorie*) works best when there is a clear physical split in the populations. A good example is the breakup of Indo-European as the groups headed in various directions, mostly losing contact. The best example is the dispersal of the Austronesians as they spread across the Pacific and Indian Oceans in their outrigger canoes. More commonly, there is a partial break, or the groups remain in contact. Peninsular Dravidian is an example of the latter, where the groups remain in contact over the millennia. Here, areal assimilations (large scale regional borrowing) can completely muddle the inherited picture, making diachronic reconstruction difficult at most levels.

3.4 The traditional comparative method is almost entirely concerned with cases (1) and (2). For comparisons at a shallow time depth, there is no great need to separate (2) from (3). Chance can be handled with the same techniques as borrowing since the process was primarily concerned with identifying cognates and discarding the rest. Traditionally, the words in case (4) were excluded from consideration due to known

problems in handling them. However, when comparisons are done at greater and greater time depth, the cognate portion of morphemes becomes smaller and more constrained, the domain of roots rather than morphemes. Proto-Indo-European [PIE] is a good example, as is Proto-Afro-Asiatic. Note that the structure of these roots is highly specific to the (proto) language and normally the domain of experts in the area.

3.5 As the size of these root morphemes becomes smaller and more formulaic, pure chance becomes more important and needs an explicit treatment, since the major question is often whether the limited source material is enough to demonstrate cognation. In this paper, the traditional comparative method for cases (1) and (2) will be used, but not discussed. However, the role of chance will be considerably expanded. Incidentally, it also provides a more formal definition for case (4). This handles situations where the phonological shape and the meaning are not independent, but systematically linked, such as words for ‘mother’ favoring /m/ and ‘father’ favoring /p, b/ or /t, d/, and near deictics favoring front vowels while far deictics favor back vowels. These violate the formal requirement that the form and meaning be independent.

4 Probability of Chance

4.1 The basic probability used in this paper is a very mature branch of discrete mathematics. The concepts are clear and standardized. However, due to its age, it has separated into various schools of usage employing differing terms for those concepts and even different notations. Also, certain uses are established even though they are inconsistent with modern notation. A very brief overview is included here because it can help provide connections among the terminologies and provide an overview for those who have had some statistics.

4.2 Probability always applies to a fixed set of countable data. This set of the total data is referred to as the *Population* (aka *Universe*). Each countable item within this population is referred to as an *Element*. Within this population, there are one or more countable subsets, called an *Event*, that have some specific identifying Attribute. The Probability (P) of the attribute (A) within the population is the count of elements of event (a) divided by the count of elements of the population (n). The portion of the population which is not a (a’) is here indicated by b, whereby definition, $n = a + b$. The optional notation with the colon [a : (n-a)] is the odds notation read as “the odds in favor of A are a to (n-a).”

$$P(A) = \frac{a}{n} = \frac{a}{a + b} = a : (n - a)$$

4.3 One more basic point needs to be made. If two probabilities are joined, conjunct (AND) probabilities are obtained by multiplying the probabilities (reducing the probability), while disjunct (OR) probabilities are added (increasing the probability). For example, obtaining a 5 when casting a die has a probability of 1/6, obtaining two 5’s in a row is $1/6 * 1/6 = (1/6)^2 = 1/36$; obtaining a 4 or a 5 in one roll is $1/6 + 1/6 = 2/6 = 1/3$.

4.4 For each of the edited word lists, two lists of rhizemes were prepared, each with a key, a CVC root, and a single definition: one list for Brahui and one for Elamite. These lists became the basis for all further calculations. The working hypothesis provided a set of phonological rules of changes from PEI to Brahui and Elamite; see Table 4. As the list of reconstructions grew, a spreadsheet was created for probability (and rho) calculations. The first set of columns has the PEI ids, the PEI root, the three rules from the cognate list for ¹C, ¹V, and ²C, and the PEI gloss. The next two sets of columns have the Brahui id, the Brahui root, and the Brahui gloss along with the same three for Elamite. In other words, they provide a minimal statement of the cognate relationship. The next section gives the total of all the semantic matches in Elamite to the Brahui gloss. The last section gives the total of all the Elamite roots that match the phonological rules in section one. The total number of semantic terms in the Elamite corpus is 1779. The total number of CVC roots is 1036. We can now calculate the probability of any one etymon being cognate due to pure chance. For each etymon, we take the semantic total and divide it by 1779, and we take the phonetic total and divide

it by 1036. We now have probabilities of the semantic portion and phonological portion of occurring by chance. Multiplying them together (they are an AND condition), we get the chance probability for the etymon; it is a very small number. We can add all these individual etyma together (this is an OR situation) and get the probability that there is a single etymon cognate by chance in the entire corpus. We get two answers, one for the primary List A (.001715) and one for Lists A & B (.001924).

4.5 Knowing the probability of one etymon in this corpus being due to chance allows us to calculate the probability of multiple etyma due to chance. Using the *Mass and Cumulative Mass Distributions* for the *Binomial Distribution* $b(x,n,p)$ ⁸, we get answers. For this specific corpus, it is most probable (22%) that there are 3 etyma due to chance. Moreover, it is probable at the 99% level of confidence that there are no more than 8 etyma due to chance. These numbers remain the same whether List A and B are combined or not.

4.6 These data also allow us to generate a simple indicator of the chances involved with each individual etymon, the ρ (rho) number. The rho number gives the total number of possible answers in the corpus that conform to the 3 phonological rules and semantic match of each etymon. It is obtained by multiplying the phonological possibilities by the semantic possibilities seen in §4.4. It varies from 1 to 216. There are 11,005 possible combinations in the corpus. The ρ number gives the reader as easy guide to the number of possible readings and indirectly the probability of chance. All these calculations are highly specific to this corpus and model.

Table 1 Elamite Transcription Units

Consonants	Labial	Coronal		Dorsal	Glottal
Obstruents	p	t	z	k	
Other Obstruents	b ⟨ba⟩	d ⟨du⟩		g ⟨gi⟩	
Fricatives		s	š		H
Nasals	m	n			
Laterals			l		
Trills/Taps			r		
Semivowels	(w)		(y)		

Vowels	Front	Central	Back
Close	i		u
Mid	e		
Open		a	

⁸ Exact formulas and terminology vary by language and region, presenting a challenge for maintaining both clarity and compact presentation. Fortunately, Microsoft software (Word and Excel) gives a standard form and name, which can be converted for more exacting needs.

5 Source Phonologies

5.1 Elamite used a maladapted cuneiform script, which was developed for Sumerian and considerably changed for Akkadian. The script has simplified from Old Elamite [OE] to Achaemenid Elamite [AE], reducing the number of signs and possible readings. The phonograms used here cover four possible syllable types: V, CV, VC, and CVC. Even here, consonants after vowels have restricted details, not always indicating voicing or type of sibilant, which are often indicated for initial consonants. The main point is that this portion of the script is syllabic and is properly presented in four tables, one for each syllable type. Individual signs occupy multiple cells--not necessarily connected or the same type. Individual cells can have multiple values, which are arbitrarily numbered with a subscript or accent ($\acute{a} = a_2$, $\grave{a} = a_3$). The transcription units are the labels on the columns and rows of the tables, which reflect 19th century ideas of Akkadian more than current phonology. They are merely established labels, usually useful, sometimes confusing.

5.2 Getting to something approximating a phonemic system has taken generations of Elamite specialists, which has been summarized from the primary sources.⁹ However, even here there remain major problems with voicing and the sibilants. While using a script that handled voicing, Elamite clearly did not normally indicate voice, varying randomly when there was an option, and as signs were reduced in AE, keeping no pattern, except in three specific cases: ⟨b⟩ written with the sign BA, ⟨d⟩ written with the sign DU, and ⟨g⟩ written with GI. All have examples of consistently writing the “voiced” variant in contrasting doublets: giri/kiri, etc. They were writing something, probably not voicing, but what? For this paper, the author has chosen to keep ⟨b,d,g⟩, but only when written with these signs. Even with these, initial DU is read as ⟨tu⟩. Elamite did, however, contrast tenseness, opposing single versus double stops.

5.3 Sibilants are even worse. Given that cuneiform conventions were often ambiguous, determining which of multiple sibilants was indicated often seemed at random. Fortunately, Jan Tavernier (2010) wrote a detailed article on this subject, which was compatible with my own work in progress. Tavernier usually ignores CVC signs as hopelessly ambiguous and handles complexities such as ZU dropping out in AE and SI having values of ⟨si⟩ and ⟨ši⟩. It is probably more detailed than absolutely needed (to the level of allophones). The author has followed Tavernier in his analysis, which is not repeated here, with the exception of the symbols used for the rarer examples. These are given in Table 6. The exact phonological nature of the symbols is open to question. In particular, cuneiform ⟨š⟩ probably did not represent [ʃ] all of the time.

5.4 The tentative set of phonemes for Elamite is given in Table 2, adding the sibilants after Tavernier (2010). For obstruents, singles are lax and voiced between vowels, doubles are tense and voiceless. Nasals probably show tenseness but are always voiced. Sibilants show tenseness but are voiceless. For approximants (l & r), doubling may indicate tenseness or, more probably, some other variation in value. Rare variants or allophones are in parentheses; forms not in the cognate corpus are in brackets. For sibilants, c is probably [ts], č is probably [tš], s and š contrast and are fricatives, but values are uncertain and symbol choice is arbitrary. Note that ⟨z⟩ is not [z] and is involved with many affricates; see Table 6.

⁹ Two of the sources carry over from McAlpin 2015, Stolper 2004 and Khachikian 1998. Happily, a new source (Tavernier 2018) has joined them. It will be used for most grammatical citations. While very interesting, the phonemic analysis in Tavernier is presented without the supporting details, making it unusable as a primary source. It will be compared to the analysis here in §8.5.

Table 2 Elamite Phonemes (Tentative)

Consonants	Labial	Dental	Alveolar	Post-alveolar	Alveo-palatal	Velar	Glottal
Stops/Affricates	p	t	ć	d	(č)	k	(ʔ)
Other Obstruent	b	(d)	(ç)			{g}	
Fricatives/Spirants			s	š	ś		h
Lateral Fricatives?			{ł}				
Nasals	m	n					
Laterals			l, ll				
Trills/Taps/Flaps			r, rr				
Semivowels	(w)				(y)		

Vowels	Front	Central	Back
Close	i		u
Mid	e		
Open		a	

() Marginal
{ } Not in corpus

Table 3 Brahui Phonemes and Major Allophones

Consonants	Labial	Dental	Alveolar	Post-alveolar	Retro-flex	Alveo-palatal	Velar	Glottal
Stops/Affricates	p b	t d		ʈ [t̪] ɖ [d̪]		c [tʃ] j [dʒ]	k g	(ʔ)
Fricatives/Spirants	f v		s z	š [ʃ] ž [ʒ]			x ɣ	h
Lateral Fricatives			ɬ					
Nasals	m	n			(ŋ)	(ɲ)	(ŋ)	
Laterals			l					
Trills/Taps/Flaps			r, rr		ɽ [ɽ]			
Approximants	(w) [v]					y [j]		

Vowels	Front	Central	Back
Close	i:	i	u: u
Mid	e: (ɛ)	(ə)	o: (ɔ)
Open	(æ)	(ɐ) a a:	

5.5 The phonemics of Brahui are much more straightforward. The analysis is established and requires few comments.¹⁰ The exact qualities of the allophones are governed by the embedding language, usually Balochi; see Elfenbein 1997b. Bray (1909 §6) is quite clear that the back t's are not retroflex, but alveolar. Values are IPA, except when the IPA follows in brackets. Rare phonemes and allophones are in parentheses. Glottal h varies with ʔ by dialect; h is standard.

6 Proof of Cognation

6.1 The formatting of the list of cognates is exacting and somewhat new. Since this is the first formal proof, the symbolism follows the actual process. We are dealing with pairs of correspondences in a specific (proto) environment. This pair is then modeled as a phoneme in the protolanguage. After the identifying number, the cognate pair (separated by a colon) is entailed (⊢) as the proto phoneme followed by the proto environment. Entailment is taken from ontological logic to properly describe the process: a constructed model and label to identify a specific set of data. It can be read as “entails” or “is modeled as.” In brackets following this, there are the phonological rules which repeat the information, in reverse, from protophoneme to Brahui and then Elamite. Brahui always precedes Elamite, working from the known to the unknown. After a brief discussion on the rule, if needed, the evidence is given. Primary evidence (List A) immediately follows the rules, and List B in Part 2 has words with semantic complications. The first line of the examples in the primary list consists of the ID followed by the PEI reconstruction in morphophonemes and a gloss. This is followed by the rho number (ρ) in brackets. The rho number gives the total number of possible pairs of matches in the entire corpus, out of approximately 11,000 such pairs, and varies from 1 to 216, the higher the number, the greater the opportunities for chance. This rho number is a proxy for the probability that the etymon is due to chance. The last part of the first line has the phonological rules in parentheses, phoneme by phoneme, for the protoform. The second line gives the Brahui rhizemes (or rarely, a full morpheme) in phonemes, the phonological rules between parentheses, followed by the Brahui citation and gloss. The third line gives the first Elamite rhizeme and its gloss followed by the Elamite phonological rules inside parentheses. It ends with a colon. The Elamite evidence is indented underneath. First comes the period: Old Elamite [OE], Middle Elamite [ME], New Elamite [NE], and Achaemenid Elamite [AE], followed by the Elamite in phonemic notation with its gloss. After a colon, the Elamite cuneiform transliteration is followed by the citation in German from the EW. The Elamite section may be repeated. The Elamite evidence is presented only with the first presentation in each list; i.e., to A81 and to B11. The Dravidian alphabetical order is based on Tamil and ultimately from Sanskrit. It starts with vowels followed by consonants with stops first. In each group, it is ordered from the back of the mouth to the front; see the phonological rules in Table 4 for the complete list in order. For presentation, it follows the root format, CVC, with consonants first.

¹⁰ The sources are Bashir (1991: 5) and Elfenbein (1997b).

Table 4 Proto-Elamitic Phonological Rules

Proto-Elamitic To Brahui			
B1: *a > a	B12a: *h > s / _C	B22: *ḏ > ḏ(ḏ)	B29a: *m > b / _{i,e}
B2: *ā > ā	B12b: *h > h	B23a: *ṭ > r / _#	B29b: *m > m
B3: *e > a	B13a: *lx > y	B23b: *ṭ > ḏ / n_	B30a: *w > ∅
B4a: *ē > i	B13b: *x > y	B23c: *ṭṭ > ṭ	B30b: *w > v
B4b: *ē > ā	B13c: *x > x	B23d: *ṭ > ṭ	B31: *r > r
B4c: *ē > ē	B14: *k > k	B24: *ti > s / _#	B32a: *f > ṭ
B5a: *i > u	B15: *G > g / #_	B25: *t > t	B32b: *f > f
B5b: *i > i	B15: *G > gg	B26a: *n > ∅	B33a: *l > ∅
B6: *ī > ī	B16: *k̄ > k	B26b: *n > n	B33b: *l > l
B7: *u > u	B17a: *k̄ > x	B27: *pp > pp	B34a: *l > l / #CV_#
B8: *ū > ū	B17b: *k̄ > k	B28a: *p > f	B34b: *l > l
B9a: *o > u	B18: *š > š	B28b: *p > b	B35: *nr > s
B9b: *o > a	B19a: *s > s	B28c: *p > p	
B10: *ō > ō	B19b: *ś > s	B27: *pp > pp	
	B20a: *Ṭ > ḏ	B28a: *p > f	
	B20b: *Ṭ > d	B28b: *p > b	
	B21: *c > c	B28c: *p > p	

Proto-Elamitic To Elamite			
E1a: *a > ∅	E12a: *h > ∅	E23: *ḏ > t	E29: *m > m
E1b: *a > a	E12b: *h > h (> ∅)	E24: *ṭ > d	E30: *w > m
E2: *ā > a	E13: *x > h (> ∅)	E25: *ṭṭ > t	E31a: *r > h
E3a: *e > a	E14: *k > k	E26a: *t > d	E31b: *r > r
E3b: *e > i	E15: *G > k	E26b: *ti > t	E32: *f > r
E4a: *ē > a	E16: *k̄ > c > s,z	E26b: *t > t	E33: *ly > r
E4b: *ē > i (>u)	E17: *k̄ > š	E27a: *n > m	E34a: *l > n
E4c: *ē > e	E18a: *š > ∅	E27b: *n > n	E34b: *l > l
E5a: *i > i	E18b: *š > š	E28: *pp > p	E35a: *l > š
E5b: *i > u	E19: *s > s	E28: *p > p	E35b: *l > *l
E6a: *ī > u	E20: *ś > ś		
E6b: *ī > i	E21: *Ṭ > š		
E7a: *u > i	E22: *c > z (>s)		
E7b: *u > u			
E8: *ū > u			
E9a: *o > a			
E9b: *o > u			
E10: *ō > u			

7 List of Cognate Brahui-Elamite Pairs

7.0 The numbering of the paragraphs (sections) is suspended for §7 due to two more detailed numbering systems running concurrently. Section 7.1 has initial consonants and the full Elamite evidence, §7.2 has the vowels, and §7.3 has the second consonants. The phonological rules starting with the consonants have numerical identifiers starting with 10.8. The lexical items follow as appropriate and are in listed in order always starting with A with two digits.

7.1 Initial Consonants (¹C)

10.8 h : h, ∅ ≠ *h / #_V { B12b: *h > h | E12a: *h > ∅ }

The correspondence of Brahui initial h to Elamite initial h entails PEI *h. The only complication is that h > ∅ from ME to AE (and NE), i.e., initial ha and a, etc. are freely interchangeable in AE. If the only sources in Elamite are from AE or NE, the status of initial h is ambiguous. Thus, there are two variants in the rule 10.8 (h : ∅ ≠ *h) and 10.9 (h : h ≠ *h). Multifactor rules usually follow the conventions of case statements in programming languages, where exceptions come first and the general (elsewhere) statements come last and are always numbered (x.9).

A01 PEI *hant 'intend' [ρ=90] (10.8, 1.9, 17.5, 16.9)

Br √hat (B12b, B1, B26a, B25): hatin- 'to intend'

El √#ant 'plan' (E12a, E1b, E27b, E26b):

ME andukni as was planned: an-du-uk-ni wie geplant wurde (?);

ME antukni as has been planned: an-tu⁴-uk-ni wie geplant worden ist (?).

A02 PEI *hēl 'think, deliberate' [ρ=50] (10.8, 2.9, 27.9)

Br √hēl (B12b, B4c, B33b): hēl 'knowledge, wisdom'

El √#el 'think, ponder, plan' (E12a, E4c, E34b):

AE elma I thought, pondered, deliberated, devised: el-ma ich dachte, erwog, ersann.

El √#ul 'think, ponder, plan' (E12a, E4b, E34b):

AE ulma I thought: ul-ma ich dachte.

10.9 h : h ≠ *h / #_V { B12b: *h > h | E12b: *h > h (> ∅) }

A03 PEI *han 'love' [ρ=12] (10.9, 1.9, 17.9)

Br √han (B12b, B1, B26b): han- 'to copulate (of humans)'

El √han 'love' (E12b, E1b, E27b):

OE haneš he loved: ha-ni-eš er liebte;

NE-ME hanik loved: ha-ni-ik geliebt;

OE hanin I will love: ha-ni-in ich werde lieben;

ME haniš he loved: ha-ni-iš er liebte.

A04 PEI *heł 'take' [ρ=154] (10.9, 2.5, 28.9)

Br √hał (B12b, B3, B34a): hall- 'to take'

El √hil 'take from, accept' (E12b, E3b, E35b):

ME hillaš he took from, accepted: hi-il-la-aš er entnahm, nahm an sich;

ME hillahila taking out, departure, leaving: hi-il-la-hi-la Entnahme, Abgang;

ME hillahši they robbed, abducted: [h]i-il-la-h-ši sie haben geraubt, verschleppt;

NE hullak it was plundered, robbed, ravaged: hul-lak es wurde geplündert, ausgeraubt, gebrandschatzt.

A05 PEI *hēt 'she goat' [ρ=8] (10.9, 2.8, 15.9)

Br √hēt (B12b, B4c, B23d): hēt 'she-goat'

El √hid 'sheep, ewe, female goat' (E12b, E4b, E24):

AE, ME hidu sheep, ewe; (Hallock 1969 has 'female goat'): hi-du Schaf;

ME hidume sheep: hi-du-me Schafe.

11.9 x : h 𐎧 *x / #_V { B13c: *x > x | E13: *x > h (> ∅)}

The correspondence of Brahui initial x to Elamite h is modeled as PEI *x. Brahui contains many homonyms, where different morphemes fall together with the same form. This is particularly common here, where xal is extremely polysemous.

A06 PEI *xap 'hear' [ρ=20] (11.9, 1.9, 18.7)

Br √xaf (B13c, B1, B28a): xaf 'ear'

El √hap 'hear, listen, obey' (E13, E1b, E28):

ME-OE haphu we listen to: ha-ap-hu wir hören an;

ME-OE hapti hear; you hear: ha-ap-ti erhöre!; du erhörtest;

ME hahpuš he heard: ha-h-pu-uš er erhörte.

A07 PEI *xas 'shake, fling' [ρ=8] (11.9, 1.9, 24.8)

Br √xas (B13c, B1, B19a): xass- 'to shake; hustle; fling; hit'

El √has 'anointer' (E13, E1b, E19):

AE-NE hasup anointers: ha-su-ip Salber (pl).

A08 PEI *xal 'kill, slaughter' [ρ=215] (11.9, 1.9, 27.9)

Br √xal (B13c, B1, B33b): xall- 'to strike, kill'

El √hal 'death, slaughter, massacre' (E13, E1b, E34b):

AE halbaka slaughtered; was slaughtered: hal-ba-ka₄ ist, sind geschlachtet worden;

AE halbera cattle butcher, slaughterer: hal-be-ra Viehschlachter;

AE halpiš he slew, had killed: hal-pi-iš er erschlug, ließ umbringen.

El √hal 'kill, slay, slaughter' (E13, E1b, E34b):

AE-NE halba dead, died, perished: hal-ba tot, gestorben (eines natürlichen Todes), verendet (bei Tieren);

AE halbenda (when) you die: hal-be-in-da du als Sterbender;

AE-NE halpi death, slaughter, massacre: hal-pi das Sterben, Gemetzel, Massaker.

A09 PEI *xal 'strike, beat' [ρ=220] (11.9, 1.9, 27.9)

Br √xal (B13c, B1, B33b): xall- 'to strike, kill'

El √hal 'hit, strike, beat, hammer, forge' (E13, E1b, E34b):

AE halpiš he hit, struck: hal-pi-iš er schlug;

NE halpiša he hit, struck; killed: hal-pi-šà er hat geschlagen, getötet;

AE halpiya I hit, struck; slew: hal-pi-ya ich habe geschlagen, erschlagen;

NE-ME halpuh I struck, defeated hal-pu-h ich schlug, besiegte.

A10 PEI *xal 'travel < land' [ρ=215] (11.9, 1.9, 27.9)

Br √xal (B13c, B1, B33b): xal- 'to traverse'

El √hal.sa 'be driven (to pasture)' (E13, E1b, E34b):

AE halsaba to drive to pasture: hal-sa-ba [auf die Weide] getriebene [Tiere];

AE halsaka driven to pasture: hal-sa-ka₄ [auf die Weide] getrieben worden.

El √hal.sa 'be exiled' (E13, E1b, E34b):

ME halsaka exiled: hal-sa-ak landvertrieben.

Elamite hal.sa is a compound and literally means 'go to the land'; see A25.

Related Elamite terms:

El √hal 'land, country' (E13, E1b, E34b):

ME-OE hal land, country; city < ground: ha-al Land; Stadt < Boden;

NE-OE halma in the country: hal-ma im Lande;

OE hal.menik I am lord of the land: hal.me-ni-ik Landes-Machthaber (bin) ich.

El √hal 'property, real estate' (E13, E1b, E34b):

ME hal.lilare his property, real estate: ha-al.li-la-ar-e sein Landbesitz (?);
 NE halhutlakpi land commissioners, governors: hal-hu-ut-lak-[pi(?)] Landesbeauftragte,
 Statthalter (pl).

El √hal 'building site, building terrain' (E13, E1b, E34b):

ME hal.masi building site, building terrain: ha-al.ma-si Bauplatz, Baugelände;

ME hal.mašum building site, building terrain: ha-al.ma-šu-um Bauplatz, Baugelände.

El √hal 'clay' (E13, E1b, E34b):

AE, OE halat clay; clay tablet(s): ha-la-at Lehm, (ungebrannter) Ton

El √hal 'field' (E13, E1b, E34b):

NE halla field: hal-la Äcker (?);

AE hallabe field worker: hal-la-be Erdarbeiter (?) (pl);

AE hallinup land workers: hal-li-nu-ip Landarbeiter (pl) (?).

A11 PEI *xal 'steal' [p=86] (11.9, 1.9, 28.9)

Br √xal (B13c, B1, B34a): xal- 'to steal [cattle]'

El √hal in hal.ma 'make disappear' (E13, E1b, E35b):

OE halmakna he/it should be exiled, expelled: ha-al-ma-ak-na er, es soll landvertreiben
 werden (?);

OE halmah I made disappear: ha-al-ma-h ich ließ verschwinden (?);

ME halmakna he should disappear: hal-ma-ak-na er soll verschwinden!

NE halman he should make disappear, squander: hal-ma-an er soll verschwinden lassen,
 verschleudern!

ME halmašna he should make disappear: hal-ma-aš-na er soll verschwinden lassen!

Brahui /h/ has an extremely limited range, occurring only finally in a stressed monosyllable. This translates to a few imperatives and a handful of nouns. It is otherwise replaced by /l/.

A12 PEI *xul 'fear' [p=62] (11.9, 5.9, 28.5)

Br √xul (B13c, B7, B34b): xul- 'to fear'

El √huš 'fear, be afraid' (E13, E7b, E35a):

AE ipšiš they feared: ip-ši-iš sie fürchteten;

ME hupšan be afraid of it, avoid it: hu-up-ša-an es fürchte, meide!

Tentative PEI /*h/ becomes Elamite /š/ or /h/ which varies between ⟨l⟩ and ⟨š⟩. Elamite sometimes metathesizes ²C clusters, as does Malto. PPD always simplifies ²C clusters in verbs. This reconstruction has Elamite metathesizing šp to pš. This p is presumably a causative; see §12.8.

A13 PEI *xep 'vassel, subject' [p=50] (11.9, 2.5, 18.7)

Br √xaf (B13c, B3, B28a): xafi 'vassal, subject'

El √hip 'subjugate' (E13, E3b, E28):

NE hipaka subjugated: hi-pa-ka₄ unterworfen (?).

A14 PEI *xel 'gather, uproot' [p=8] (11.9, 2.5, 27.9)

Br √xal (B13c, B3, B33b): xall- 'to gather, uproot'

El √hil 'plunder, booty' (E13, E3b, E34b):

NE hillin plunder, booty: hi-ul-li-in Plünderung, Beute.

A15 PEI *xol 'set in ground' [p=30] (11.9, 6.8, 27.9)

Br √xal (B13c, B9b, B33b): xall- 'to pitch [a tent]; plant [a tree]'

El √hul 'erect, establish' (E13, E9b, E34b):

ME hulbah I erected: hu-ul-ba-h ich richtete auf;

ME hulpah I erected, established: hu-ul-pa-h ich errichtete.

12.5 g : k ɸ *G / #_V { B15: *G > g | E15: *G > k }

While voicing contrasts are limited in native Brahui, they do exist. Initial g has been reconstructed as PEI *G, whose exact phonological nature is uncertain. It corresponds to k in Elamite.

A16 PEI *Gēnt 'storage place' [ρ=24] (12.5, 2.7, 17.5, 15.7)

Br √gēd̄ (B15, B4c, B26a, B23b): gēd̄ 'roofed enclosure for animals'

El √kand 'storage place, storehouse' (E15, E4a, E27, E24):

AE kandu storage place, storehouse: ^hkán-du Speicher.

A17 PEI *Gih 'whole' [ρ=17] (12.5, 3.9, 10.8)

Br √gih (B15, B5b, B12b): gih 'all, whole'

El √ki# 'one' (E15, E5a, E12a):

AE ki one: ki ein, eins;

AE kirmaka entire: ki-ir-ma-ka₄ ganz.

A18 PEI *Gir 'single person' [ρ=14] (12.5, 3.9, 25.9)

Br √gir (B15, B5b, B32b): gir 'all; whole; only'

El √kir 'one person' (E15, E5a, E32):

AE kik one: ki-ik eins;

AE kir one (person): ki-ir einer (persönlich).

12.9 k : k ɸ *k / #_V { B14: *k > k | E14: *k > k }

Initial back velars (k's) are reconstructed as PEI *k, which is stable in both languages.

A19 PEI *kēp 'nearness, near' [ρ=77] (12.9, 2.7, 18.8)

Br √kēb (B14, B4c, B28b): kēb 'nearness; near'

El √kap 'enclosed, all together' (E14, E4a, E28):

NE kappas̄ he enclosed, surrounded: ka₄-ap-pa-aš̄ er schloß ein, umzingelte;

NE kappas̄ he/they locked up, enclosed, included: kap-pa-iš̄ er schloß ein, sie schlossen ein;

AE kappaka all together, entirely < locked up, included: kap-pa-ka₄ insgesamt, gänzlich < eingeschlossen.

A20 PEI *kut 'flock, herd' [ρ=72] (12.9, 5.9, 15.5)

Br √kur (B14, B7, B23a): kur 'flock of sheep or goats'

El √kud 'herd' (E14, E7b, E24):

NE kudu herd; people, nation: ku-du Herde; Volk (?).

A21 PEI *kun 'eat' [ρ=26] (12.9, 5.9, 17.8)

Br √kun (B14, B7, B26b): kun- 'to eat, drink'

El √kum 'eat' (E14, E7b, E27a):

AE kumbaka it has been eaten: kúm-ba-ka₄ es ist gegessen worden.

A22 PEI *kur' 'torch' [ρ=24] (12.9, 5.9, 25.8)

Br √kut (B14, B7, B32a): kutink 'burning faggot'

El √kur 'oil torch' (E14, E7b, E32):

AE kur oil torch: ku-ir Ölfackel (??).

A23 PEI *kul 'message' [ρ=14] (12.9, 5.9, 27.9)

Br √kul (B14, B7, B33b): kulau 'message'

El √kul 'call, summon' (E14, E7b, E34b):

NE kula summons, entreaty: ku-la das Rufen, Bittflehen;

NE-ME kulâ prayer, entreaty: ku-la-a das Anrufen, Bittflehen;

ME kullanri supplicant: ku-ul-la-an-ri ein Bittflehender;

NE kullašda he called, summoned: ku-ul-la-áš-da er hat gerufen, vorgeladen;
 ME-OE kullah I appealed to, entreated, prayed: ku-ul-la-h ich rief an, bittflehte, betete;
 NE kulli I implored, beseeched, called, prayed: ku-ul-li ich flehte, rief, betete.

13.8 k : z ʰ *ḳ / #_V { B16: *ḳ > k | E16: *ḳ > c > s,z }

In many cases, initial k in Brahui corresponds to initial s or z (= /*c/) in Elamite. This is modeled as PEI *ḳ, presumably some sort of front velar (palatal). Elamite s varies with z to indicate one of the sibilants, see §8.2. Rule 13.8 gives the z variant; rule 13.9 gives the more common s variant.

A24 PEI *ḳul 'water, spring' [ρ=8] (13.8, 5.9, 27.9)

Br √kul (B16, B7, B33b): kul in cak.kul '[small] spring'

El √zul 'water' (E16, E7b, E34b):

ME zul water: zu-ul Wasser (?);

NE sulrarra water giving: su-ul-ra-ir-ra wasserspendend (?).

13.9 k : s ʰ *ḳ / #_V { B16: *ḳ > k | E16: *ḳ > c > s }

A25 PEI *ḳā# 'go away, move' [ρ=25] (13.9, 1.8, 0)

Br √kā# (B16, B2, #): kā+ 'to go, depart [present base]'

El √sa# 'go away, move, travel' (E16, E2, #):

AE sak he went away, traveled: sa-ak er zog fort, reiste;

OE san may it leave, disappear: sa-an es gehe fort, verschwinde! (?);

ME satna may you come, enter: sa-at-na mögest du kommen, eintreten!

NE-ME sah I moved, went, traveled: sa-h ich zog, reiste.

A26 PEI *ḳiš 'settle' [ρ=12] (13.9, 3.9, 23.8)

Br √kiš (B16, B5, B18): kišk- 'to settle'

El √si# 'settle down, establish' (E16, E5a, E18a):

OE sik it settled down, established: si-ik es faßte Fuß (?).

A27 PEI *ḳun 'coiled' [ρ=9] (13.9, 5.9, 17.9)

Br √kun (B16, B7, B26b): kunnal 'curl; coiled; pestering'

El √sun 'a quality of garments: in folds, pleated (?)' (E16, E7b, E27b):

NE sunpalakki a quality of garments: in folds, pleated (?): su-un-pa-lak-ki Eigenschaft von Gewändern: in Falten, plissiert (?).

The Elamite would need to mean 'with coiled fringe' or 'rolled edge'.

A28 PEI *ḳum 'serious' [ρ=56] (13.9, 5.9, 19.8)

Br √kub (B16, B7, B29a): kubēn 'serious'

El √sum 'commitment (for offering)' (E16, E7b, E29):

ME summuh I committed myself: su-um-mu-h ich verpflichtete mich (?);

NE summun offering obligation: su-um-mu-un Opferverpflichtung.

14.8 x : š ʰ *ḳ / #_o { B17a: *ḳ > x | E17: *ḳ > š }

When before a back vowel (only o is attested here), the initial stop k in Brahui from rule 14.9 is changed to the fricative x.

A29 PEI *ḳōlum 'grain' [ρ=10] (14.8, 6.9, 27.9, 5.9, 19.9)

Br *xōlum (B17a, B10, B33b, B7, B29b): xōlum 'wheat'

El *šulum 'stand of grain, grain harvest' (E17, E10, E34b, E7b, E29):

AE šulum stand of grain, grain harvest: ^hšu-lu-um Getreidestand, Kernernte (?).

14.9 k : š ɸ *ḳ / #_V { B17b: *ḳ > k | E17: *ḳ > š }

In other cases, initial k in Brahui corresponds to initial š in Elamite. This is modeled as PEI *ḳ, another type of front velar. This, along with rule 13.9, is the defining split between Elamite and Brahui.

A30 PEI *ḳasa 'way, path, road' [ρ=4] (14.9, 1.9, 24.8, 1.9)

Br √kasa (B17b, B1, B19a, B1): kasar 'way, path, road'

El √šasa 'travel away, carry away' (E17, E1b, E19, E1b):

AE šasak it had traveled away: šá-sa-ak es wurde fortgerissen.

A31 PEI *ḳar 'cut, carve' [ρ=8] (14.9, 1.9, 26.5)

Br √kar (B17b, B1, B31): kary- 'shear, mow down'

El √šah 'carved, sewn' (E17, E1b, E31a):

NE šahšikra carver, tailor: šá-h-ši-ik-ra Schnitzer, Schneider;

NE šahšika carved, sewn: šá-h-ši-ka₄ geschmitzt, geschneidert.

A32 PEI *ḳar 'shore, bank' [ρ=27] (14.9, 1.9, 26.9)

Br √kar (B17b, B1, B31): karrak 'bank'

El √šar 'shore, bank' (E17, E1b, E31b):

AE šarit shore, bank: ^hšâ-ri-ut Ufer.

A33 PEI *ḳēra 'lower side' [ρ=36] (14.9, 2.7, 26.9, 1.9)

Br *kēra (B17b, B4c, B31, B1): kēray 'lower side, bottom; low; under'

El *šara 'under, below, down' (E17, E4a, E31b, E1b):

AE-NE šara under, below, down: šá-ra unter, unten, hinab;

AE šara I struck down: šá-ra ich unterte > ich schlug herunter, ab;

ME šarâra one who is under: ša-ra-a-ra einer unter..., einer der unter ist;

ME šaraš he fetched down > he divided: ša-ra(?)-áš er holte herunter > er teilte;

AE-NE šarama under: šá-ra-ma unter.

A34 PEI *ḳalhēr 'a shade tree' [ρ=27] (14.9, 1.9, 27.8, 10.9, 2.7, 26.9)

Br √kahēr (B17b, B1, B33a, B12b, B4c, B31): kahērō 'a shade tree'

El √šalhar 'plane trees' (E17, E1b, E34b, E12b, E4a, E31b):

NE šalhar plane trees: ^{GIŠ}ša-al-ha-ar^{lg} Platanen (?).

An example of a full morpheme. The Brahui species is *Ehretia obtusifolia*.

A35 PEI *ḳiš 'break off, remove' [ρ=8] (14.9, 3.9, 23.9)

Br √kiš (B17b, B5b, B18): kišk- 'pluck, break off'

El √šiš 'draw off, subtract, deduct' (E17, E5a, E18b):

AE šiškaka drawn off, subtracted, deducted: ši-iš-ka₄-ka₄ abgezogen, subtrahiert.

A36 PEI *ḳil 'broadcast' [ρ=27] (14.9, 3.9, 27.9)

Br √kil (B17b, B5, B33b): kil 'broadcast'

El √šil 'ground for growing' (E17, E5a, E34b):

AE šillak.ikka for ground for growing: šil-la-ki-ik-ka₄ zum gewachsenen Boden.

A37 PEI *ḳūr 'remove completely' [ρ=20] (14.9, 5.8, 26.9)

Br √kūr (B17b, B8, B31): kūr- 'to make a clean sweep of'

El √šur 'replace' (E17, E8, E31b):

AE šurašta he replaced: šu-ra-iš-da er hat ersetzt.

16.8 t : d ɸ *t / #_V { B25: *t > t | E26a: *t > d }

Achaemenid Elamite maintains distinct signs for TU and DU. Following the rules for this paper, d is maintained separately from t, and intervocalically they may be distinct. However, initially d is only the variant before u, i.e., DU = /tu/.

A38 PEI *tin 'give' [ρ=26] (16.8, 4.9, 17.9)

Br √tin (B25, B5b, B26): ti(n/r)- 'to give'

El √tun 'give' (E26a, E5b, E27):

AE tunaš he gave: du-na-áš er gab;

NE-ME tunih I gave: du-ni-h ich gab, schenkte;

NE tunuša he had given: du-nu-šá er hatte gegeben.

A39 PEI *tō 'keep' [ρ=15] (16.8, 6.9, 0)

Br √tō (B25, B10, #): tō(n/r)- 'to hold, keep'

El √tu# 'get, obtain' (E26a, E10, #):

NE-OE tuh I get, obtain, receive: du-h ich erhielt, empfang;

AE-NE tuš he gets, obtains, receives: du-iš er erhielt, empfang;

AE tumaš he received, receives: du-ma-iš er bekam;

AE-NE tun he will/should receive, get, obtain: du-un er wird, soll empfangen, erhalten;

AE tuut we get, receive, obtain: du-u-ut wir erhielten, empfangen, nahmen hin.

16.9 t : t ɸ *t / #_V { B25: *t > t | E26b: *t > t }

Initial t in both languages is modeled as PEI *t with no complications.

A40 PEI *tar 'closed, shut' [ρ=16] (16.9, 1.9, 26.9)

Br √tar (B25, B1, B31): tar 'closed, shut'

El √tar 'be complete, be at an end' (E26b, E1b, E31b):

AE tarma I completed: tar-ma ich vollbrachte, vollendete;

AE tarmak it was completed = finished, complete, completely: tar-ma-ak es wurde vollendet = fertig, vollständig, vollends, zu Ende;

AE tarmaš he completed: tar-maš er vollendete.

A41 PEI *+tīn 'place [in compounds]' [ρ=10] (16.9, 3.7, 17.9)

Br √tīn (B25, B6, B26b): +tīn 'place [in compounds]'

El √tin "direction" (E26b, E6b, E27b):

NE šutin west: šu-tin Westen (?);

NE hatin east: ha-tin Osten.

This is the only example of a noninitial morpheme in both languages.

A42 PEI *tir 'know' [ρ=48] (16.9, 4.9, 26.9)

Br √tir (B25, B5b, B31): ti(n/r)- neg. stem 'to understand, know; perceive'

El √tur 'know, make known' (E26b, E5b, E31b):

AE turna to know: [tur]-na mache kund!

See Brahui Irregular Verb (B7) for more details.

17.9 n : n ɸ *n / #_V { B26c: *n > n | E27b: *n > n }

Initial n : n entails PEI *n in all cases. There are no examples in this corpus of the Brahui change of initial *n to d before i.

A43 PEI *nan 'day (of 24 hours)' [ρ=16] (17.9, 1.9, 17.9)

Br √nan (B26c, B1, B26c): nan 'night'

El √nan 'day (of 24 hours)' (E27b, E1b, E27b):

AE nan day (of 24 hours): na-an Tag (zu 24 Stunden);
 AE nanme day (of 24 hours): ^dna-an-me Tag (zu 24 Stunden);
 OE nama during the day, day after day: na-ma am Tage, Tag um Tag.

A44 PEI *nī# 'you (sg.)' [ρ=18] (17.9, 4.8, 0)

Br √nī# (B26c, B6, #): nī 'you, thou'
 El √nu# 'you' (E27b, E6a, #):
 ME ni you: ni du;
 AE -ni your: -ni dein;
 AE-ME nu you: nu du, dir, dich;
 NE-OE nun you: nu-un dich, dir, zu dir.

A45 PEI *num 'you (pl.)' [ρ=1] (17.9, 5.9, 19.9)

Br √num (B26c, B7, B29b): num 'you [pl]'
 El √num 'you (pl)' (E27b, E7b, E29):
 AE numi you (pl): ^{hh}nu-mi ihr, euch;
 ME numun you (pl): nu-mu-un euch;
 ME num your: nu-um ihr.

18.8 b : p ɸ *p / #_V { B28b: *p > b | E28: *p > p }

Brahui has limited voicing contrasts in native vocabulary, usually as a result of denasalization. However, there are sporadic examples of voiced variants such as this word with no explanation.

A46 PEI *pāh 'donkey, mule' [ρ=8] (18.8, 1.8, 10.9)

Br √bāh (B28b, B2, B12b): bāhir 'herd of donkeys'
 El √pah 'mule' (E28, E2, E12b):
 AE paha mule: pa-ha Maulesel (?).

18.9 p : p ɸ *p / #_V { B28c: *p > p | E28: *p > p }

Noninitial *p in Brahui normally becomes f. However, initially it is straightforward; p : p entails PEI *p.

A47 PEI *pān 'grazing area for game' [ρ=2] (18.9, 1.8, 17.5)

Br √pād (B28c, B2, B26a): pād 'grazing ground of game animals'
 El √pan 'hunting preserve' (E28, E2, E27b):
 NE panah hunting preserve: pa-nah Wildgehege.

A48 PEI *piti 'fig' [ρ=15] (18.9, 4.7, 16.7, 3.9)

Br √pūs (B28c, B5a, B24): pūs 'a sweet; fig'
 El √pit 'figs' (E28, E5a, E26b):
 AE pit figs: ^{GIŠ}pi-ut Feigen;
 AE giz.pit a kind of fruit: peach fig: ^{GIŠ}gi-iz-pi-ut Obstart: Pfirsichfeigen.

In Elamite, noninitial i and u are almost interchangeable. While Elamite has i, the long vowel in Brahui argues for u as the original vowel.

A49 PEI *pir 'curse' [ρ=60] (18.9, 4.9, 25.8)

Br √pit (B28c, B5b, B32a): pitt 'curse'
 El √pur 'curse, damn, bewitch' (E28, E5b, E32):
 ME purah I cursed, damned, bewitched: pu-ra-h ich verwünschte, verfluchte (?).

A50 PEI *pir 'run dry' [ρ=90] (18.9, 3.9, 26.9)

Br √pir (B28c, B5b, B31): pirāi- 'to run dry, dry up'
 El √pir 'pass, elapse, flow away' (E28, E5a, E31b):

AE *pirka* it passed, elapsed, flowed away: *pi-ir-ka₄* es war(en) vergangen, verstrichen, verflossen;
 ME *pirkan* may it be at an end: *pi-ir-ka₄-an* (mit ihm) gehe es zu Ende! (?);
 AE *pirka* past, last, elapsed, lapsed: *pír-ka₄* vergangen, verstrichen, verflossen;
 ME *purku* end: *pur-ku* Ende.

19.9 m : m ɸ *m / #_V { B29b: *m > m | E29: *m > m }

Initial *m* in both languages is modeled as PEI **m*. The exact phonological nature of *m* in Elamite is ambiguous. It transliterates both *m* and *v* in Old Persian loans.

A51 PEI **māni* 'collect' [ρ=70] (19.9, 1.8, 17.9, 3.9)

Br √*māni* (B29b, B2, B26c, B5b): *mānīd* 'number of, collection of'
 El √*mani* 'together with' (E29, E2, E27b, E5a):
 AE *manirkuttinna* together with: *man-ir-kut-tin-na* insgesamt.

A52 PEI **maš* 'hill, mountain' [ρ=24] (19.9, 1.9, 23.9)

Br √*maš* (B29b, B1, B18): *maš* 'hill, mountain'
 El √*maš* 'height, altitude' (E29, E1b, E18b):
 AE *maškarni* his height, altitude: *maš-kar-ni* seine Höhe.

A53 PEI **mał* 'son' [ρ=6] (19.9, 1.9, 28.9)

Br √*mał* (B29b, B1, B34a): *mał* 'son'
 El √*mal* 'child, baby' (E29, E1b, E35b):
 AE *mal* child, baby: *ma-ul* Kind, Baby.

A54 PEI **mil* 'inner content' [ρ=4] (19.9, 3.9, 27.9)

Br √*mil* (B29b, B5b, B33b): *mīlī* 'marrow; brains; kernal'
 El √*mil* 'inner being' (E29, E5a, E34b):
 AE *mil* juice; (Hallock 1968 has 'oil'): *mi-ul* Saft;
 AE *millu* my juice > my inner being, myself: *mi-ul-lu* mein Saft > mein Inwendiges, mein Selbst;
 OE *mulli* his juice > his inner self, himself: *mu-ul-li* sein Saft > sein inwendiges, sein Selbst.

A55 PEI **mošt* 'cover' [ρ=8] (19.9, 6.7, 24.9, 16.9)

Br √*must* (B29b, B9a, B19b, B25): *must* 'shut, closed'
 El √*mašt* 'covering' (E29, E9a, E20, E26b):
 NE *maštukli* covering; garment: *máš-tuk-li* Decke; Kleidungsstück.

20.5 ∅ : m ɸ *w / #_u { B30a: *w > ∅ | E30: *w > m }

In Brahui initial *w* was lost before *u*. Presumably paralleling Dravidian, initial *u* developed a *w* onglide causing *w* to become allophonic and lose contrast. The Elamite developments are regular, giving us the very important and productive word *mur*.

A56 PEI **wur* 'place' [ρ=39] (20.5, 5.9, 26.9)

Br √*#ur* (B30a, B7, B31): *urā* 'house'
 El √*mur* 'residents, inhabitants' (E30, E7b, E31b):
 AE *murdap* residents, inhabitants: *mur-da-ap(?)* Ansässige, Eingesetzte.
 El √*mur* 'set, put, place' (E30, E7b, E31b):
 AE *murda* I set, put, placed: *mur-da* ich setzte, stellte;
 ME *murtan* he may settle: *mu-ur-ta-an* er möge sich niederlassen;
 ME *murtah* I put aside, put up: *mu-ur-ta-h* ich setzte hin, stellte auf.
 El √*mur* 'earth, soil, ground' (E30, E7b, E31b):

AE-ME *murun* earth, soil, ground; estates: *mu-ru-un* Erde, Erdreich; Ländereien.

El $\sqrt{\text{mur}}$ 'where, somewhere' (E30, E7b, E31b):

AE, ME *mur* where: *mu-ur* wo, da wo;

El $\sqrt{\text{mur}}$ 'seat, place' (E30, E7b, E31): ME *murti* high seat, residence: *mu-ur-ti* Hochsitz.

20.8 $\text{b} : \text{m} \neq *m / \# _ \{i, e\} \quad \{ \text{B29a: } *m > b \mid \text{E29: } *m > m \}$

While the major development of Brahui denasalization before front vowels ($*n > d$) is missing in the corpus, its variant ($*m > b$) is well attested; see Krishnamurti 1969b for the details.

A57 PEI $*mitt$ 'throw, send off' [$\rho=24$] (20.8, 3.9, 15.8)

Br $\sqrt{\text{bit}}$ (B29a, B5, B23c): *bit-* 'to throw'

El $\sqrt{\text{mit}}$ 'start out, depart, send' (E29, E5a, E25):

NE *metti* attacker, aggressor, robber: *me-it-ti* Angreifer, Überfallender;

NE *miduya* I started out, moved out/forward, advanced: *mi-du-ya* ich bin aufgebrochen, ausgezogen, vorgerückt;

AE *mite* move, move forward, advance: *mi-te* zieh los! rücke vor!

AE *miteš* may he advance, move: *mi-te-iš* ziehet los! rückt vor!

AE *middama* beyond, on the other side, in advance: *mi-ud-da-ma* jenseits, im Vorgerückten.

A58 PEI $*miš$ 'bake' [$\rho=24$] (20.8, 3.9, 24.9)

Br $\sqrt{\text{bis}}$ (B29a, B5b, B19b): *bis-* 'to bake, cook'

El $\sqrt{\text{muš}}$ 'glazed terracotta' (E29, E5b, E20):

ME *mušiya* glazed terracotta: *mu-ši-a* aus lasierter Terracotta;

ME *mušitta* glazed terracotta: *mu-ši-it-ta* aus lasierter Terracotta.

21.8 $\text{đ} : \text{š} \neq *ṭ / \# _ V \quad \{ \text{B20a: } *ṭ > đ \mid \text{E21: } *ṭ > š \}$

The correspondence of initial Brahui *đ* to Elamite *š* is modeled as PEI $*ṭ$. This symbol is arbitrary since its exact nature is not known. Parallel cases where *t* varies with \emptyset ($< *š$) are known from Dravidian.

A59 PEI $*ṭol$ 'spade' [$\rho=15$] (21.8, 6.8, 27.9) *š*

Br $\sqrt{\text{đal}}$ (B20a, B9b, B33b): *đal* 'spade'

El $\sqrt{\text{šul}}$ 'kind of tool: shovel' (E21, E9b, E34b):

AE *šullu* kind of tool: shovel: *šu-ul-lu* Bezeichnung eines Werkzeuges: Schaufel (?);

ME *šullumenga* I am a striver < a shoveler: *šu-ul-lu-me-en-ga* ich bin ein Erstrebender < ein Heranschaufler (?).

21.9 $\text{d} : \text{š} \neq *ṭ / \# _ V \quad \{ \text{B20b: } *ṭ > d \mid \text{E21: } *ṭ > š \}$

A variant of the foregoing with *d* rather than *đ* in Brahui, possibly due to the following *f*.

A60 PEI $*ṭar$ 'descend' [$\rho=54$] (21.9, 1.9, 25.9)

Br $\sqrt{\text{dař}}$ (B20b, B1, B32b): *dař-* 'to descend'

El $\sqrt{\text{šar}}$ 'under, below, down' (E21, E1b, E32):

NE *šar.kisi* taboo room: *šá-ar.ki-si* Taburaum (?).

22.9 $\text{c} : \text{z} \infty \text{s} \neq *c / \# _ V \quad \{ \text{B21: } *c > c \mid \text{E22: } *c > z (> s) \}$

Elamite has numerous cases where *z* alternates with *s*. This alternation is handled with /*c*/. Except for this complication, the rule is initial *c* in both languages entails PEI $*c$.

A61 PEI $*cak$ 'small' [$\rho=42$] (22.9, 1.9, 12.9)

Br $\sqrt{\text{cak}}$ (B21, B1, B14): *cak* in *cak.kul* 'small [spring]'

El $\sqrt{\text{sak}}$ 'a small measure (= 1/24 QA)' (E22, E1b, E14):

AE *zaka* a small measure (= 1/24 QA): *za(?)*-ka₄ Maßbezeichnung von 1/24 QA.

A62 PEI *caw 'head ornament' [ρ=84] (22.9, 1.9, 20.9)

Br √cav (B21, B1, B30b): *cawnk* 'head ornament'

El √zam 'cult object: crown, wreath' (E22, E1b, E30):

ME *zammi* cult object: crown or wreath: *za-am-mi* Kultgegenstand: Krone/Kranz (?);

ME *sammi* cult object: crown, wreath: *sa-am-mi* Kultgegenstand: Krone, Kranz (?).

A63 PEI *cin 'small child' [ρ=37] (22.9, 4.7, 17.9)

Br √cun (B21, B5a, B26b): *cunā* 'child'

El √zin 'small child, infant' (E22, E5a, E27b):

AE *zin* small child, infant: *zí-in* Kleinkind, Säugling (?).

23.9 š : š ɸ *š / #_V { B18: *š > š | E18b: *š > š }

Initial Brahui *š* corresponding to initial Elamite *š* is modeled as PEI *š.

A64 PEI *šāly 'pour' [ρ=54] (23.9, 1.8, 27.7, 11.7)

Br √šāy (B18, B2, B13a): *šā(y)-* 'to pour; put'

El √šar 'pour, let pour' (E18b, E2, E33):

ME *šarih* I poured, let pour: *ša-ri-h* ich goß, ließ gießen;

ME *šarik* heaping up: *ša-ri-ik* Aufschütung (?).

A65 PEI *šēš 'tree, wood' [ρ=6] (23.9, 2.6, 23.9)

Br √šiš (B18, B4a, B18): *šišār* 'a tree'

El √šeš 'woodworkers' (E18b, E4c, E18b):

AE *šeškip* woodworkers: *še-iš-ki-ip* Schnitzer;

AE *šeššabat* wood of the Jag tree: ^[GIS.š]*še-iš-ša-ba-ut* Holz des Djag-Baumes.

23.9 s : ś ɸ *ś / #_V { B19b: *ś > s | E18b: *ś > ś }

Initial Brahui *s* corresponding to initial Elamite *š* entails PEI *ś. The sound represented by *ś* in Elamite may have been *s*. However, Elamite distinguishes this sibilant from another written *s*; two symbols, two values, both arbitrary.

A66 PEI *šit 'night' [ρ=30] (24.9, 4.9, 16.9)

Br √#ist (B19b, B5b, B25): *istō* 'last night'

El √šut 'night' (E20, E5b, E26b):

AE *šitmana* of the night: ^d*ši-ut-ma-na* des Nachts;

ME *šuttime* night: *šu-ut-ti-me* Nacht.

A67 PEI *šuggur 'reciter' [ρ=44] (24.9, 5.9, 12.5, 5.9, 25.9)

Br *šuggur (B19b, B7, B15, B7, B32b): *suggur* 'bard, poet'

El √šukur 'singer' (E20, E7b, E15, E7b, E32):

OE *šukuri* singer: *šu-ku-ri* Sänger (?);

NE *šukkit* speech, talk, word: *šu-uk-ki-it* Rede, Wort (?).

7.1.1 Elamite Metathesis (∅VR : RV ɸ ∅VR)

Elamite metathesized initial *a* followed by *r* or *í* resulting in *ra*. This is a special case for the general loss of initial short vowels commonly seen in verbs; see McAlpin 2015: 556-57.

A68 PEI *#ar 'restrict' [ρ=8] (0, 1.5, 25.9)

Br √#ar (#, B1, B32b): *ar* 'entanglement; obstacle; difficulty'

El √rap 'tie, bind, close, lock' (#, E1a, E32):

ME rabbah I tied firmly, closed, locked: ra-ab-ba-h ich band fest, verschloß;
 AE rabbap captives, forced laborers: ráb-ba-ip Gefangene, Zwangsarbeiter (pl);
 AE rabbaš he made captive, forced obligations from, enslaved: ráb-ba-aš er fesselte,
 zwangsverpflichtete, versklavte;
 NE rabbir harnesser > teamster, driver: ^vráb-bír Anspanner > Fuhrmann, Fahrer (eines
 Streitswagens ?).

Elamite shows the causative in -pp; see discussion in §12.8.

A69 PEI *#arī 'berserk' [ρ=6] (0, 1.5, 25.9, 3.9)

Br √#arī (#, B1, B32b, B5b): arī 'rabid, mad'

El √rip 'annihilator, destroyer, demolisher' (#, E1a, E32, E5a):

AE rippišni may he tear down, destroy, demolish: ri-ip-pi-iš-ni er möge niederreißen,
 vernichten, zerstören!

A70 PEI *#arēh 'man' [ρ=16] (0, 1.5, 26.9, 2.8, 10.9)

Br √#arēh (#, B1, B31, B4c, B12b): arē (pl. arisk) 'male individual'

El √ruh 'man (human)' (#, E1a, E31b, E4b, E12b):

AE ruh man: ^vru-h ein, der Mann.

7.2 Vowels

7.2.1 Vowel Initial / ¹C Missing (∅ : ∅ Ʇ ∅)

These are the examples where the initial consonant (¹C) is missing. In the modeling they are treated with a dummy consonant (#) which is about as frequent as the other individual initial consonants. These complete the primary listing of the cognate pairs,

A71 PEI *#ax 'a fodder grass' [ρ=32] (0, 1.9, 11.8)

Br √#ax (#, B1, B13b): ax 'a fodder grass'

El √#ah 'pasture' (#, E1b, E13):

NE ahiš pasture: a-h-iš Weidergrund (?).

A72 PEI *#ad 'a fodder grass' [ρ=96] (0, 1.9, 15.7)

Br √#ad (#, B1, B22): adđina 'a fodder grass'

El √#at 'fodder, animal food' (#, E1b, E23):

AE adda fodder, animal food: ad-da (?) Futter (?).

These are two separate words with the same overly broad gloss.

A73 PEI *#ap 'food' [ρ=168] (0, 1.9, 18.6)

Br √#ap (#, B1, B27): appā 'children's food'

El √hap 'foodstuff' (#, E1b, E28):

AE abbebe foodstuff: ab-be-be, ab-be.KI.MIN Nahrungsmittel, Lebensmittel, Speise(n);

AE habehabe food: ha-be-ha-be Nahrung, Speise.

A74 PEI *#ās 'cattle' [ρ=5] (0, 1.8, 24.9)

Br √#ās (#, B2, B19b): xar.ās 'bull, bullock'

El √#aš 'cattle, livestock' (#, E2, E20):

AE-ME aš cattle, livestock, herds: áš Vieh, Herde;

AE aš.kitišbe cattle breeder: ^{hh}áš.gi-ti-iš-be Viehveredler, Tierzüchter;

NE aš.kutur cowherd: ^{lg}áš.ku-tur Viehward, Viehhüter.

A75 PEI *#ēt 'give' [ρ=130] (0, 2.8, 16.9)

Br √#ēt (#, B4c, B25): ēt+ 'to give'

El √#id 'issue' (#, E4b, E26a):

AE-NE iddu issue!: id-du gib heraus! händige aus!

AE idduš they issued, approved: id-du-iš sie gaben heraus, bewilligten;
 AE udduš give out, issue: ud-du-iš gib aus! gib heraus!

A76 PEI *#ē# 'o!' [ρ=11] (0, 2.9, 0)

Br √#ē# (#, B4c, #): ē 'oh!'

El √#e# 'o!' (#, E4c, #):

AE-OE e o: e oh!

This is the only interjection attested in Elamite.

A77 PEI *#ī# 'he, she, it' [ρ=12] (0, 3.7, 0)

Br √#ī# (#, B6, #): ī+ 'Base for inclitics and reflexives'

El √#i# 'he, she, it, they' (#, E6b, #):

NE-ME -e his, her: -e sein, ihre;

AE-ME in it: in es, sie (acc.);

AE-OE ir he, she, it, they: ir ihn, ihm, ihr; er, sie.

A78 PEI *#ī# 'I, me' [ρ=13] (0, 3.8, 0)

Br √#ī# (#, B6, #): ī 'I'

El √#u# 'I, me, mine' (#, E6a, #):

AE-ME u I: ú ich;

AE un me: ú-in mich;

AE-NE ur me: ú-ir mich;

ME-OE ume my: ù-me mein;

AE unina mine, of me: ^vú-ni-na von mir, mein.

A79 PEI *#ur 'wife' [ρ=21] (0, 5.9, 26.9)

Br √#ur (#, B7, B31): urā 'wife'

El √rut 'wife, consort' (#, E7b, E31b):

AE irtiri his wife: ^fir-ti-ri seine Frau, Gattin;

NE riti wife: ri-ti Gattin, Ehefrau;

ME rutu wife, consort: ru-tu⁴ Gattin, Gemahlin, Ehefrau.

A80 PEI *#ul 'exist' [ρ=16] (0, 5.9, 27.8)

Br √#uC (#, B7, B33a): u- 'be'

El √#ul 'deliver' (#, E7b, E34b):

AE ullaš he delivered: ul-la-iš er lieferte (ab);

AE ullimašti he is delivering, supplying: ul-li-man-ra er ist Beliefernder, 3Versorger;

El √#ul 'suppliers, providers' (#, E7b, E34b):

AE ullip suppliers, providers: ^{hh}ul-li-ip Lieferanten, Beschaffer (pl).

The verb ullaš is a causative and can be read as 'caused to be (in a place)'.
 The verb ullimašti is a causative and can be read as 'caused to be (in a place)'.

A81 PEI *#onr 'one' [ρ=13] (0, 6.8, 17.5, 25.5)

Br √#as (#, B9b, B35): asi 'one'

El √#unr 'each, every' (#, E9b, E27b, E32):

AE unra each: un-ra jeder, 1-ra ein jeder.

The simplification of PreBrahui *nr to s is known from Dravidian cognates; see Emeneau 1970:72-73. (also in introduction to DEDR)

7.2.2 Vowels (¹V / # (C) _ and ²V / VC _)

The first vowel (¹V) is either initial or after the first consonant. It seems to have been stressed and is normally so in Brahui. This is the only vowel present in all the examples. However, some morphemes have a second vowel (²V) which will be given in a separate rule even if the values are the same. From this point

on, the listings are repeated in abbreviated form (no detailed Elamite citations). The numbers refer to the primary listing.

1.5 a : ∅ ʔ *a / #_{r,r} { B1: *a > a | E1a: *a > ∅ }

These are the metathesizing vowels presented in A68-A70.

A68 PEI *#ar 'restrict' [ρ=8] (0, 1.5, 25.9)

Br √#ar (#, B1, B32b): ar 'entanglement; obstacle; difficulty'

El √rap 'tie, bind, close, lock' (#, E1a, E32).

A69 PEI *#arī 'berserk' [ρ=6] (0, 1.5, 25.9, 3.7)

Br √#arī (#, B1, B33b, B5b): arī 'rabid, mad'

El √rip 'annihilator, destroyer, demolisher' (#, E1a, E32, E5a).

A70 PEI *#arēh 'man' [ρ=16] (0, 1.5, 26.9, 2.8, 10.9)

Br √#arēh (#, B1, B31, B4c, B12b): arē 'male individual'

El √ruh 'man (human)' (#, E1a, E31b, E4b, E12b).

1.8 ā : a ʔ *ā / #C_ { B2: *ā > ā | E2: *ā > a }

From differing vowel changes we can tell that Elamite had contrasting vowel length. However, it was not written. However, we can use vowel length in Brahui to reconstruct Proto-Elamitic. This is the rule for PEI *ā.

A25 PEI *kā# 'go away, move' [ρ=25] (13.9, 1.8, 0)

Br √kā# (B16, B2, #): kā+ 'to go, depart [present base]'

El √sa# 'go away, move, travel' (E16, E2, #):

A46 PEI *pāh 'donkey, mule' [ρ=8] (18.8, 1.8, 10.9)

Br √bāh (B28b, B2, B12b): bāhir 'herd of donkeys'

El √pah 'mule' (E28, E2, E12b).

A47 PEI *pān 'grazing area for game' [ρ=2] (18.9, 1.8, 17.5)

Br √pād (B28c, B2, B26a): pād 'grazing ground of game animals'

El √pan 'hunting preserve' (E28, E2, E27b).

A51 PEI *māni 'collect' [ρ=70] (19.9, 1.8, 17.9, 3.9)

Br √māni (B29b, B2, B26c, B5b): mānīd 'number of, collection of'

El √mani 'together with' (E29, E2, E27b, E5a).

A64 PEI *šāly 'pour' [ρ=54] (23.9, 1.8, 27.7, 11.7)

Br √šāy (B18, B2, B13a): šā(y)- 'to pour; put'

El √šar 'pour, let pour' (E18b, E2, E33).

A74 PEI *#ās 'cattle' [ρ=5] (0, 1.8, 24.9)

Br √#ās (#, B2, B19b): xar.ās 'bull, bullock'

El √#aś 'cattle, livestock' (#, E2, E20):

1.9 a : a ʔ *a / #C_ { B1: *a > a | E1b: *a > a }

Brahui /a/ corresponding to Elamite /a/ by default entails PEI *a. However, since *e and *o have reflexes of a in both languages, this correspondence is overpopulated. Only in a few instances can another value be reliably reconstructed; see B10. Since the citations are numerous, they are only given by number: A01, A03, A06, A07, A08, A09, A10, A11, A30, A31, A32, A33, A34, A40, A43, A52, A53, A60, A61, A62, A71, A72, A73, A74.

1.9 a : a ʔ *a / VC_ { B1: *a > a | E1b: *a > a }

The second vowel version

A30 PEI *kasa 'way, path, road' [ρ=4] (14.9, 1.9, 24.8, 1.9)

Br √kasa (B17b, B1, B19a, B1): kasar 'way, path, road'

El √šasa 'travel away, carry away' (E17, E1b, E19, E1b).

A33 PEI *kēra 'lower side' [ρ=36] (14.9, 2.7, 26.9, 1.9)

Br *kēra (B17b, B4c, B31, B1): kēray 'lower side, bottom; low; under'
El *šara 'under, below, down' (E17, E4a, E31b, E1b).

2.5 a : i ɸ *e / #C_ { B3: *e > a | E3b: *e > i }

In both Elamite and Brahui e becomes i or a, particularly when not stressed. This rule continues to act over time and is still active in Brahui today; note the thematic vowels in verb stems. Rules 2.5-2.9 work through the various attested combinations. The general principle is i varying with a in any combination entails *e, with an *e in either language entailing *ē. Note the contrast in vowel length.

A04 PEI *hel 'take' [ρ=154] (10.9, 2.5, 28.9)

Br √hał (B12b, B3, B34a): hall- 'to take'
El √hil 'take from, accept' (E12b, E3b, E35b).

A13 PEI *xep 'vassel, subject' [ρ=50] (11.9, 2.5, 18.7)

Br √xaf (B13c, B3, B28a): xafī 'vassal, subject'
El √hip 'subjagate' (E13, E3b, E28).

A14 PEI *xel 'gather, uproot' [ρ=8] (11.9, 2.5, 27.9)

Br √xal (B13c, B3, B33b): xall- 'to gather, uproot'
El √hil 'plunder, booty' (E13, E3b, E34b).

2.6 i : e ɸ *ē / #C_ { B4a: *ē > i | E4: *ē > e }

A65 PEI *šēš 'tree, wood' [ρ=6] (23.9, 2.6, 23.9)

Br √šiš (B18, B4a, B18): šišār 'a tree'
El √šeš 'woodworkers' (E18b, E4c, E18b).

2.7 ē : a ɸ *ē / #C_ { B4c: *ē > ē | E4a: *ē > a }

A16 PEI *gēnt 'storage place' [ρ=24] (12.5, 2.7, 17.5, 15.7)

Br √gēd (B15, B4c, B26a, B23b): gēd 'roofed enclosure for animals'
El √kand 'storage place, storehouse' (E15, E4a, E27, E24).

A19 PEI *kēp 'nearness, near' [ρ=77] (12.9, 2.7, 18.8)

Br √kēb (B14, B4c, B28b): kēb 'nearness; near'
El √kap 'enclosed, all together' (E14, E4a, E28).

A33 PEI *kēra 'lower side' [ρ=36] (14.9, 2.7, 26.9, 1.9)

Br *kēra (B17b, B4c, B31, B1): kēray 'lower side, bottom; low; under'
El *šara 'under, below, down' (E17, E4a, E31b, E1b).

2.7 ē : a ɸ *ē / VC_ { B4c: *ē > ē | E4a: *ē > a }

A34 PEI *kālḥēr 'a shade tree' [ρ=27] (14.9, 1.9, 27.8, 10.9, 2.7, 26.9)

Br √kahēr (B17b, B1, B33a, B12b, B4c, B31): kahērō 'a shade tree'
El √šalhar 'plane trees' (E17, E1b, E34b, E12b, E4a, E31b).

2.8 ē : i ɸ *ē / #C_ { B4c: *ē > ē | E4b: *ē > i (>u) }

A05 PEI *hēt 'she goat' [ρ=8] (10.9, 2.8, 15.9)

Br √hēt (B12b, B4c, B23d): hēt 'she-goat'
El √hid 'sheep, ewe, female goat' (E12b, E4b, E24).

A75 PEI *#ēt 'give' [ρ=130] (0, 2.8, 16.9)

Br √#ēt (#, B4c, B25): ēt+ 'to give'
El √#id 'issue' (#, E4b, E26a).

2.8 ē : u ɸ *ē / VC_ { B4c: *ē > ē | E4b: *ē > i (>u) }

A70 PEI *#arēh 'man' [ρ=16] (0, 1.5, 26.9, 2.8, 10.9)

Br √#arēh (#, B1, B31, B4c, B12b): arē 'male individual'
El √ruh 'man (human)' (#, E1a, E31b, E4b, E12b).

2.9 ē : e 𐎠 *ē / #C_ { B4c: *ē > ē | E4: *ē > e }

A02 PEI *hēl 'think, deliberate' [ρ=50] (10.8, 2.9, 27.9)

Br √hēl (B12b, B4c, B33b): hēl 'knowledge, wisdom'

El √#ēl 'think, ponder, plan' (E12a, E4c, E34b).

A76 PEI *#ē# 'o!' [ρ=11] (0, 2.9, 0)

Br √#ē# (#, B4c, #): ē 'oh!'

El √#e# 'o!' (#, E4c, #).

3.7 ī : i 𐎠 *ī / #_ { B6: *ī > ī | E6b: *ī > i }

A41 PEI *+tīn 'place [in compounds]' [ρ=10] (16.9, 3.7, 17.9)

Br √tīn (B25, B6, B26b): +tīn 'place [in compounds]'

El √tin "direction" (E26b, E6b, E27b).

A77 PEI *#ī# 'he, she, it' [ρ=12] (0, 3.7, 0)

Br √#ī# (#, B6, #): ī+ 'Base for inclitics and reflexives'

El √#i# 'he, she, it, they' (#, E6b, #).

3.8 ī : u 𐎠 *ī / #C_ { B6: *ī > ī | E6a: *ī > u }

A78 PEI *#ī# 'I, me' [ρ=13] (0, 3.8, 0)

Br √#ī# (#, B6, #): ī 'I'

El √#u# 'I, me, mine' (#, E6a, #).

3.9 i : i 𐎠 *i / #C_ { B5b: *i > i | E5a: *i > i }

A17 PEI *gih 'whole' [ρ=17] (12.5, 3.9, 10.8)

Br √gih (B15, B5b, B12b): gih 'all, whole'

El √ki# 'one' (E15, E5a, E12a).

A18 PEI *gir 'single person' [ρ=14] (12.5, 3.9, 25.9)

Br √gir (B15, B5b, B32b): gir 'all; whole; only'

El √ki# 'one' (E15, E5a, E32).

A26 PEI *kiš 'settle' [ρ=12] (13.9, 3.9, 23.8)

Br √kiš (B16, B5b, B18): kišk- 'to settle'

El √si# 'settle down, establish' (E16, E5a, E18a).

A35 PEI *kiš 'break off, remove' [ρ=8] (14.9, 3.9, 23.9)

Br √kiš (B17b, B5b, B18): kišk- 'pluck, break off'

El √šiš 'draw off, subtract, deduct' (E17, E5a, E18b).

A36 PEI *kil 'broadcast' [ρ=27] (14.9, 3.9, 27.9)

Br √kil (B17b, B5b, B33b): kil 'broadcast'

El √sil 'ground for growing' (E17, E5a, E34b).

A50 PEI *pir 'run dry' [ρ=90] (18.9, 3.9, 26.9)

Br √pir (B28c, B5b, B31): pirāi- 'to run dry, dry up'

El √pir 'pass, elapse, flow away' (E28, E5a, E31b).

A54 PEI *mil 'inner content' [ρ=4] (19.9, 3.9, 27.9)

Br √mil (B29b, B5b, B33b): milī 'marrow; brains; kernel'

El √mil 'inner being' (E29, E5a, E34b).

A57 PEI *mitt 'throw, send off' [ρ=24] (20.8, 3.9, 15.8)

Br √bit (B29a, B5b, B23c): bit- 'to throw'

El √mit 'start out, depart, send' (E29, E5a, E25).

A58 PEI *miš 'bake' [ρ=24] (20.8, 3.9, 24.9)

Br √bis (B29a, B5b, B19b): bis- 'to bake, cook'

El √muš 'glazed terracotta' (E29, E5b, E20).

3.9 i : i ɸ *i / VC_ { B5b: *i > i | E5a: *i > i }

A48 PEI *piti 'fig' [ρ=15] (18.9, 4.7, 16.7, 3.9)

Br √pūs (B28c, B5a, B24): pūs 'a sweet; fig'
El √pit 'figs' (E28, E5a, E26b).

A51 PEI *māni 'collect' [ρ=70] (19.9, 1.8, 17.9, 3.9)

Br √māni (B29b, B2, B26c, B5b): mānīd 'number of, collection of'
El √mani 'together with' (E29, E2, E27b, E5a).

A69 PEI *#aṛi 'berserk' [ρ=6] (0, 1.5, 25.9, 3.9)

Br √#aṛi (#, B1, B32b, B5b): aṛi 'rabid, mad'
El √rip 'annihilater, destroyer, demolisher' (#, E1a, E32, E5a).
See §11: B07 for additional examples.

4.7 u : i ɸ *i / #C_ { B5a: *i > u | E5a: *i > i }

A48 PEI *piti 'fig' [ρ=15] (18.9, 4.7, 16.7, 3.9)

Br √pūs (B28c, B5a, B24): pūs 'a sweet; fig'
El √pit 'figs' (E28, E5a, E26b).

A63 PEI *cin 'small child' [ρ=37] (22.9, 4.7, 17.9)

Br √cun (B21, B5a, B26b): cunā 'child'
El √zin 'small child, infant' (E22, E5a, E27b).

4.8 ī : u ɸ *ī / #C_ { B6: *ī > ī | E6a: *ī > u }

A44 PEI *nī# 'you (sg.)' [ρ=18] (17.9, 4.8, 0)

Br √nī# (B26c, B6, #): nī 'you, thou'
El √nu# 'you' (E27b, E6a, #).

4.9 i : u ɸ *i / #C_ { B5b: *i > i | E5b: *i > u }

A38 PEI *tin 'give' [ρ=26] (16.8, 4.9, 17.9)

Br √tin (B25, B5b, B26): ti(n/r)- 'to give'
El √dun 'give' (E26a, E5b, E27).

A42 PEI *tir 'know' [ρ=48] (16.9, 4.9, 26.9)

Br √tir (B25, B5b, B31): ti(n/r)- neg. 'to understand, know; perceive'
El √tur 'know, make known' (E26b, E5b, E31b).

A49 PEI *pīr 'curse' [ρ=60] (18.9, 4.9, 25.8)

Br √pit (B28c, B5b, B32a): pitt 'curse'
El √pur 'curse, damn, bewitch' (E28, E5b, E32).

A66 PEI *šit 'night' [ρ=30] (24.9, 4.9, 16.9)

Br √#ist (B19b, B5b, B25): istō 'last night'
El √sut 'night' (E20, E5b, E26b).

5.5 ū : i ɸ *u / #C_ { B9: *u > ū | E7a: *u > i }

See §11: B08 for examples.

5.8 ū : u ɸ *ū / #C_ { B8: *ū > ū | E8: *ū > u }

A37 PEI *kūr 'remove completely' [ρ=20] (14.9, 5.8, 26.9)

Br √kūr (B17b, B8, B31): kūr- 'to make a clean sweep of'
El √šur 'replace' (E17, E8, E31b).

5.9 u : u ɸ *u / #C_ { B7: *u > u | E7b: *u > u }

A12 PEI *xul 'fear' [ρ=62] (11.9, 5.9, 28.5)

Br √xul (B13c, B7, B34b): xul- 'to fear'
El √huš 'fear, be afraid' (E13, E7b, E35a).

- A20 PEI *kut 'flock, herd' [ρ=72] (12.9, 5.9, 15.5)**
 Br √kur (B14, B7, B23a): kur 'flock of sheep or goats'
 El √kud 'herd' (E14, E7b, E24).
- A21 PEI *kun 'eat' [ρ=26] (12.9, 5.9, 17.8)**
 Br √kun (B14, B7, B26b): kun- 'to eat, drink'
 El √kum 'eat' (E14, E7b, E27a).
- A22 PEI *kuř 'torch' [ρ=24] (12.9, 5.9, 25.8)**
 Br √kut (B14, B7, B32a): kutink 'burning fagot'
 El √kur 'oil torch' (E14, E7b, E32).
- A23 PEI *kul 'message' [ρ=14] (12.9, 5.9, 27.9)**
 Br √kul (B14, B7, B33b): kulau 'message'
 El √kul 'call, summon' (E14, E7b, E34b).
- A27 PEI *kūn 'coiled' [ρ=9] (13.9, 5.9, 17.9)**
 Br √kun (B16, B7, B26b): kunnal 'curl; coiled; pestering'
 El √sun 'a quality of garments: in folds, pleated' (E16, E7b, E27b).
- A28 PEI *kūm 'serious' [ρ=56] (13.9, 5.9, 19.8)**
 Br √kub (B16, B7, B29a): kubēn 'serious'
 El √sum 'commitment (for offering)' (E16, E7b, E29).
- A24 PEI *kūl 'water, spring' [ρ=8] (13.8, 5.9, 27.9)**
 Br √kul (B16, B7, B33b): kul in cak.kul '[small] spring'
 El √zul 'water' (E16, E7b, E34b).
- A45 PEI *num 'you (pl.)' [ρ=1] (17.9, 5.9, 19.9)**
 Br √num (B26c, B7, B29b): num 'you [pl]'
 El √num 'you (pl)' (E27, E7b, E29).
- A56 PEI *wur 'place' [ρ=39] (20.5, 5.9, 26.9)**
 Br √#ur (B30a, B7, B31): urā 'house'
 El √mur 'residents, inhabitants' (E30, E7b, E31b).
- A67 PEI *šuggur 'reciter' [ρ=44] (24.9, 5.9, 12.5, 5.9, 25.9)**
 Br *suggur (B19b, B7, B15, B7, B32b): suggur 'bard, poet'
 El √šukur 'singer' (E20, E7b, E15, E7b, E32).
- A79 PEI *#ur 'wife' [ρ=21] (0, 5.9, 26.9)**
 Br √#ur (#, B7, B31): urā 'wife'
 El √rut 'wife, consort' (#, E7b, E31b).
- A80 PEI *#ul 'exist' [ρ=16] (0, 5.9, 27.8)**
 Br √#uC (#, B7, B33a): u- 'be'
 El √#ul 'deliver' (#, E7b, E34b).

5.9 u : u ɸ *u / #VC_ { B7: *u > u | E7b: *u > u }

- A29 PEI *kōlum 'grain' [ρ=10] (14.8, 6.9, 27.9, 5.9, 19.9)**
 Br *xōlum (B17a, B10, B33b, B7, B29b): xōlum 'wheat'
 El *šulum 'stand of grain, grain harvest' (E17, E10, E34b, E7b, E29).
- A67 PEI *šuggur 'reciter' [ρ=44] (24.9, 5.9, 12.5, 5.9, 25.9)**
 Br *suggur (B19b, B7, B15, B7, B32b): suggur 'bard, poet'
 El √šukur 'singer' (E20, E7b, E15, E7b, E32).

6.7 u : a ɸ *o / #C_ { B9a: *o > u | E9a: *o > a }

- A55 PEI *mošt 'cover' [ρ=8] (19.9, 6.7, 24.9, 16.9)**
 Br √must (B29b, B9a, B19b B25): must 'shut, closed'
 El √mašt 'covering' (E29, E9a, E20, E26b).

6.8 a : u ɸ *o / #C_ { B9b: *o > a | E9b: *o > u }

A15 PEI *xol 'set in ground' [ρ=30] (11.9, 6.8, 27.9)

Br √xal (B13c, B9b, B33b): xall- 'to pitch [a tent]; plant [a tree]'

El √hul 'erect, establish' (E13, E9b, E34b).

A59 PEI *ǵol 'spade' [ρ=15] (21.8, 6.8, 27.9)

Br √ǵal (B20a, B9b, B33b): ǵal 'spade'

El √sul 'kind of tool: shovel' (E21, E9b, E34b).

A81 PEI *#onr 'one' [ρ=13] (0, 6.8, 17.5, 25.5)

Br √#as (#, B9b, B35): asi 'one'

El √#unr 'each, every' (#, E9b, E27b, E32).

6.9 ō : u ɸ *ō / #C_ { B10: *ō > ō | E10: *ō > u }

A29 PEI *kōlum 'grain' [ρ=10] (14.8, 6.9, 27.9, 5.9, 19.9)

Br *xōlum (B17a, B10, B33b, B7, B29b): xōlum 'wheat'

El √sul 'stand of grain, grain harvest' (E17, E10, E34b, E7b, E29).

A39 PEI *tō 'keep' [ρ=15] (16.8, 6.9, 0)

Br √tō (B25, B10, #): tō(n/r)- 'to hold, keep'

El √du# 'get, obtain' (E26a, E10, #).

7.3 Second Consonant (²C)

10.8 h : ∅ ɸ *h / V_# { B12b: *h > h | E12a: *h > ∅ }

When final, PEI *h is lost in Elamite in this one case. The reason may be morphological.

A17 PEI *gih 'whole' [ρ=17] (12.5, 3.9, 10.8)

Br √gih (B15, B5b, B12b): gih 'all, whole'

El √ki# 'one' (E15, E5a, E12a).

10.9 h : h ɸ *h / VC_V { B12b: *h > h | E12b: *h > h }

When not initial, h is not lost in AE, giving a straightforward set of correspondences.

A34 PEI *kālḥēr 'a shade tree' [ρ=27] (14.9, 1.9, 27.8, 10.9, 2.7, 26.9)

Br √kahēr (B17b, B1, B33a, B12b, B4c, B31): kahērō 'a shade tree'

El *šalhar 'plane trees' (E17, E1b, E34b, E12b, E4a, E31b).

10.9 s : h ɸ *h / V_C { B12a: *h > s | E12b: *h > h }

See §11: B03 for examples.

10.9 h : h ɸ *h / V_ { B12b: *h > h | E12b: *h > h }

A46 PEI *pāh 'donkey, mule' [ρ=8] (18.8, 1.8, 10.9)

Br √bāh (B28b, B2, B12b): bāhir 'herd of donkeys'

El √pah 'mule' (E28, E2, E12b).

A70 PEI *#arēh 'man' [ρ=16] (0, 1.5, 26.9, 2.8, 10.9)

Br √#arēh (#, B1, B31, B4c, B12b): arē (pl. arisk) 'male individual'

El √ruh 'man (human)' (#, E1a, E31b, E4b, E12b).

11.7 y : r ɸ *lx / C_V { B13a: *lx > y | E33: *lx > r }

The cluster PEI *lx has major simplifications in both languages becoming y in Brahui and r in Elamite.

A64 PEI *šālx 'pour' [ρ=54] (23.9, 1.8, 27.7, 11.7)

Br √šāy (B18, B2, B13a): šā(y)- 'to pour; put'

El √šar 'pour, let pour' (E18b, E2, E33).

11.8 y : h ɸ *x / V_V { B13b: *x > y | E12b: *x > h }

Intervocally PEI *x is voiced in Brahui.

A71 PEI *#ax 'a fodder grass' [ρ=32] (0, 1.9, 11.8)

Br √#ay (#, B1, B13b): ayut 'a fodder grass'

El √#ah 'pasture' (#, E1b, E13).

12.5 g : k ɸ *g / V_ { B15: *g > gg | E15: *g > k }

A67 PEI *šuggur 'reciter' [ρ=44] (24.9, 5.9, 12.5, 5.9, 25.9)

Br *šuggur (B19b, B7, B15, B7, B32b): šuggur 'bard, poet'

El √šukur 'singer' (E20, E7b, E15, E7b, E32).

12.9 k : k ɸ *k / V_ { B14: *k > k | E14: *k > k }

This is the same results as in initial position. Note that there are no examples of the other dorsals intervocally.

A61 PEI *cak 'small' [ρ=42] (22.9, 1.9, 12.9)

Br √cak (B21, B1, B14): cak in cak.kul 'small [spring]'

El √sak 'a small measure (= 1/24 QA)' (E22, E1b, E14).

15.5 r : d ɸ *t / V_# { B23a: *t > r | E24: *t > d }

When final, PEI *t becomes r in Brahui, presumably t > r > r.

A20 PEI *kut 'flock, herd' [ρ=72] (12.9, 5.9, 15.5)

Br √kur (B14, B7, B23a): kur 'flock of sheep or goats'

El √kud 'herd' (E14, E7b, E24).

15.7 d : t ɸ *d / V_ { B22: *d > d | E23: *d > t }

This example may show the tense variant of PEI *d in Elamite and Brahui.

A72 PEI *#ad 'a fodder grass' [ρ=96] (0, 1.9, 15.7)

Br √#ad (#, B1, B22): adđina 'a fodder grass'

El √#at 'fodder, animal food' (#, E1b, E23).

15.7 d : t ɸ *d / VC_ { B23b: *d > d | E24: *d > t }

This example shows the expected voicing after the nasal. The Elamite form is ambiguous.

A16 PEI *gēd 'storage place' [ρ=24] (12.5, 2.7, 17.5, 15.7)

Br √gēd (B15, B4c, B26a, B23b): gēd 'roofed enclosure for animals'

El √kand 'storage place, storehouse' (E15, E4a, E27b, E24).

15.8 t : t ɸ *tt / V_ { B23c: *tt > t | E25: *tt > t }

A clear example of tense PEI *tt, with the expected devoicing.

A57 PEI *mitt 'throw, send off' [ρ=24] (20.8, 3.9, 15.8)

Br √bit (B29a, B5, B23c): bit- 'to throw'

El √mit 'start out, depart, send' (E29, E5a, E25).

15.9 t : d ɸ *t / V_ { B23d: *t > t | E24: *t > d }

A05 PEI *hēt 'she goat' [ρ=8] (10.9, 2.8, 15.9)

Br √hēt (B12b, B4c, B23d): hēt 'she-goat'

El √hid 'sheep, ewe, female goat' (E12b, E4b, E24).

16.7 s : t ɸ *ti / V_# { B24: *ti > s | E26b: *ti > t }

A48 PEI *piti 'fig' [ρ=15] (18.9, 4.7, 16.7, 3.9)

Br √pūs (B28c, B5a, B24): pūs 'a sweet; fig'

El √pit 'figs' (E28, E5a, E26b).

16.9 t : t ɸ *t / V_ { B25: *t > t | E26b: *t > t }

The correspondence of t : t gives PEI *t in all environments. Voicing contrasts are not seen.

A66 PEI *šit 'night' [ρ=30] (24.9, 4.9, 16.9)

Br √#ist (B19b, B5b, B25): istō 'last night'

El √sut 'night' (E20, E5b, E26b).

A75 PEI *#ēt 'give' [ρ=130] (0, 2.8, 16.9)

Br √#ēt (#, B4c, B25): ēt+ 'to give'

El √#id 'issue' (#, E4b, E26a).

16.9 t : t ɸ *t / VC_ { B25: *t > t | E26b: *t > t }

A01 PEI *(h)ant 'intend' [ρ=90] (10.8, 1.9, 17.5, 16.9)

Br √hat (B12b, B1, B26a, B25): hatin- 'to intend'

El √#ant 'plan' (E12a, E1b, E27b, E26b).

A55 PEI *mošt 'cover' [ρ=8] (19.9, 6.7, 24.9, 16.9)

Br √must (B29b, B9a, B19b, B25): must 'shut, closed'

El √mašt 'covering' (E29, E9a, E20, E26b).

17.5 ∅ : n ɸ *n / V_C { B26a: *n > ∅ | E27b: *n > n }

Paralleling what happens historically in Elamite, Brahui often loses a nasal before a stop.

A01 PEI *(h)ant 'intend' [ρ=90] (10.8, 1.9, 17.5, 16.9)

Br √hat (B12b, B1, B26a, B25): hatin- 'to intend'

El √#ant 'plan' (E12a, E1b, E27b, E26b).

A16 PEI *gēnt 'storage place' [ρ=24] (12.5, 2.7, 17.5, 15.7)

Br √gēd (B15, B4c, B26a, B23b): gēd 'roofed enclosure for animals'

El √kand 'storage place, storehouse' (E15, E4a, E27b, E24).

A47 PEI *pān 'grazing area for game' [ρ=2] (18.9, 1.8, 17.5)

Br √pād (B28c, B2, B26a): pād 'grazing ground of game animals'

El √pan 'hunting preserve' (E28, E2, E27b).

A81 PEI *#onr 'one' [ρ=13] (99, 6.8, 17.5, 25.5)

Br √#as (#, B9b, B35): asi 'one'

El √#unr 'each, every' (#, E9b, E27b, E32).

17.8 n : m ɸ *n / V_p { B26b: *n > n | E27a: *n > m }

Both languages assimilate nasals to the following stop; *np > mp. In A21 Brahui has a stem variant kumba.

A21 PEI *kun 'eat' [ρ=26] (12.9, 5.9, 17.8)

Br √kun (B14, B7, B26b): kun- 'to eat, drink'

El √kum 'eat' (E14, E7b, E27a).

17.9 n : n ɸ *n / V_ { B26b: *n > n | E27b: *n > n }

Initially, n's attest PEI *n throughout.

A03 PEI *han 'love' [ρ=12] (10.9, 1.9, 17.9)

Br √han (B12b, B1, B26b): han- 'to copulate (of humans)'

El √han 'love' (E12b, E1b, E27b).

A27 PEI *kūn 'coiled' [ρ=9] (13.9, 5.9, 17.9)

Br √kun (B16, B7, B26b): kunnal 'curl; coiled; pestering'

El √sun 'a quality of garments: in folds, pleated' (E16, E7b, E27b).

A38 PEI *tin 'give' [ρ=26] (16.8, 4.9, 17.9)

Br √tin (B25, B5b, B26b): ti(n/r)- 'to give'

El √dun 'give' (E26a, E5b, E27b).

A41 PEI *+tīn 'place [in compounds]' [ρ=10] (16.9, 3.7, 17.9)

Br √tīn (B25, B6, B26b): +tīn 'place [in compounds]'

El √tin "direction" (E26b, E6b, E27b).

A43 PEI *nan 'day (of 24 hours)' [ρ=16] (17.9, 1.9, 17.9)

Br √nan (B26c, B1, B26c): nan 'night'
El √nan 'day (of 24 hours)' (E27b, E1b, E27b).

A51 PEI *māni 'collect' [ρ=70] (19.9, 1.8, 17.9, 3.9)

Br √māni (B29b, B2, B26c, B5b): mānīd 'number of, collection of'
El √mani 'together with' (E29, E2, E27b, E5a).

A63 PEI *cin 'small child' [ρ=37] (22.9, 4.7, 17.9)

Br √cun (B21, B5a, B26b): cunā 'child'
El √zin 'small child, infant' (E22, E5a, E27b).

18.6 pp : p ɸ *pp / V_ { B27: *pp > pp | E28: *pp > p }

The tense variant

A73 PEI *#app 'food' [ρ=168] (0, 1.9, 18.6)

Br √#ap (#, B1, B27): appā 'children's food'
El √hap 'foodstuff' (#, E1b, E28).

18.7 f : p ɸ *p / V_ { B28a: *p > f | E28: *p > p }

This is the lax variant.

A06 PEI *xap 'hear' [ρ=20] (11.9, 1.9, 18.7)

Br √xaf (B13c, B1, B28a): xaf 'ear'
El √hap 'hear, listen, obey' (E13, E1b, E28).

A13 PEI *xep 'vassal, subject' [ρ=50] (11.9, 2.5, 18.7)

Br √xaf (B13c, B3, B28a): xafī 'vassal, subject'
El √hip 'subjugate' (E13, E3b, E28).

18.8 b : p ɸ *p / e_ { B28b: *p > b | E28: *p > p }

An example of the sporadic shift in Brahui of lax p to b.

A19 PEI *kēp 'nearness, near' [ρ=77] (12.9, 2.7, 18.8)

Br √kēb (B14, B4c, B28b): kēb 'nearness; near'
El √kap 'enclosed, all together' (E14, E4a, E28).

19.8 b : m ɸ *m / _e { B29a: *m > b | E29: *m > m }

A28 PEI *kūm 'serious' [ρ=56] (13.9, 5.9, 19.8)

Br √kub (B16, B7, B29a): kubēn 'serious'
El √sum 'commitment (for offering)' (E16, E7b, E29).

19.9 m : m ɸ *m / V_# { B29b: *m > m | E29: *m > m }

Final m corresponds to m as PEI *m throughout

A45 PEI *num 'you (pl.)' [ρ=1] (17.9, 5.9, 19.9)

Br √num (B26c, B7, B29b): num 'you [pl]'
El √num 'you (pl)' (E27b, E7b, E29).

A29 PEI *kōlum 'grain' [ρ=10] (14.8, 6.9, 27.9, 5.9, 19.9)

Br *xōlum (B17a, B10, B33b, B7, B29b): xōlum 'wheat'
El *šulum 'stand of grain, grain harvest' (E17, E10, E34b, E7b, E29).

20.9 w : m ɸ *w / V_ { B30b: *w > v | E30: *w > m }

The change of Elamite w to m is attested from OE to ME. The exact phonological nature of ME/AE m is unclear. OP Dārayavauš (Darius) is AE Taramauš.

A62 PEI *caw 'head ornament' [ρ=84] (22.9, 1.9, 20.9)

Br √cav (B21, B1, B30b): cawnk 'head ornament'
El √zam 'cult object: crown, wreath' (E22, E1b, E30).

23.8 š : ø ʱ *š / _ (C) { B18: *š > š | E18a: *š > ø }**A26 PEI *kīš 'settle' [ρ=12] (13.9, 3.9, 23.8)**

Br √kiš (B16, B5, B18): kišk- 'to settle'

El √si# 'settle down, establish' (E16, E5a, E18a).

23.9 š : š ʱ *š / {i,e,a}_ { B18: *š > š | E18b: *š > š }**A35 PEI *kīš 'break off, remove' [ρ=8] (14.9, 3.9, 23.9)**

Br √kiš (B17b, B5b, B18): kišk- 'pluck, break off'

El √šiš 'draw off, subtract, deduct' (E17, E5a, E18b).

A52 PEI *maš 'hill, mountain' [ρ=24] (19.9, 1.9, 23.9)

Br √maš (B29b, B1, B18): maš 'hill, mountain'

El √maš 'height, altitude' (E29, E1b, E18b).

A65 PEI *šēš 'tree, wood' [ρ=6] (23.9, 2.6, 23.9)

Br √šiš (B18, B4a, B18): šišār 'a tree'

El √šeš 'woodworkers' (E18b, E4c, E18b).

See §11: B10 for additional examples.

24.8 s : s ʱ *s / V_ { B19a: *s > s | E19: *s > s }

The correspondence of noninitial s : s is provisionally reconstructed as PEI *s. It may be another sibilant.

A07 PEI *xas 'shake, fling' [ρ=8] (11.9, 1.9, 24.8)

Br √xas (B13c, B1, B19a): xass- 'to shake; hustle; fling; hit'

El √has 'anointer' (E13, E1b, E19).

A30 PEI *kasa 'way, path, road' [ρ=4] (14.9, 1.9, 24.8, 1.9)

Br √kasa (B17b, B1, B19a, B1): kasar 'way, path, road'

El √šasa 'travel away, carry away' (E17, E1b, E19, E1b).

24.9 s : š ʱ *ś / V_ { B19b: *ś > s | E20: *ś > ś }

The regular lax correspondence of PEI *ś is s : ś. The change of PEI *ś to Elamite š is normal, although the exact nature of Elamite ś is uncertain; see §8.2.

A55 PEI *mošt 'cover' [ρ=8] (19.9, 6.7, 24.9, 16.9)

Br √must (B29b, B9a, B19b, B25): must 'shut, closed'

El √mašt 'covering' (E29, E9a, E20, E26b).

A58 PEI *miš 'bake' [ρ=24] (20.8, 4.9, 24.9)

Br √bis (B29a, B5b, B19b): bis- 'to bake, cook'

El √muš 'glazed terracotta' (E29, E5b, E20).

A74 PEI *#āś 'cattle' [ρ=5] (0, 1.8, 24.9)

Br √#ās (#, B2, B19b): xar.ās 'bull, bullock'

El √#aś 'cattle, livestock' (#, E2, E20).

25.5 s : r ʱ *r / VC_ { B35: *nr > s | E32: *r > r }**A81 PEI *#onr 'one' [ρ=13] (0, 6.8, 17.5, 25.5)**

The simplification of Pre-Brahui *nr to s is known from Dravidian cognates; see Emeneau 1970:72-73.

Br √#as (#, B9b, B35): asi 'one'

El √#unr 'each, every' (#, E9b, E27b, E32).

25.8 t : r ʱ *r / V_ { B32a: *r > t | E32: *r > r }**A22 PEI *kuř 'torch' [ρ=24] (12.9, 5.9, 25.8)**

Br √kuř (B14, B7, B32a): kuřink 'burning faggot'

El √kur 'oil torch' (E14, E7b, E32).

A49 PEI *piř 'curse' [ρ=60] (18.9, 4.9, 25.8)

Br √piř (B28c, B5b, B32a): piř 'curse'

El √pur 'curse, damn, bewitch' (E28, E5b, E32).

25.9 r : r ʔ *r / V_ { B32b: *r > r | E32: *r > r }

A18 PEI *gir 'single person' [ρ=14] (12.5, 3.9, 25.9)

Br √gir (B15, B5b, B32b): gir 'all; whole; only'

El √kir 'one person' (E15, E5a, E32c).

A60 PEI *ġar 'descend' [ρ=54] (21.9, 1.9, 25.9)

Br √dar (B20b, B1, B32b): dar- 'to descend'

El √sar 'under, below, down' (E21, E1b, E32).

A67 PEI *sugguŕ 'reciter' [ρ=44] (24.9, 5.9, 12.5, 5.9, 25.9)

Br *sugguŕ (B19b, B7, B15, B7, B32b): sugguŕ 'bard, poet'

El √sukur 'singer' (E20, E7b, E15, E7b, E32).

A68 PEI *#ar 'restrict' [ρ=8] (0, 1.5, 25.9)

Br √#ar (#, B1, B32b): ar 'entanglement; obstacle; difficulty'

El √rap 'tie, bind, close, lock' (#, E1a, E32).

A69 PEI *#afi 'berserk' [ρ=6] (0, 1.5, 25.9, 3.7)

Br √#afi (#, B1, B32b, B5b): aŕi 'rabid, mad'

El √rip 'annihilater, destroyer, demolisher' (#, E1a, E32, E5a).

26.5 r : h ʔ *r / V_ { B31: *r > r | E31a: *r > h }

A31 PEI *kar 'cut, carve' [ρ=8] (14.9, 1.9, 26.5)

Br √kar (B17b, B1, B31): kary- 'shear, mow down'

El √šah 'carved, sewn' (E17, E1b, E31a).

26.9 r : r ʔ *r / VCV_ { B31: *r > r | E31b: *r > r }

A34 PEI *kālĥēr 'a shade tree' [ρ=27] (14.9, 1.9, 27.8, 10.9, 2.7, 26.9)

Br √kahēr (B17b, B1, B33a, B12b, B4c, B31): kahērō 'a shade tree'

El √šalhar 'plane trees' (E17, E1b, E34b, E12b, E4a, E31b).

26.9 r : r ʔ *r / V_ { B31: *r > r | E31b: *r > r }

A32 PEI *kar 'shore, bank' [ρ=27] (14.9, 1.9, 26.9)

Br √kar (B17b, B1, B31): karrak 'bank'

El √sar 'shore, bank' (E17, E1b, E31b).

A33 PEI *kēra 'lower side' [ρ=36] (14.9, 2.7, 26.9, 1.9)

Br *kēra (B17b, B4c, B31, B1): kēray 'lower side, bottom; low; under'

El *šara 'under, below, down' (E17, E4a, E31b, E1b).

A37 PEI *kūr 'remove completely' [ρ=20] (14.9, 5.8, 26.9)

Br √kūr (B17b, B8, B31): kūr- 'to make a clean sweep of'

El √šur 'replace' (E17, E8, E31b).

A40 PEI *tar 'closed, shut' [ρ=16] (16.9, 1.9, 26.9)

Br √tar (B25, B1, B31): tar 'closed, shut'

El √tar 'be complete, be at an end' (E26b, E1b, E31b).

A42 PEI *tir 'know' [ρ=48] (16.9, 4.9, 26.9)

Br √tir (B25, B5b, B31): ti(n/r)- neg. stem 'to understand, know; perceive'

El √tur 'know, make known' (E26b, E5b, E31b).

A50 PEI *pir 'run dry' [ρ=90] (18.9, 3.9, 26.9)

Br √pir (B28c, B5b, B31): pirāi- 'to run dry, dry up'

El √pir 'pass, elapse, flow away' (E28, E5a, E31b).

A56 PEI *wur 'place' [ρ=39] (20.5, 5.9, 26.9)

Br √#ur (B30a, B7, B31): urā 'house'

El √mur 'residents, inhabitants' (E30, E7b, E31b).

A70 PEI *#arēh 'man' [ρ=16] (0, 1.5, 26.9, 2.8, 10.9)

Br √#arēh (#, B1, B31, B4c, B12b): arē 'male individual'

El √ruh 'man (human)' (#, E1a, E31b, E4b, E12b).

- A79 PEI *#ur 'wife' [ρ=21] (0, 5.9, 26.9)**
 Br √#ur (#, B7, B31): urā 'wife'
 El √rut 'wife, consort' (#, E7b, E31b).
- 27.5 l : n ɸ *l / V_C { B33b: *l > l | E34a: *l > n }**
 See §11: B09 for example.
- 27.7 ø : r ɸ *l / V_γ { B33a: *l > ø | E33: *lγ > r }**
A64 PEI *šāly 'pour' [ρ=54] (23.9, 1.8, 27.7, 11.7)
 Br √šāy (B18, B2, B33a, B13a): šā(y)- 'to pour; put'
 El √šar 'pour, let pour' (E18b, E2, E33).
- 27.8 ø : l ɸ *l / V_h { B33a: *l > ø | E34b: *l > l }**
A34 PEI *kālḥēr 'a shade tree' [ρ=27] (14.9, 1.9, 27.8, 10.9, 2.7, 26.9)
 Br *kahēr (B17b, B1, B33a, B12b, B4c, B31): kahērō 'a shade tree'
 El *šalhar 'plane trees' (E17, E1b, E34b, E12b, E4a, E31b).
- A80 PEI *#ul 'exist' [ρ=16] (0, 5.9, 27.8)**
 Br √#uC (#, B7, B33a): u- 'be'
 El √#ul 'deliver' (#, E7b, E34b).
- 27.9 l : l ɸ *l / V_ { B33b: *l > l | E34b: *l > l }**
A02 PEI *hēl 'think, deliberate' [ρ=50] (10.8, 2.9, 27.9)
 Br √hēl (B12b, B4c, B33b): hēl 'knowledge, wisdom'
 El √#el 'think, ponder, plan' (E12a, E4c, E34b).
- A08 PEI *xal 'kill, slaughter' [ρ=215] (11.9, 1.9, 27.9)**
 Br √xal (B13c, B1, B33b): xall- 'to strike, kill'
 El √hal 'death, slaughter, massacre' (E13, E1b, E34b).
- A09 PEI *xal 'strike, beat' [ρ=220] (11.9, 1.9, 27.9)**
 Br √xal (B13c, B1, B33b): xall- 'to strike, kill'
 El √hal 'hit, strike, beat, hammer, forge' (E13, E1b, E34b).
- A10 PEI *xal 'land, field' [ρ=215] (11.9, 1.9, 27.9)**
 Br √xal (B13c, B1, B33b): xal- 'to traverse'
 El √hal 'be driven (to pasture)' (E13, E1b, E34b).
- A14 PEI *xel 'gather, uproot' [ρ=8] (11.9, 2.5, 27.9)**
 Br √xal (B13c, B3, B33b): xall- 'to gather, uproot'
 El √hil 'plunder, booty' (E13, E3b, E34b).
- A15 PEI *xol 'set in ground' [ρ=30] (11.9, 06.8, 27.9)**
 Br √xal (B13c, B9b, B33b): xall- 'to pitch [a tent]; plant [a tree]'
 El √hul 'erect, establish' (E13, E9b, E34b).
- A23 PEI *kul 'message' [ρ=14] (12.9, 5.9, 27.9)**
 Br √kul (B14, B7, B33b): kulau 'message'
 El √kul 'call, summon' (E14, E7b, E34b).
- A24 PEI *kūl 'water, spring' [ρ=8] (13.8, 5.9, 27.9)**
 Br √kul (B16, B7, B33b): kul in cak.kul '[small] spring'
 El √zul 'water' (E16, E7b, E34b).
- A29 PEI *kōlum 'grain' [ρ=10] (14.8, 6.9, 27.9, 5.9, 19.9)**
 Br *xōlum (B17a, B10, B33b, B7, B29b): xōlum 'wheat'
 El *šulum 'stand of grain, grain harvest' (E17, E10, E34b, E7b, E29).
- A36 PEI *kil 'broadcast' [ρ=27] (14.9, 3.9, 27.9)**
 Br √kil (B17b, B5, B33b): kil 'broadcast'
 El √šil 'ground for growing' (E17, E5a, E34b).
- A54 PEI *mil 'inner content' [ρ=4] (19.9, 3.9, 27.9)**
 Br √mil (B29b, B5b, B33b): milī 'marrow; brains; kernel'
 El √mil 'inner being' (E29, E5a, E34b).

- A59 PEI *ġol 'spade' [p=15] (21.8, 06.8, 27.9)**
 Br √đal (B20a, B9b, B33b): đal 'spade'
 El √šul 'kind of tool: shovel' (E21, E9b, E34b).
- 28.8 ł : ł ∞ š ł *ł / V_ ?? 0 {E35a: *ł > š }**
- A12 PEI *xul 'fear' [p=62] (11.9, 5.9, 28.5)**
 Br √xul (B13c, B7, B34b): xul- 'to fear'
 El √huš 'fear, be afraid' (E13, E7b, E35a).
- 28.9 ł : ł ł *ł / #CV_# { B34a: *ł > ł | E35b: *ł > ł }**
- A04 PEI *hel 'take' [p=154] (10.9, 2.5, 28.9)**
 Br √hał (B12b, B3, B34a): hał- 'to take'
 El √hil 'take from, accept' (E12b, E3b, E35b).
- A11 PEI *xał 'steal' [p=86] (11.9, 1.9, 28.9)**
 Br √xał (B13c, B1, B34a): xał- 'to steal [cattle]'
 El √hal 'make disappear' (E13, E1b, E35b).
- A53 PEI *mał 'son' [p=6] (19.9, 1.9, 28.9)**
 Br √mał (B29b, B1, B34a): mał 'son'
 El √mal 'child, baby' (E29, E1b, E35b).
- 30.1 s : nr ł *nr / V_ { B35 : *nr > s }**
- A81 PEI *#onr 'one' [p=13] (0, 6.8, 17.5, 25.5)**
 Br √#as (#, B9b, B35): asi 'one'
 El √#unr 'each, every' (#, E9b, E27b, E32).

Table 5 Proto-Elamitic Phonemes From This Corpus

Consonants	Labial	Dento-alveolar	Post-alveolar	Alveo-palatal	Palatal	Velar	Glottal
Stops	p pp	t	ʈ ʈʈ		ć	k ɡ	(ʔ)
Affricates			č	c	č		
Fricatives		s	š	ś		x	h
Lateral Fricatives		ʃ					
Nasals	m	n					
Laterals		l					
Trills/Taps/Flaps		r	ɽ				
Semivowels	w			(y)			

Vowels	Front	Central	Back
Close	i ī		u ū
Mid	e ē		o ō
Open		a ā	

8 Proto-Elamitic Phonology

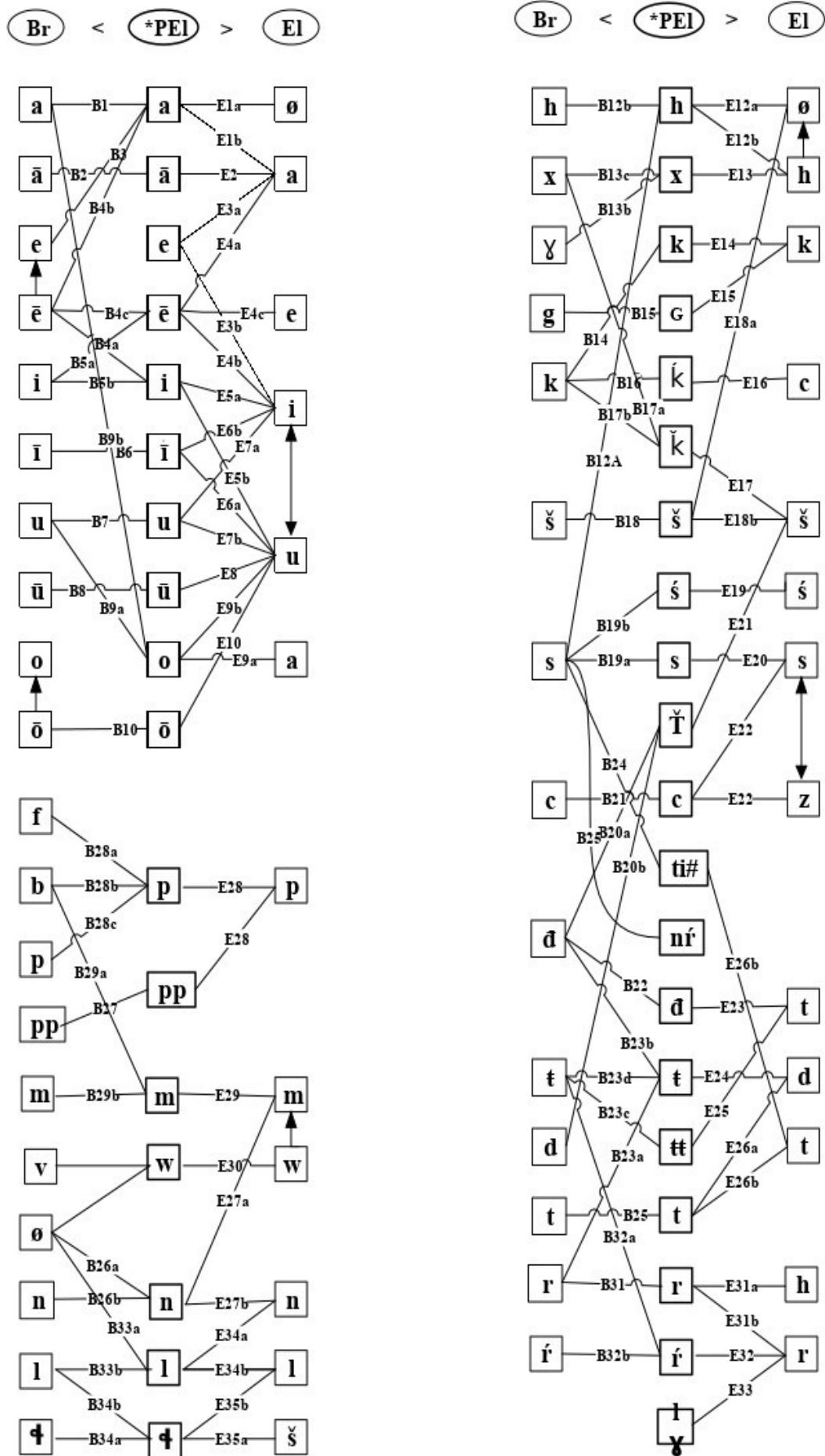
8.1 The individual phonemes modeled from the attested pairings must be assembled into a working phonology. This technical requirement is essential to the comparative method. While derived from the comparative method and much more recent, the field of cladistics is also much more formal. It has shown that the shared-traits methodology is extremely sensitive to initial assumptions. Minor shifts in what is considered related can lead to wildly different tree results. Initial assumptions must be carefully and independently generated for reliable outcomes. The comparative method has avoided most of these complications by requiring that the results conform to human phonology. This puts a “sea anchor” on the process to help ensure useful conclusions.

8.2 The phonology of PEI modeled here has both expected and unexpected aspects. Following PDr, it has lax versus tense contrasts (short/long vowels, single/geminate consonants) with a simple vowel structure and complex consonants contrasting by position. In contrast with PDr, it has an intricate system of fricatives, especially sibilants. Using Polish as a working model, it has too many sibilants to contrast solely by position. Other factors, such as slit versus groove contrasts, are almost certainly involved. It is very important that Tavernier (2010) and this work arrived at solutions for Elamitic sibilants independently. Tavernier’s work is based on patterns in CV phonograms in Elamite and is phonemic. The present work is based on correspondences between Elamite and Brahui and is morphophonemic. For both, it was obvious that the number of resulting units could not be accommodated with the available cuneiform inventory for Elamite ⟨s, š, z/š⟩. Tavernier had six sibilants; this work has four. Combining three of his as allophones of /c/, left three as independent (morpho)phonemes, and they match. The major job was reconciling the symbolism. I basically followed Tavernier while making stylistic adjustments.

Table 6 Elamite Sibilants

Morphophoneme	c			s	š	ś	ł
Phoneme	č	ć	ç	s	š	ś	ł
Tavernier 2010	č	c	s'	s	š	ś	
Transcription	š/t/z	s/z	s/z	s/š	s/š	s/š	l/š

Figure 1 Phonological Rules Diagram



8.3 The rules in Table 4 have been reorganized into a diagram (Figure 1) for easier comparison and better overview. The reconstructed vowel system contains no surprises: five vowels /a,e,i,u,o/ all with long and short versions. Stress is normally on the first vowel after the first consonant, but it may have been moveable. In Elamite, PEI /*e/ regularly shifts to /a/ or /i/ (with no discernable pattern) while /*ē/ remains /e/. PEI /*o/ shifts to /a/ or /u/, while /*ō/ becomes /u/. Elamite /i/ and /u/ are and remain a mess. Both normally become /u/ in ME and /i/ in AE. However, there are significant exceptions. Resolution of the matter will take more examples or better insight. Initial vowels could metathesize with alveolars, only /*ar/ becoming /ra/ is in this corpus, but important examples such as PDr *en ‘to say’ corresponding to /na/ ‘say’ are found in McAlpin (2015: 556-57).

8.4 PEI consonants are based on Brahui, our one intact phonology. PEI /*h/ and /*x/ fell together as /h/ in Elamite. It may or may not be relevant that OE borrowed Akkadian ⟨h⟩ [x] for /h/. The major changes for PEI are the dropping of retroflexes, found in South Asian loans and not in this corpus, and the adding of palatals.¹¹ Elamitic dorsals are moderately complex and have issues with the symbols used. PZ had three contrasting dorsals (McAlpin 2003: 543), /*ḳ/, *k, *q/, front/mid/back or palatal/velar/uvular. PEI largely shifted *q > *x, leaving a two-way, front/back contrast in the stops, which could be called velar/uvular or palatal/velar. Since Elamite already has massive confusion on /k/ versus /q/, I decided to use /k/ for the PEI stop, and label it *velar*.¹² While solving one problem, this creates another. PEI has two front dorsal obstruents, symbolized with /ḳ/ and /k̟/. The phoneme /ḳ/ is a palatal (front dorsal) stop, and /k̟/ has been handled as a palatal affricate. This is arbitrary, but it is simpler than any of the alternatives. Semivowels, /y/ and /w/, are nonsyllabic vowels, and /y/ is not attested in this corpus. The phoneme /w/ falls together with /m/ in ME, and the resultant /m/ transcribes both [m] and [v] from Old Persian in AE.

Table 7 Tavernier’s Phonology

Consonants	Labial	Dental	Alveolar	Retro-flex	Alveo-palatal	Velar	Glottal
Stops/Affricates	p	t	ts		č	k	
Lenis Obstruent	b (p')	d (t')	z (s')			g (k')	
Fricatives/Spirants	f/v		s		š		h
Nasals	m	n					
Lenis Nasals	m'	n'					
Laterals			l	ll			
Trills			r	rr			

¹¹ PZ and PEI had a dental/(post)alveolar contrast in stops, which was maintained in both. The author is proposing that the development of strong retroflexion, a full dental/alveolar/retroflex contrast, is an innovation in PDr. This, along with the use of the allative as the dative and restructured personal pronouns are the defining innovations of PDr.

¹² Elamite /ka/ was written with cuneiform sign QA, qa, which is also ka₄. Elamite studies is divided between those who use qa (such as the EW) and those who use ka₄. People in the field learn to shift from one notation to the other, but adding a new k/q contrast would add needless confusion.

Vowels	Front	Central	Back
Close	i		u
Mid	e		o
Open		a	

8.5 It is now time to address Tavernier’s phonology (2018:424-25), slightly reformatted in Table 7. There are inherent differences in the two works. He was working with an isolate using dead reckoning from cuneiform. I had the luxury of having two complete phonologies for comparison, Brahui with great detail and PDr for overall structure. Also, the phonology of PPD is very well known and understood, being very similar to Literary Tamil. Tavernier’s work was at the phonemic level and includes the entire lexicon, while my work is morphophonemic and is restricted to the cognate corpus. It is not complete. The major difference is in how we handle the tense/lax contrasts in Elamite. He uses a tense/lax notation (with apostrophe following for lax) while I use a gemination contrast for consonants and long/short for vowels following usual Dravidian conventions; two ways of saying the same thing. His C corresponds to my CC, which can be confusing. He uses /f,v/ while I use /w/. Even today, the choice of /v/ or /w/ in Brahui is stylistic; they are interchangeable allophones. We seem to differ in the details of the sibilants (particularly ⟨z⟩), but the lack of detail in his article makes this uncertain. We do differ in two small areas. While agreeing that /r/ contrasts with /rr/ and /l/ with /ll/, I believe that it is much too early to label the doubles as retroflex. Also, while there are good reasons for adding an extra vowel in Elamite, Tavernier’s /o/ does not correspond to PEI *o or *ō. There are no cognates. Nevertheless, the two approaches basically agree.

8.6 This work reconstructs a phonology for the initial CVC of Proto-Elamitic, and in a few instances, for entire morphemes. Critically, for a substantial portion of the useable corpus, with conservative semantic matching, the correspondences are interlocking in all cases. For every etymon, ¹C, ¹V, and ²C each follow the phonological rules. This is the critical factor of any proof of cognation. Chance has been addressed with calculations that it is probable that 3 items are due to chance, but it is certain to 99% assurance that no more than 8 items can be due to chance out of 92. A demonstration at this level cannot be dismissed; it must be disproved point by point.

9 Proto-Dravidian

9.1 The relationship of Proto-Elamitic to Proto-Dravidian now becomes a simple exercise in logic. Since the proposition “is-cognate-with” is both logically transitive and logically symmetrical,¹³ the following must be true. Brahui is cognate with Dravidian. In spite of the many difficulties, this has never been seriously contested. Brahui is also cognate with Elamite as demonstrated by this paper. It follows that Elamite must be cognate with Dravidian. Q.E.D.

¹³ If $A \rightarrow B$ and $B \rightarrow C$, then if logically transitive, $A \rightarrow C$. The classic example is “is-ancestor-of.” If $A \rightarrow B$ and $B \rightarrow A$, then the proposition is logically symmetrical. The classic example is “is-sibling-of.”

Part Two the Immediate Implications

10 Background

10.1 The formal demonstration of cognation is the critical first hurdle of the process of proving that languages are related. However, it is not the end. A part of the process is to show that it has significant implications. Specifically, that as the rules for semantic similarity are relaxed, the cognate pairs continue to expand, and that the phonologically based comparative method has its counterpart in morphology. In short, the formalities imply useful results. Normally, this is done with a comparative grammar of some sort. While that is clearly beyond the scope of this article, a brief sketch of both is in order. A major result of Part One is that it becomes legitimate to include Dravidian parallels in a paper focusing on Elamite and Brahui.

10.2 An immediate consequence of the cognation is that over 250 terms in Brahui that are cognate with Dravidian are available for PEI, if not Elamite directly. This is beyond the scope of this article, but they are readily available through the Brahui appendix in the DEDR (Burrow and Emeneau 1984: 756-58). If a word is cognate between Dravidian and Brahui, it must be considered for PEI. There is one known Dravidian loan in Brahui; see ka[[ar 'saline soil' (DEDR 1359) through Indo-Aryan (Burrow 1967: 41).

11 Secondary List of Cognate Pairs

11.1 The following is literally the B list of PEI cognates. For technical reasons usually involving a semantic stretch, weak attestations, or exclusions for special circumstances such as the nursery phenomenon, these items were not quite suitable for the primary proof. However, once the matter of cognation is settled, they can be readily added. They follow all the phonological rules. Again, section numbering is suspended for the list.

B01 PEI **ha.tin* 'bring' [$\rho=30$] (10.9, 1.9)

Br $\sqrt{\text{hatin}}$ (B12b, B1): *ha.tin-* 'to bring'

El $\sqrt{\text{ha.dun}}$ 'take, receive' (E12b, E1b):

AE *hadukka* it has been harvested: *ha-du-ik-ka₄* es ist geerntet worden;

AE *hadušta* he took, received: *ha-du-iš-da* er hat vereinnahmt < er hat geerntet;

AE *haduka* it has been received, stocked up: *ha-du-ka₄* es ist vereinnahmt, bevorratet worden.

The problems with the semantics are due to the translations. Both Brahui and Elamite refer to the whole process of taking something, bringing it, and transferring it. In idiomatic English, you bring in a harvest.

B02 PEI **xar* 'press' [$\rho=58$] (11.9, 1.9, 26.9)

Br $\sqrt{\text{xar}}$ (B13c, B1, B31): *xarr-* 'to sprout'

El $\sqrt{\text{har}}$ 'press, press out, impress' (E13, E1b, E31b):

AE-NE *harak* it was pressed, pressed out, impressed > loaded, strained: *ha-rák* es wurde gepreßt, aufgedrückt, geprägt > belastet.

B03 PEI **kah* 'kill' [$\rho=14$] (13.8, 1.9, 10.9)

Br $\sqrt{\text{kah}}$ (B16, B1, B12b): *kah-* 'to die'

Br $\sqrt{\text{kah}}$ (B16, B1, B12a): *kasf-* 'to kill, cure [of hides]'

El $\sqrt{\text{zah}}$ 'death' (E16, E1b, E12b):

ME *zahri* weigher: *za-h-ri* Wäger (?).

ME *zahri* is an epithet of the god of death. It has been read as 'weigher' and 'Death (incarnate)'. This cognate strongly supports the latter.

B04 PEI *pēr 'say, speak' [ρ=63] (18.9, 2.7, 26.9)

Br √pār (B28c, B4b, B31): pā(n/r)- 'to say, speak'

El √per 'read' (E28, E4c, E31b):

AE bepraka it has been read: be-ip-ra-ka₄ es ist gelesen worden.

B05 PEI *man 'become, be; [no ρ] (19.9, 1.9, 17.9)

Br √man (B29b, B1, B26b): ma(n/r)- 'to become, be'

El *ma (E29, E1b) "auxiliary verb"

B06 PEI *cikk 'heap, pile up' [ρ=102] (22.9, 3.9, 12.9)

Br √cik (B21, B5b, B14): cik 'right side up'

El √sik 'heap up' (E22, E5a, E14):

AE zikkida I placed, put: zik-ki-da ich stellte, setzte;

AE zikka I heaped up; I erected: zik-ka₄ ich schüttete auf, ich errichtete;

OE zukka heaping up: zu-uk-ka Aufschüttung (?);

ME zukkatah I set right, put up: zu-uk-ka₄-táh ich richtete, stellte auf;

NE sikkah I erected, established: si-ik-ka-h ich errichtete.

The semantics require some explanation. The Brahui term refers to the rounded-side-up / flat-side-down position in the game of cowries. Hence, it is equivalent to 'heaped up'.

B07 PEI *šali 'pole' [ρ=27] (24.9, 1.9, 27.9, 3.9)

Br √sali (B19b, B1, B33b, B5b): sal(ī) 'stand, stop, wait'

El √šali 'pole, stake' (E20, E1b, E34b, E5a):

ME-OE šali pole, stake: ša-li Pfahl;

NE šaliha I impaled: šá-li-ha ich habe auf einen Pfahl gesteckt (?);

NE šalimi club, cudgel: šá-li-mi Keule (?).

This complex etymology has its own article; see Emeneau 1997. The concept of a 'tent pole' (upright and motionless) links the Brahui term; see §16, verb D9 for additional details.

B08 PEI *šū# 'meat' [ρ=41] (24.9, 4.7, 0)

Br √šū# (B19b, B8, #): sū 'flesh, meat'

El √#iš 'flesh, meat' (E20, E7a, #):

NE išti flesh, meat: i-iš-ti Fleisch (?).

B09 PEI *al 'not to be' [ρ=13] (0, 1.9, 27.5)

Br √#all (#, B1, B33b): all+ 'not to be'

El √#an 'not at all' (#, E1b, E34a):

NE-OE ani not at all: a-ni ja nicht!

In PPD clusters, laterals become nasals before coronals; OTa al+tu > aṅ+tu > aṅru 'it is not'.

B10 PEI *meš 'up' [ρ=15] (19.8, 2.1, 23.9)

Br √baš (B29a, B3, B18): baš 'get up!'

El √maš 'height, altitude' (E29, E3a, E18b):

AE maškarni his height, altitude: maš-kar-ni seine Höhe.

B11 PEI *#amma 'mother' [ρ=30] (0, 1.9, 19.9, 1.9)

Br √#am (#, B1, B29b, B1): ammā 'mother'

El √#am 'mother' (#, E1b, E29, E1b):

ME amma mother: am-ma Mutter.

This is an example of the nursery phenomenon that must be excluded from the primary proof.

12 Comparative Morphology

12.1 All the Zagrosian languages share a common grammatical structure. They are mostly agglutinative, Subject-Object-Verb [SOV], with preceding modifiers, postpositions, and auxiliary verbs following. In this, they are members of a large group of Old-World languages; note Nostratic, etc.¹⁴ This by itself proves nothing, but it does allow a compact discussion of where they follow the group, and where they differ. Their agglutinative morphology does present problems. Most grammatical morphs in Zagrosian languages are monosyllabic and even monophonemic. Homonyms run rampant, and chance is palpable. The content of agglutinative structures innovates readily. It is often difficult to demonstrate a clear case for cognation in this with such material. The best that can be hoped for is pointing out similar forms and structures for most cases, with an occasional breakthrough that supports the case for cognation.

12.2 One structure shared by all Zagrosian languages is not in the list of shared elements of agglutinative languages and needs elaboration. Terminologies are wildly divergent, but this paper will follow Elamitic usage, which is clearer and better developed. Basically, these languages have a double pronoun system, where besides the usual personal pronouns, there is a morphology which adds person-number-(gender) marking endings to any morpheme (except finite verbs, which have their own personal endings), but particularly to nouns and participles. These are called locutives (appellatives in Dravidian). The three persons are called—in order—elocutive, allocutive, and delocutive.¹⁵ They are best shown in Middle Elamite [ME] where they play a major syntactic role and are part of a larger set of noun-class markers. For example, the ME royal title formulas, PN [personal name] king of GN [geographic name] (and GN₂), son of PN₂, come in two versions by person: the elocutive, u PN šak PN₂.k sunki.k GN GN₂.k(a) ‘I am PN son of PN₂, king of GN and GN₂’ and the delocutive, PN sunki.r GN (ak GN₂).r šak PN₂.r (ak PN₃.r) ‘PN king of GN (and GN₂) son of PN₂ (and PN₃)’; after Stolper 2004: 74. The delocutives tend to share forms with personal derivative nouns; ‘he is one who goes’ ≈ ‘goer’.

12.3 The Zagrosian languages share a specific morphological configuration. Morphemes are divided into words and clitics, while words are divided into nouns and verbs along with a vanishingly small group of function words (interjections, etc.). Clitics are always postposed. Conjunctions are usually clitics. Specifically, these languages do not share word classes for attributes. Instead, they maintain their sharp noun/verb contrast and have forms for nouns modifying nouns, verbs modifying verbs, nouns modifying verbs, and verbs modifying nouns. Most of the derivative languages have independently innovated a class of adjectives, but the details can be quite different. Dravidian languages tend to follow the group norm with attributes preceding (with special cases) and auxiliary verbs following. A general case, as seen in Tamil, is that there are two forms of noun modifiers, the normal attributive, which is invariant, always precedes the noun and the much rarer appositive, which is a locutive agreeing with the noun in person, number, and gender, follows the noun. For example, Modern Literary Tamil *oru laṅṭan hōṭṭal.il* ‘in₄ a₁ (any) London₂ hotel₃’ compared to *laṅṭan hōṭṭal onr.il* ‘in₄ a₃ (certain) London₁ hotel₂, where the adjective *oru* ‘one’ is replaced by a delocutive singular numerical noun *onru* ‘one thing’. Predicate adjectives must be appositives, usually with added syntax.

¹⁴ The author does not believe that the Nostratic hypothesis is established. Nevertheless, it does describe a set of shared features (due to ancient regional borrowing?) that can be used as a convenient reference.

¹⁵ This usage is a slight variant on common Elamitic usage, where locutive is used both for the general term and the first-person. In this, I follow a suggestion from Erica Reiner (personal communication during class) that elocutive for the first-person is more consistent and clearer. The mnemonic for locutive (versus locative) is elocution.

12.4 While some basic noun modifiers, such as some pronouns, may precede the noun in Elamite, the normal rule is that they follow and agree with the noun in class. In other words, they take the Dravidian appositive position and structure. This position following the noun is clearly due to areal influence; both Sumerian and Akkadian have adjectives following. Significantly in Elamite, adverbs precede verbs and auxiliaries follow the main verb, the expected order.

12.5 Brahui has locutives, and they play no role in adjective formation. Adjectives are a well-defined distinct word class in Brahui. The primary form is used in predicate formations, while forms attached to nouns are clearly derived. Whether this form precedes or follows is a matter of style, allowing speakers to easily shift between a Persian mode (following) or an Urdu mode (preceding) as well as accommodating the many languages of this linguistically complex region.

12.6 Here we can see that Dravidian provides a description of the mechanism that allowed Elamite to shift adjective position. Brahui has innovated a completely different mechanism, presumably borrowed (but from where?). Where Elamite and Brahui do not agree, Dravidian can be a tie breaker in understanding Proto-Elamitic. This unfortunately is a limited role. The comparative method works best when the daughter languages are physically separated, such as Indo-European or Austronesian. It is challenged when the daughter languages remain in close contact. Except for Kurux-Malto, which is physically removed, the rest of the Dravidian languages (the author's Peninsular-Dravidian) form a compact and nearly continuous mass in the Indian peninsula. As a result, it becomes difficult to separate genetic Proto-Dravidian from areal Common Dravidian. Just because two languages share an element does not mean that it is inherited in both (or either). Labeling something as proto depends very much on the initial assumptions, and the logic very rapidly becomes circular. With Kurux-Malto as a guide, some discrete systems can be reconstructed for PDr such as the phonology, personal pronouns, numerals, and most of the noun. However, the reconstruction of the verb is a mess.¹⁶ The tacit assumption that Old Tamil is a reliable guide to PDr, because it is oldest, has resulted in what tends to chaos where every morpheme has every function. Old Tamil is a wonderful language of great power and subtle expression, but it is not a straightforward guide to anything. As a result, Dravidian examples tend to ad hoc parallels from various languages, except for the few subsystems that can be reliably reconstructed for PDr.

12.7 This ability to provide explanation can work the other way. PDr has two basic morphemes for the accusative ending (Zvelebil 1977: 27-31), a common one in -n and one in -ay/-e restricted to Tamil-Malayalam and Brahui, with no clear explanation for the difference. Elamite has two structures for the accusative. The primary one is morphological (-n) and only present on pronouns. The other is syntactic and involves a delocutive accusative pronoun, /in ∞ ir/, following the accusative noun and just before the verb. The latter is the origin of the Brahui objective in -e and Tamil-Malayalam's accusative in -ay/-e.

12.8 Another example where Dravidian may provide insight into Elamitic involves causative verb formation. PDr has two causative formations. The more common formation uses stem extensions in -tt and closely related alternations of NC and (N)CC to deal with focus, shifting from the subject-focused *affective*

¹⁶ Two quick examples of this: Kamil Zvelebil (1978) *A Sketch of Comparative Dravidian Morphology, Part 1 (Nouns and Adjectives)* has no Part 2 (Verbs). Bh. Krishnamurti (2003: 312-33) *Dravidian Languages (Finite Verbs)* gives summaries of important languages, but no PDr reconstruction. No matter where you start, you cannot make sense of the past verb. The only partial reconstruction of the Nonpast quoted in Zvelebil (1991: 36) is based on Elamite morphology; see *Conjugation III* below.

(≈ intransitive) to object-focused *effective* (≈ transitive).¹⁷ The second causative in -ipp- is a pure causative, adding an agent to the verb, which may become transitive or remain intransitive. It may be repeated for a double causative -ippipp. Significantly, Brahui has the exact parallel to the latter causative with the causatives -if and -ifif; see §16 verb E8. I would suggest that Elamite has a causative in -p which may metathesize with ²C; see §7: A12, A68.

13 Elamite Grammatical Morphemes

13.1 Since the morphology of Elamite is incredibly restricted, it becomes the limiting factor in any brief discussion. The following are the basic established grammatical morphemes in Elamite.¹⁸ It is not exhaustive or complete, and interpretations may vary. Homonyms are frequent.

13.2 Elamite nouns have contrasts between animate/inanimate and singular/plural (animates only). Animates can have locutive endings, but family terms are usually indeclinable.

Table 8 Elamite Noun Class Markers

Person	Animate		Inanimate	
	Singular	Plural	(Singular)	
1. (elocutive)	-k			
2. (allocutive)	-t			
3. (delocutive)	-r	-p		
indeclinable	-∅	-∅	-∅	
			-me	(abstracts)
			-n	(places)
			-t	

13.3 Most case relationships are indicated with postpositions and word order. In ME noun class concord markers (clitics on modifier) mark the genitive and the accusative is marked by -n only in pronouns. Simple genitives/adjectives can be indicated by -a, -n/-m, and -t. In AE, this becomes -na (< n+a) the normal genitive ending, which is also used for adjective formation.

13.4 Middle Elamite uses noun class concord to indicate genitival relationships with the following modifier using the agreeing clitic. The locutives also form the personal endings for Conj. II and Conj. III verbs based on participles. Noun class markers often parallel formative endings, but the relationship is not mechanical. Brahui has no straightforward cognates to the noun class markers.

¹⁷ This is a major development in Dravidian linguistics. Transitive verbs may omit the object, but by definition, intransitive verbs cannot have an object. Tamil has pairs of sentences where both affective and effective variants have an accusative. This means that the grammatical distinction cannot be transitivity.

¹⁸ The primary source used here is Tavernier (2018). Please refer to it for all Elamite background and references. It is reasonably complete and concise in its Elamite forms making it perfect for comparison. It has a version in French (Tavernier 2011). Stolper (2003) and Khachian (1998) are authoritative as are Grillot (1987) and Krebernik (2005). There is no standard grammar.

13.5 Elamite personal nouns consistently form the plural with a –p added to the stem. Inanimate plurals are uninflected. Personal pronouns are more complex and will be handled below. Brahui has an inflected plural for nouns: the nominative singular takes nothing, the oblique singular takes –n, while the nominative plural takes –k[∞] –āk[∞] –yāk, and the oblique plural takes –t[∞] –te (Bray §23 & 34).¹⁹ On first inspection, there seems to be no parallel in the plurals between Elamite and Brahui. However, in this case, Proto-Dravidian provides insight. PDr reliably reconstructs four plurals, one of which in –m is restricted to the personal pronouns. The noun plurals are a rational (humans + gods – infants) in –r, an irrational in –w (< *p), and a general plural in –k (∞ –ka|[∞] –l) (Zvelebil 1977: 12-14). The endings may be doubled, Ta. –rka|. The ending in –k does not seem as archaic as the other three and may or may not be cognate with Brahui –k. Brahui does not have any noun plurals in –r but does have many personal verbs ending in the plural that can end in –r, that might be some indication of its existence. The normal reflex of the PDr delocutive singular (masculine) in –*n̥t in Elamite is –r; note the delocutive ME titles formula above. Any noun plural in –r in Elamite would have collided with this and been lost. Elamite generalized the plural in –p. PEI *p regularly becomes f in Brahui when not initial. The plural in f survives in the Brahui delocutive deictic pronouns where the plural endings (with no internal motivation) become –fk in the nominative and –ft in the oblique; see pronoun discussion below.

13.6 Middle Elamite uses noun class concord for most genitival relationships. However, for short simple relationships, other forms can be used. The word for ‘gold’ lansiti has “genitives”/adjectives for ‘golden, (made) of gold’: lansitiya, lansitinni, and lansitimma; the word for ‘baked clay’ muši has two such forms: mušiya and mušitta ‘(made) out of baked clay’. This gives us endings in –a, –n /–m, and –t. In AE, noun class concord is lost and replaced by a regular genitive in –na (< n+a), which is also used to form adjectives; bali ‘man’, balina ‘male’. The Brahui noun forms the nominative plural in –k (∞ –āk[∞] –yāk). The genitive forms the singular in /-nā/ and the plural in /-tā/, giving us base forms in /-n, -a, -t/. Dravidian reconstructs genitives in /-in, -t, -a/; see Zvelebil (1972: 274-75; 1977: 31-33).

13.7 Elamite has a postposition for the allative (‘toward’) in –ikku. Brahui has a benefactive (‘for the sake of’) case in –ki[∞] –aki (Bray §39-40). Proto-Dravidian has a case with these meanings in *-kku. More significantly, it is also the dative. Elamite uses the base form (= nominative) and syntax for the dative. Brahui uses a combined objective case, using accusative morphology, for the dative. In short, PDr innovated a form for the dative using the old allative. All Dravidian languages maintain this form, sometimes with considerable changes. Brahui lacks a critical Dravidian innovation.

¹⁹ This is a primary case, but not the only one, where Brahui drops an agglutinative structure for an inflected one. The ending –t marks both the plural and the oblique with a single phoneme. All Brahui citations are from Bray 1909, specifically the 1986 reprint. Due to numerous citations, they will be abbreviated to Bray followed by a section number. Today, Bray represents a “classical” style (usage at the court of the Khan of Kalat), universally approved, and ideal for historical comparisons. Brahui is alive and well, and thus still developing; see Bashir 2010.

Table 9 Proto-Zagrosian Personal Pronouns

	Middle Elamite	Brahui	PEI	PDr	PZ
	Nom/Acc	Nom/Gen/Acc/Obl	Nom/Obl	Nom/Obl	Nom/Obl
1s	u/un	ī/kanā/kane/kan	ī/un	ē [∞] yān/en	ē/en
2s	ni >nu/nun	nī/nā/nē/nā	nī/nun	nī/(n)un	nī/nun
3s	i-r/i-r	--/+ta/+ta/ī+...+ta	ī/in	-----	ī/in
3n	i(-n)/i(-n)				
d3s	i>hi	ō(d)/ōna/ōde/ōf (<Per)		iv- (<*ih) ?	hih ?
1pe				ēm [∞] yām/em	ēm/em
1p(i)	nika>niku/nukun	nan/nanā/nane/nan	nan(ka)/nankun	nām/nam	nām/nam
2p	num(i)/numun	num/numā/nume/num	num/numun	nūm [∞] nīr/(n)um	nūm/num
3p	ap(pi)/appin	--/+tā /+tā/ī+...+tā	ap/apun	avai<*apay	ap/apin
d3p		ofk/ōftā/ōfte/ōfte (<Per)			

13.8 Elamite personal pronouns have some unique morphology. Only they have a marked accusative form, mostly in -n; see Table 9, column 1. However, the 3s personal can also use the delocutive form *ir* for this. The 3 neuter, which is both singular and plural, can vary between /i[∞] in/ for both cases. The demonstrative pronoun *hi* ‘this’ is often used like a pronoun. The 2p form has a plural in *m*, the same as Brahui and Dravidian. The 1p is suppletive with a possible plural in *k*. The 3p form has the regular plural in *p*.

13.9 The Brahui pronouns in column 2 from Bray §§109-127 are also idiosyncratic and suppletive in the plural. They form the genitive in -ā, no-t- in the plural. The third person forms are the most divergent. The 3s personal pronoun is defective in the nominative, being replaced by the demonstratives (d3s), which has 3 deictics all borrowed from Persian (only intermediate o(d) is shown). The genitive and objective use the same clitic, the genitive on a noun and the objective on a verb. Other cases are formed with the base *ī*, followed by the case or postposition and then the clitic. This base in *ī* has no explanation in all of Dravidian but is easily relatable to Elamite. The 3p, which is suppletive, is the same as the singular except that the clitic is *tā*. Note that the plural deictics (d3p) have the inserted *f* before the other plural markers (Bray §127). This *f* is inherited from the PEI plural **p*. Only delocutives have this feature; regular nouns do not have it. The next column has the tentative reconstruction for Proto-Elamitic. (**iw* near, **aw* far, **uw* remote/out of sight), another innovation in PDr. An old deictic *ih* may be a transition to the new set. The last column is a very tentative reconstruction of Proto-Zagrosian personal pronouns.

13.10 Column 4 has the standard reconstruction for PDr pronouns. The general pattern is to generalize the oblique replacing the nominative (except for *nī*). The monosyllabic nominative is then lengthened, while the oblique is not.²⁰ The third-person pronouns are completely lost, being replaced by delocutives based on new (and regular) deictics

²⁰ This is an example of the so-called Zvelebil’s rule (Zvelebil1970: 185-87), where monosyllables were lengthened in very specific circumstances.

14 Elamite Verb

Table 10 Elamite Finite Verb Morphology, Verb “Conjugations”

	Conj. I "Verbal"			Conj. II "Passive"			Conj. III "Active"		
	ME	AE	AE2	ME	AE	AE2	ME	AE	AE2
1s	-h	-∅	-ma	*-k-k	-k-it		-n-k	-n-k	-manka
2s	-t	*-t		*-k-t	-k-t		-n-t	-n-t	
3s	-š	-š	-maš	-k	-k	-mak	-n-r	-n-r	-manra
1p	-hu	-ut					-n-un-k	-n-un	
2p	-ht	*-t							
3p	-hš	-š	-maš	-k-p	-p	-map	-n-p	-n-p	-manpa

14.1 The Elamite verb is sparse and not very transparent. There is only one true verbal paradigm of three persons, singular and plural: 1s -h, 2s -t, 3s -(a)š; with -h- added for the plurals, 1p (*h+h >) -hu, 2p -ht, 3p -hš. These are the forms for ME. With the loss of /h/ in AE, the inherited functioning forms are reduced to 3sp -aš. Two other “Conjugations”²¹ are built on participles with locutive endings, a “passive” in -k and an “active” in -n. In AE, all these forms have an “auxiliary”/extension in -ma- (indicated by AE2 in Table 10) before the personal endings, giving a total of six Conjugations (I, Im, II, IIm, III, IIIIm). Conjugation I mostly matches Dravidian specifics (concrete actions with known time and place) and commonly translate as pasts. Most are transitives or causatives. Conjugation II is mostly past intransitive. Conjugation III is neutral on transitivity and translates Old Persian [OP] futures, while IIIIm translates OP presents. Besides this, there is an imperative (ME -t, AE -aš), a precativ/optative clitic in -ni, and an infinitive/verbal noun in -n. The only major additions are two particles (clitics?) added to the verbs at the end of phrases to indicate taxis.²² The disjunctive in -t indicates that while linked, the first verb phrase precedes and is completed before the second (past taxis). The conjunctive in -a indicates that the two verb phrases overlap and may be parts of a larger combined action. It may also be used finally (indicating an incomplete transaction?).

14.2 The basic Elamite verb formatives have parallels in Brahui. The verbal 3s ending in -aš is cognate with Brahui pasts in /-is/ (and fused s-pasts), the oldest layer of Brahui pasts. Examples of Brahui verb morphology will be presented with the irregular verbs. More so, the Brahui present verbal participle in /-isa/ (Bray §210), used for all verbs, is a direct continuation of Elamite’s 3s verbal with the conjunctive particle; El. -aš+a > Br -isa, with similar meanings. Brahui has a set of thematic vowels in the verb, where /i/, /a/, (and when long /ē/) vary with loss, in complex, but consistent, patterns. The first vowel in -isa is a thematic vowel. It is possible that the ē-past and ā-past in Brahui, the most common, are derived from /-is/ with the loss of the sibilant in some environments but preserved here by the following /a/. The Elamite

²¹ This is a total misuse of the word conjugation. However, it is established in descriptions of Elamite.

²² Taxis is often confused with tense. Properly, tense refers to the difference in time between the narrated event and the speech event. Taxis refers to the difference in time between two related narrated events. In Dravidian, taxis is more important than tense. Elamite clearly indicates taxis; for example, in the Bisotun (Behistun) inscription of Darius I [DB], the royal citation formula (short form, repeated ad nauseum), a-ak ^vda-ri-ia-mu-ū-iš ^vSUNKI na-an-ri “and Darius, (the) king, says” uses nanri (Conj. III) not naš (Conj. I). This is taxis rather than tense; the saying is simultaneous with the quote, not the writing.

“passive” in -k is cognate with the passive formative in /-ink/ in Brahui (Bray §271), with the expected sound changes. There is no obvious parallel with Brahui k-pasts (Bray §217). Brahui has three imperative forms: singular in -Ø, “strengthened” in -(a)k, and plural in -bo; note plural with a labial (Bray §§189-201). Bray gives no fundamental difference in use between the simple and strengthened imperatives (Bray §192). If we assume a protoform of PEI /*k/ for the strengthened imperative, we can get a source for the AE imperative in /-š/ consistent with Brahui /k/, potentially solving the problem of the shift in Elamite imperative from ME to AE. The Elamite active participle in -n may be cognate with the Brahui perfect formative in -un- (Bray §223), but this is not clear.

14.3 Even at this preliminary sketchy level, the connection between Brahui and Elamite is generating hypotheses and possible insights: Elamite’s following adjectives, Brahui accusatives and /f/ insertions in the locutive plurals, along with PDr innovations in pronouns and datives. The reconstruction of the personal pronouns is particularly noteworthy. While tentative, the parallels in the verbs between Elamite and Brahui are much closer than anything with Dravidian. Except for the pronouns which are significant, these parallels are substantial, but hardly overwhelming. This is the level that would be expected for a new genetic relationship of agglutinative languages.

Now we turn to the last source of archaic morphologies, the irregular verbs of Brahui, with their massive stem suppletions and rather complex stem morphologies.

15 Brahui Verb

15.1 The morphology of the Brahui verb is remarkably symmetrical in a binary mode, as opposed to Elamite and Dravidian, which tend to be asymmetrical favoring 3-way splits. This regularity implies innovation in Brahui. Brahui unfolds into a positive and negative verb, each of which then unfolds into distinct past and nonpast structures. For Brahui regular verbs (thematic ā-pasts), there are no stem variants, but for irregular verbs, stem variants and suppletion are common. Brahui has a complete and distinct morphology for the negative verb. However, except for a few points in Dravidian that share ā, there is nothing to compare this morphology with, since Elamite uses a negative particle, ani/anu ‘not’, or the negative stem /in/ used with locutives. Brahui has a negative stem for nonpasts, mostly with labials (-pa or -fa), and one for pasts, mostly with dentals (-ta). Only the negative stems are included in the tables below. The positive past stem splits into four distinct conjugations based on past morphology: -(i)s, -k, -ē, -ā. Except for verbs ending in -f, which mostly take ē-pasts, the conjugations are not phonologically predictable. All positive past forms are built on these stems, adding morphology that is transparently based on the auxiliary verb. The nonpast stem is commonly the same as the verb stem. However, irregulars can have distinct variants. Some irregular verbs also have a separate present base for the two present tenses. The imperative and infinitive (verbal noun), usually on the nonpast stem, may also have variants in the irregulars. The infinitive in -ing is the standard citation form for Brahui verbs.

15.2 Brahui commonly has thematic vowels after the various verb stems. They vary between i, a, and when stressed, ē, but are always the same in a specific environment. They are sometimes mandatory, occasionally prohibited (athematic), but are usually optional with style and speed, creating a plethora of variants.

16 Brahui Irregular Verbs and Regular Patterns

16.1 The following tables have all the stem variants of all the irregular verbs in Brahui, including known loans, as well as the regular patterns. There has been no selection and no statistical sampling; this is the complete list. All are cited in detail in Bray 1909 §§ 248-265. Marginal forms are enclosed with parentheses. Where needed, verbs have been split into separate rhizemes, always when suppletive, and sometimes based on meaning. A Brahui internal reconstruction [IR] has been provided based on known changes in Brahui. Dravidian parallels and cognates have been included for comparison. Verbs that are cognate with Elamite are cross referenced in this paper to §7 (if Axx) or §11 (if Bxx), while verbs that have Dravidian cognates are given their entry numbers in Burrow and Emeneau 1984 [DEDR]. Loans are referenced in Rossi 1979. Verbs with similar morphology have been grouped together for discussion.

Brahui Irregular Verbs--Table AB

Theme & Augment			Nonpast				Past	Negative Stems		IR/
ID	Gloss		Infinitive	Imp.	Stem	Pres.	Stem	Nonpast	Past	Source
A1	be		(anning)			arē*	ass	affa		*a(n/r)
A2	id.					u*				*u
A3	id.								alla	*all
A4	get up!	+a		baš(a)						*meš
B1	become, be		manning	ma(r)	mar	marē	mass	mafa(r)	mata	*ma(n/r)
B2	come		banning	ba(r)	bar	barē	bass	bafa(r)	bata	*ba(n/r)
B3	give		tining		tir		tiss	tifa(r)	tita	*ti(n/r)
B4	id.			ēte		ēti				*ēte
B5a	bring		hatining		hatir	hatir		hatipa(r)	hatita	*ha+ ti(n/r)
B5b	id.		hataring	hata(r)	hatar	hatarē				
B5c	id.		hating		hat	hatē	hēs		hatta	
B6	intend				=B5					
B7	know		ča'ing	čā	čā/tiā	čā	čā'is	tippa(r)	titta	*ti(n/r)
B8a	sit, wait		tūling	tūl	tūl	tūl	tūs	tūlpa(r)	tūlta	*tūl
B8b	id.		tūsing		tūs	tūs	tūsis, tūsā	tūsipa(r)		
B9	do		kanning	ka(r)	kar	kē	karē	kappa	katta	< IA, Bal.
B10	take away		danning	da(r)	dar	dē	darē	dappa	datta	*ne(n/r)
B11	hold, keep		tōning	tōr	tōr	tōr	tōrē	tōpa(r)	tōta	*tō(n/r)
B12	look (at/for)		hunning, huring	hur	hur	hur	hurā	huppa	hutta	*hu(n/r)
B13	say, speak		pāning	pā(r)	pār	pār	pārā	pāpa	pāta	*pā(n/r)

16.2 Group A consists of the wildly defective and suppletive verb for 'to be' and related forms. The verb 'to be' is highly irregular, not only in its stems, but also in its tense formations; see Bray 1909 §§248-255. It is also defective in many tenses with the missing forms being supplied by the verb B1 manning. The primary verb stems are based on A1 anning 'to be'. These are the emphatic present stem in arē- (which uses past morphology), the past stem in ass-, and the nonpast negative stem in affa-. These are typical for the

verbs in (n/r) discussed in Group B. There is no straightforward parallel in Elamite. The PDr cognate is the rare *er ‘to be, become’ (DEDR 823), not the common *āku ‘to be (equal to), become’ (DEDR 333). Stem A2 is based on u-, often lost in conjugation. It is found only in the present base, where it provides the present tense for ‘be’: ut ‘I am’, us ‘you (sg) are’, e ‘he/she/it is’, un ‘we are’, ure ‘you (pl) are’, and ur ‘they are’; see §7: A80. These also function as fundamental verb endings used in numerous tenses. The cognate form is PDr *ul ‘to be, exist’ (DEDR 697). The complete paradigm can be tied to Dravidian forms. For Elamite, the interesting form is the first person singular [1s] in –ut. From Dravidian parallels, we know that this was originally a first-person exclusive plural in -*at; see McAlpin 1974: 107. In Brahui, it replaced the 1s form (-*h) as it eroded away. Brahui does not have a consistent inclusive/exclusive contrast. In Elamite, DB (Col I, line 8, §4) gives a clear example ^vnu-ku ^vSUNKI-ip-ú-ut (nuku sunkip.ut) ‘we₁ are/have been₃ kings₂’ where ut clearly means ‘(we) are/have been’. The structure is a standard Elamite locutive, but ut is totally inexplicable from earlier Elamite. A plausible explanation is that it is a loan from pre-Brahui into AE; note the original plural meaning. AE also had problems with the eroding 1s in h. In AE, ut was also recruited to strengthen the 1s ending for Conjugation II verbs (-kit). Variant A3 in all- forms the past negative. Only anning has separate past and nonpast negative roots. It is clearly cognate with PDr *al ‘not to be (equal to)’ (DEDR 234). The common negative base in Elamite (in), which uses locutive endings, has no cognates in Brahui or Dravidian. The common PPD *cil ‘not to be, exist’ (PSDr *il) (DEDR 2559) is not attested in Elamite or Brahui. Elamite has ani/anu ‘not’ which is complexly related; note Old Tamil anru ‘it is not’; see B09. Possible variant A4 is the isolated imperative for ‘get up!’ bas/basa where the form basa may preserve the imperative form of A1 anning. However, it also may be just the thematic vowel, or we may be seeing the origin of the thematic vowel; see Bray §248.

16.3 Group B has the verbs in (n/r), which form a true (if inconsistent) paradigm.²³ The paradigm assigns stem variants to various verb stems; some in –n, some in –r, and some with neither (∅). The important point for cognation is that the starting point can be any of the three variants. Once in the paradigm, the other two are automatically supplied. All pasts (except -k) are involved, but the most common (and oldest?) is -(i)s. In general, the infinitive takes the stem in -n, while the imperatives, the present base, and the past take the stem in -r or -∅ with complex patterning. The negatives always take the stem in ∅.

16.3.1 The verb B1 manning ‘to be, become’ plays an important role in Brahui. Besides supplying the missing forms for A1 anning ‘to be’, it also creates compound verbs from nouns where it pairs with B8 kanning ‘to do, make’; see Bray §292. The form with kanning forms the transitive, while manning forms the intransitive; ba ‘mouth, opening’, ba kanning ‘to open’, ba manning ‘to be opened’. This formation is very productive and puts pressure on the pair to be contrastive for all forms. Manning, which is athematic, has imperatives in ma or mar, and the present base is marē. The basic stems are mar for the nonpast, mass with a fused s-past for the past, and mafa(r)/mata for the negatives. The internal reconstruction [IR] of the stem is *ma(n/r); see B05. The obvious parallel in Elamite is the “auxiliary” verb or verb extension in -ma. This is a primary part of Elamite verb morphology for AE. The PDr cognate is *mann- ‘to be, become’ (DEDR 4778). Of particular note is the verb’s role in Central Dravidian where it functions as the primary auxiliary verb. This is well documented in Steever 1988: 88-95.

16.3.2 The verb B2 banning ‘to come’ is morphologically paired with manning and is identical in every way except for the first consonant. The internal reconstruction is *wa(n/r). The change initial *w > b is normal for Brahui; this is known from Dravidian parallels. It is not clearly attested in the PEI corpus and is properly beyond the scope of this paper. Since this verb would have fallen together with B1 in Elamite (w > m), any

²³ This distinctive group has been discussed passingly by Bray “verbs in –n” (1909 §186) and at length by Emeneau “Brahui n/r Verbs” (1962d: 21-45).

possible cognates are not readily recognizable as such. The PDr cognate is the important verb **wa/war* ‘to come’ (DEDR 5270). Note the stem variation in Dravidian.

16.3.3 The verb for ‘to give’ is based on two stems. The first B3 tining provides the citation form and the four primary stems: the nonpast *tir*, the past *tiss*, and the negatives *tifa(r)/tita*. Note the parallels with A1, B1, and B2. The internal reconstruction is **ti(n/r)*. The Elamite cognate is *tunu* ‘to give’; see A38. The PDr cognate is the important verb **ta/tar* ‘to give’ (DEDR 3098). The second stem B4 provides the imperative *ēte* and the present base *ēti*. The IR is **ēte*. The Elamite cognate is *ete* ‘to issue’; see A75. The PDr cognate is **ēk* ‘to bestow’ (DEDR 872). These forms demonstrate a general pattern with the cognates. Even in complex cases like this with double verb stems and both with full cognates, the Brahui forms are much closer to the Elamite than the Dravidian; *tin* to *tun* vs *tar*, etc.

16.3.4 The next verb B5 *hatining/hating* ‘to bring; intend’ is complex in Brahui and split into two rhizemes on the basis of meaning, B5a for ‘bring’ and B5b for ‘intend’. While clearly based on B3 with the addition of a prefix *ha+*; i.e., *ha+tin*, the compound undergoes substantial collapse, particularly in the base stems: nonpast *hat*, past *hes*, and negatives *hatipa(r)/hatita*. Also, there is no suppletion: imperative *hata(r)*, present base *hatē*. The origin of the morpheme *ha+* in Brahui is not clear. The Elamite parallel for B5a ‘to bring’ is *hadunu-* ‘to take’; see B01. Here we have the exactly parallel construction: Br *tin* ‘to give’, *ha+tin* ‘to bring’; El. *dunu* ‘to give’, *ha+dunu* ‘to receive’. While there are suggested etymologies for El *ha+*, none is completely satisfactory. A larger point is that Elamitic languages admit prefixes, stem modifications (infixes), and even borrowed prepositions, while Dravidian languages do not. There is no cognate in Dravidian, which uses another structure for this usage. Elamite has a separate parallel for B5b ‘to intend’. The Elamite cognate is **(h)antu* ‘to plan’; see A01. The Brahui cognate fell together with **ha+tin*. There is no Dravidian cognate for this meaning.

16.3.5 Verb B7 *čā’ing* ‘to know’ has undergone a phonological change in most forms and dialects with initial *ti* > *č*. However, all negative forms and some dialects maintain the original phonology, and there is only one rhizeme. The standard dialect has *čā* for the imperative and present with *čā’is* for the past, but with negative stems *tippa(r)/titta*. The IR is **ti(n/r)*. The Elamite cognate is *tur* ‘know, make known’, and PEI is **tir*; see A42. The PDr cognate is **teri* ‘know, understand’ (DEDR 3419). Verb B8 *tūling* ‘to sit, dwell, wait’ also shows phonological variants with the stem alternating between *tūl* and *tūs* for most forms. While tentative, this has been given an internal reconstruction of **tūl*. There is no Elamite cognate, and the PDr cognate is **tuyil* ‘sleep, doze’ (DEDR 3291).

16.3.6 Verb B9 *kanning* ‘to do’ is a major verb and a loan showing the three stem variants of this group (*kan*, *kar*, *ka*). The only form needing comment is the present base *kē*. We can now clarify, if not simplify, its etymology. There has long been a question whether the immediate source is Iranian/Baluchi (*kan*) or Indo-Aryan/Sindhi (*kar*) with a possible Dravidian connection for the present base from PPD **cey* ‘do, make’ (DEDR 1957); see Emeneau 1962d (Chap. 3) and Rossi 1979: G5. The current analysis allows for both of the Indo-Iranian sources, with no firm way to decide with current data (although Rossi’s Balochi seems more likely). There is no need for the stretch to Dravidian; *kē* is internal to Brahui. Verb B10 *danning* ‘to take away, cut off’ is perfectly parallel including the present base *dē*. There is no Elamite cognate, and the PDr form is **nēr* ‘cut off’ (DEDR 3773). Brahui initial **n* > *d* before front vowels is regular, but not attested in the corpus of this paper.

16.3.7 The next three verbs are “regular” verbs in (n/r) showing the expected variants. Verb B11 *tōning* ‘to keep, hold’, IR **tō(n/r)*, is cognate with Elamite *tu* ‘get, obtain’ (PEI **tō*, see A39) and PDr **toṭu* ‘touch, connect’ (DEDR 3480). Verb B12 *huring* ‘to look (at/for)’, IR **hu(n/r)*, is cognate with PDr **uṇṇ* ‘think, consider’ (DEDR 727). Verb B13 *pāning* ‘to say, speak’, IR **pā(n/r)*, is cognate with Elamite *per-* ‘read’ (see B04) [PEI **pēr*] and PDr **paṇi* ‘speak, say’ (DEDR 3887).

Brahui Irregular Verbs—Table C

Theme & Augment		Nonpast				Past	Negative Stems		IR/
ID	Gloss	Infinitive	Imp.	Stem	Pres.	Stem	Nonpast	Past	Source
C1	eat, drink	kuning	kun	kun	kunē	kung	kumpa(r)	kunta	*kun
C2	hear	binig	bin	bin	bin	bing	bimpa(r)	binta	*win
C3	give birth (of animals)	hīning	hīn	hīn	hīn	hīng, hīnā	hīmpa(r)	hīnta	*hīn
C4a	die	kahing	kah	kah	kahē	(kahk)			*kah
C4b	id.					kask	kaspa(r)	kasta	
C5	take, seize	halling	hał	hal	halē	halk	halpa(r)	halta	*hał
C6	strike	xalling	xal	xal	xalē	xalk	xalpa(r)	xalta	*xal
C7	kill	xalling	xal	xal	xalē	xalk	xalpa(r)	xalta	*xal
C8	steal (cattle)	xalling	xal	xal	xalē	xalk	xalpa(r)	xalta	*xal
C9	gather	xalling	xal	xal	xalē	xalk	xalpa(r)	xalta	*xal
C10	traverse	xalling	xal	xal	xalē	xalk	xalpa(r)	xalta	*xal
C11	set in place	xalling	xal	xal	xalē	xalk	xalpa(r)	xalta	*xal

16.4.1 Group C is the distinct athematic conjugation with k-pasts. The verb C1 *kuning* ‘to eat, drink, bite’ is typical of the group. The nonpast stem is *kun-*, with regular infinitive *kuning* and imperative *kun*. There is a separate present base *kunē*. The past stem is *kung*, while the negative stems are nonpast *kumpa(r)* and past *kunta*; note the assimilation. The IR is a straightforward **kun*. The Elamite cognate is *kum* in *kumpa* ‘to eat’ with PEI **kūn* ‘to eat’; see A21. There is a possibility that a basic Dravidian term for eating a meal PDr **uŋ* (DEDR 600) is cognate, but the phonology is, at this point, unique and beyond the scope of this article.

16.4.2 The verbs C2 *binig* ‘to hear’ and C3 *hīning* ‘to give birth [of animals]’ differ only in the lack of separate present base and C3 having an alternative regular past (*hīnā*). Neither has a cognate in Elamite. The internal reconstruction of *binig* is **win*, and the Dravidian cognate is PDr **wen* ‘to ask, hear’ (DEDR 5516). The IR of *hīning* is **hīn*, and the Dravidian cognate is PPD **īṅ* ‘to bear, yield’ (DEDR 555).

16.4.3 The verb C4 *kahing* ‘to die, die down’ is highly irregular in Brahui (and Dravidian), showing two stem variants. The nonpast stem is *kah-* with regular infinitive *kahing* and imperative *kah*. There is a separate present base *kahē*. However, the past and negative stems have a stem variant *kas-*: past *kask*, nonpast negative *kaspa(r)*, and past negative *kasta*. The past stem also has a rare variant on the h-stem (*kahk*). The s-stem variant seems to be the result of a change in Brahui; see also verb E7 below. The IR is **kah*. The Elamite cognate is the weakly attested *sah-* ‘death’; see B03. The PEI form is **káh* ‘to die’. The Dravidian cognate is PDr **káh*, PPD **ca/ā(h)* ‘to die’ (DEDR 2426), a core Dravidian term.

16.4.4 The verb C5 *halling* ‘to take, seize’ is typical of the verbs ending in *l*. The nonpast stem is *hal-*, with the infinitive *halling*, the imperative *hał*, and the present base *halē* as minor variances. The past stem is *halk*, nonpast negative stem is *halpa(r)*, and the past negative is *halta*. The internal reconstruction is **hał*. There is a possibility that this form is the source of the *ha+* seen in B5. The semantics, but not the form, would follow the Dravidian morphology for ‘to bring’. The Elamite cognate is *hill-* ‘take from, accept’, PEI **hel*; see A05. The PPD cognate is reported as **a|* ‘to mix up, mingle’ (DEDR 296).

16.4.5 The next six verbs (C6-C11) form an extreme case of polysemy/homophony in Brahui. All have the same shape with the nonpast stem (*xal*), infinitive (*xalling*), imperative (*xal*), present base (*xalē*)--past stem (*xalk*), nonpast negative (*xalpa(r)*), and past negative (*xalta*). The only morphological variance is the verb

for ‘to strike’ (C6) which has xal for the imperative, similar to C5. Verb C6 has an internal reconstruction of *xal, the rest have xal for the imperative and IR.²⁴ This is clearly a case where similar, but separate, verbs have fallen together. Verb C6 means ‘to strike’ with the Elamite cognate of halp- ‘to strike; defeat’, the PDr cognate of *qol ‘to strike, hit, wound’ (DEDR 2152), and the reconstruction of PEI *xal ‘to strike’; see A10. Verb C7 means ‘to kill’ with an Elamite cognate of halp- ‘to kill, slay, slaughter’, a Dravidian cognate of PDr *qol ‘to kill, murder’ (DEDR 2132), and a reconstruction of PEI *xal ‘to kill’; see A09. It would be tempting to combine C6 and C7 into one rhizeme, but they have distinct cognates in Dravidian with different laterals. Verb C8 means ‘to rustle, steal [cattle]’. The Elamite cognate is halma- ‘to make disappear’, the PDr cognate is *qal ‘to rob, steal’ (DEDR 1372), and the PEI is *xal ‘to steal’; see A12. Verb C9 means ‘to gather [vegetables], uproot’. The Dravidian cognate is PDr *qal ‘to weed, pull up, remove’ (DEDR 1373); the Elamite is hilla ‘to plunder, rob’; and the reconstruction is PEI *xel; see A14. Verb C10 means ‘to traverse [a road]’ with an Elamite cognate of hal- in halsa ‘to drive (to pasture), exile’ and a reconstruction of PEI *xal; see A11. The Elamite form is a compound of hal ‘land/country’ and sa ‘go’; note verb F4 below. Elamite hal is a basic term with its own PDr cognate *qal ‘open flat space’ (DEDR 1376); see McAlpin 2015: §7.2.1.1. Verb C11 means ‘to set (in place), fix’. The Elamite cognate is hulpa- ‘erect, establish’ with PEI *xol; see A15. There is no DEDR.

16.5 The demonstration of cognation could stop here. The chance for any one of these forms appearing cognate is high since there are so many possibilities. With a ρ (rho) of 216 there are 216 possible combinations of form and meaning in the limited corpus (the maximum), and there is a probability of chance of $216/11,005 = .01963$ for any one example, where 11,005 is the total number of paired possibilities in the corpus. Since these are independent (with the possible exception of ‘strike’ and ‘kill’) and combined probability is multiplicative, the probability that all seven of them pattern as cognate by chance is $(.01963)^7 = 1.12316 \times 10^{-12}$ (1 chance out of 890,344,136,230) or even with the more conservative version, leaving out ‘traverse’ and counting ‘strike/kill’ as one, $(.01963)^5 = 2.91475 \times 10^{-9}$ (1 chance out of 343,082,449). That these resemblances are due to chance can be eliminated. Since all these variants of the Brahui verb xalling are included with Elamite cognates, borrowing is also highly unlikely, since borrowing takes place one item at a time; intact complex sets are highly unusual. This leaves cognation as the simplest explanation.

Brahui Irregular Verbs--Table D

Theme & Augment			Nonpast				Past	Negative Stems		IR/
ID	Gloss		Infinitive	Imp.	Stem		Stem	Nonpast	Past	Source
D1	be cooked		bising	bis	bis		bisis	bispa(r)	bista	*wis
D2	run dry		pirāi'ing	pirāi	pirāi		pirāi'is	pirāipa(r)	pirāita	*pirāi
D3	become dry	a	bāring	bāra	bār		bāris	bāripa(r)	bārita	*wār
D4	be hot	a	bāsing	bāsa	bās		bāsis	bāsipā(r)	bāsita	*wās
D5	swell	a	piring	pira	pir		piris	piripa(r)	pirita	*pir
D6	sprout	a	xarring	xarra	xarr		xarris,	xarripa(r)	xarrita	*xarr

²⁴ This is a rare oversight by Bray. He considered xalling to be polysemous and only lists ‘to strike’ in his discussion (§217), omitting the other meanings. He gives the imperative as xal (*khalth*), which is true for ‘strike’, but is silent on the other meanings. This was corrected in Elfenbein 1997b: 802 and 1998: 393.

						xarrā			
D7	request	a	xwāhing	xwāh	xwāh	xwāhis, xwāhā	xwāhipa(r)	xwāhita	< Per.
D8a	rot		sařing	sař	sař	sařis,	sařpa(r)	sařta	< IA
D8b	id.	a		sařa		sařā	sařipa(r)	sařita	
D9a	stand, stop		saling	sal	salī		salpa(r)	salta	*sal
D9b	id.	a		sala			salipa(r)	salita	
D9c	id.	ī	salī	salī	salī	salīs	salīpa(r)	salīta	*salī < sal
D10a	fear		xuling	xul	xul		xulpa(r)	xulta	xul
D10b	id.	a		xula, xule		xulā	xulipa(r)	xulita	
D10c	id.	ī	xulīng	xulī	xulī	xulīs	xulīpa(r)	xulīta	*xulī < xul
D11a	become wet	a	pāling	pāla, pāle	pāl	pālis	pālipa(r)	pālita	*pāl
D11b	id.	ē		palē					

16.6 The next group (D) contains the verbs with an is-past. The first five verbs are straightforward, with the nonpast stem shared by the infinitive and imperative; there are no separate present bases. The past is formed by adding -is to the nonpast stem, while the negatives add -(i)pa(r)/-(i)ta. D1 and D2 are athematic, while D3-D5 are thematic. The regular rule in Brahui where *w > b / #_ is important in this grouping. D1 bising ‘to be cooked, ripen’ is cognate with Elamite muš ‘glazed terracotta’ with PEI reconstructed as *wis; see A58. This term is cognate with PDr *wē(k/v) ‘be hot, cooked’ (DEDR 5517). Verb D2 pirāi ing ‘to run dry, dry up’ is cognate with Elamite pir(k)- ‘to pass, flow away’; see A50. There is no Dravidian cognate. Verb D3 barrīng ‘to become dry’ is similar, with an IR of *wār. There is no Elamite cognate, but it has a straightforward PDr cognate in *wař ‘dry up’ (DEDR 5320). Verb D4 bāsing ‘to be(come) hot’ is similar to D1 except that it is thematic. It has an internal reconstruction of *wās, but taken together with D1 it points to **wēr for both. D4 shares its Elamite and Dravidian cognates with D1. Verb D5 piring ‘to swell’ follows the thematic pattern for this group. There is no Elamite cognate, and the PDr cognate is *peru ‘be big’ (DEDR 4411). Verb D6 xarring ‘to sprout’ has thematic and athematic variants and allows a regular past form xarrā in addition to xarris. The IR is *xarr. The Dravidian cognate is complex, but regular, PDr *qorūm ‘shoot, twig’ (DEDR 2149). The Elamite cognate is probably har ‘press’, which is phonologically regular, but with a shift in meaning; see B02. Verbs D7 and D8 follow D6 with varying thematic forms and optional regular pasts. They are both loans into Brahui, D7 from Persian (Rossi 1979: H748) and D8 from Indo-Aryan (Rossi 1979: I294). Verbs D9-D11 have complex variation in the themes and augments, producing numerous interesting variants beyond the scope of this paper. Verb D9 saling ‘to stand, wait, stop’ with a fundamental meaning of being motionless and upright (if walking, stop; if sitting, stand; if standing, don’t move). The IR is *sal. The Elamite cognate is šal ‘pole, stake’; see B07. The Dravidian cognate is complex enough to have its own article (Emeneau 1998) and is PPD *ēř < PDr **cēl ‘rise, climb’ (DEDR 916). Verb D10 xuling ‘to fear’ has variants based on the associated noun xulī ‘fear’. The IR is *xul. The Elamite cognate is huš ‘fear’ with the PEI *xul; see A03. While tentative, there are other examples of PEI *l. The PDr cognate is *qulu ‘shake, tremble’ (DEDR 1806). D11 pāling ‘to become wet’ has variants where the theme is stressed in the past, i.e., ē. There are no Elamite or Dravidian cognates.

Brahui Verbs--Table EF

Theme & Augment			Nonpast				Past	Negative Stems		IR/
ID	Gloss		Infinitive	Imp.	Stem	P r	Stem	Nonpast	Past	Source
E1	bake, cook		bising	bis	bis		bisē	bispa(r)	bista	*wis
E2	throw down		biting	bit	bit		bitē	bitpa(r)	bitta	*wit
E3	cut		tařing	tař	tař		tařē	tařpa(r)	tařta	*tař
E4a	milk		biring	bir	bir		birē	birpa(r)	birta	*wir
E4b	id.	a		birfa				biripa(r)	birita	
E5	sow, rain	a	dasing	das	das		dasē	dasipa(r)	dasita	*das
E6a	depart		hamping	hamp	hamp		hampē	hamppa(r)	hamppta	*hamp
E6b	id.	a		hampa				hampipa(r)	hampita	
E7	kill		kasřing				kasřē			< *kah
E8	Causative in -if		-ifing	-if	-if		-ife	-ifpa(r)	-ifta	
E9a	Other verbs in -f		-fing	-f	-f		-fē,	-fpa(r)	-fta	
E9b	id.	a		-fa	-f		-fā	-ifpa(r)	-ifta	
F1a	wash		silling	sil	sill			silpa(r)	silta	*sill
F1b	id.	a		silla, sille			sillā	sillipa(r)	sillita	
F1c	id.	ē		sillē	sillē			sillēpa(r)	sillēta	
F2a	leave	a	illing	illa, ille	ill		illā	illipa(r)	illita	< Balochi
F2b	id.	ē		illē	illē			illēpa(r)	illēta	
F3	go		hining	hin	hin		hinā	himpa(r)	hinta	*hin
F4	id.			kāmbō		kā				*kā
F5a	pour, put	γ	šāγing	šāγ	šāγ		šāγā	šāγpa(r)	šāγta	*šāγ
F5b	id.			šā				šāpa(r)	šāta	
F6a	weep, cry	γ	hōγing	hōγ	hōγ		hōγā	hōγpa(r)	hōγta	*hōγ
F6b	id.			hō				hōpa(r)	hōta	
F7	Passives		-inging	-ing	-ing		-ingā	-ingpa(r) -impa(r)	-ingta	
F8	Middles		-ēng (ing)	-ēng	-ēng		-ēngā	-ēngpa(r) -ēmpa(r)	-ēngta	
F9a	Other Verbs		-ing				-ā	-pa(r)	-ta	
F9b	id.	a		-a				-ipa(r)	-ita	

16.7 Group E consists of the verbs with ē-pasts. Except for this they are regular. The first three are athematic. Verb E1 bising ‘to bake, cook’ is the transitive of D1 and shares all the cognate forms. E2 biting

‘to throw, come (down)’ has an IR of *wit and an Elamite cognate mit ‘start out, send’; see A57. The Dravidian cognate is PDr *wiṭu ‘leave, quit, let go’ (DEDR 5393). Verb E3 taṅing ‘to cut’ with an IR of *taṅ has a PDr cognate of *taṅi ‘cut off’ (DEDR 3029). There is no Elamite cognate. The next three verbs are thematic or variable and have no Elamite cognates. E4 bifing ‘to milk’ is variably thematic with an alternate regular past biṛā in addition to bifē. It has an IR of *wiṛ and a Dravidian cognate of PDr *piṛ ‘squeeze, milk’ (DEDR 4183b). E5 dasing ‘to sow, rain’ is thematic with an alternate regular past. It has no cognates. E6 hamping ‘to load, depart, start’ is variably thematic. It has a cognate PDr *anuppu ‘send (away)’ (DEDR 329). The last three verbs are causatives. E7 kasfing ‘to kill’ is the causative of kahing ‘to die’ (C4) and provides evidence that *h > s / _C. It shares cognation with C4. Pattern E8 is the norm for causative verbs in –if, a regular and productive formation. It is always athematic. Pattern E9 is for all other verbs in –f. It is the same but may be thematic in the imperative and negative.

16.8 Group F consists of verbs with ā-pasts. This includes all regular verbs and a few verbs with stem irregularities. F1 and F2 have multiple themes and augments much like D9 and D10, but with regular pasts. F1 silling ‘to wash’ has no cognates, while F2 illing ‘to leave’ is a loan from Balochi (Rossi 1979: B24). F3 and F4 hining ‘to go, flow’ is suppletive with two stems, hin (F3), which is regular, and kā (F4). F4 forms the present base and the unique inclusive imperative kāmbō ‘let’s go’. F3 has a Dravidian cognate, PDr *ey ‘arrive’ (DEDR 809). F4 has the important Elamite cognate sa ‘go away, move’ (see A24) with PEI *kā and Dravidian cognates: PDr *kā ‘go, move’ (DEDR 1419) and PPD *cāy ‘go’ (DEDR 2430); see McAlpin 2015: §8.1.1.1. Verbs F5 and F6 have stem variants with and without final ḡ. F5 šāyng ‘to pour, put’ has the Elamite cognate šar ‘pour’ (see A64) from PEI *šāly and Dravidian cognate PPD *elq ‘pour’ (DEDR 840). F6 hōyng ‘to weep, cry’ has a Dravidian cognate PPD *olq ‘sound, roar, cry’ (DEDR 996). Pattern F7 contains passives with the formative -ing. Note that the citation form becomes -inging. This morpheme is cognate with the Elamite past passive ending -k. Pattern F8 contains middles in -ēng; the citation form may be -ēnging or -ēng. Pattern F9 includes all other regular verbs. It has thematic variation, with (F9a) and without (F9b) the theme.

17 Implications

17.1 This work has established two lines of evidence that Brahui is closely cognate with Elamite. The first, the comparative method, has established that the initial root syllable CVC has a significant number of cognate roots. The phonology of these roots is completely interlocking with the values for ¹C, ¹V, and ²C accounted for by the rules. It also shows that this occurs at a level well beyond chance. As such, it must be disproved point by point and stands until that is done. The second, the analysis of Brahui irregular verb stems, shows that Brahui is consistently closer to Elamite than Dravidian, although both are cognate. Moreover, the analysis of the variants using /hal/ has removed chance as a viable consideration and constitutes a demonstration of cognation all by itself. Brahui is Elamitic. The location presents no problems. Western Brahui overlaps Elamite sites in Iranian Baluchistan.

17.2 Due to the lack of extensive detail and limited vocabulary, the implications for Elamite studies are constrained. Two millennia separate the last inscriptions of Elamite from the earliest surviving examples of Brahui. However, Proto-Elamitic can help provide a decisive insight when two internal analyses are different. It has already confirmed that Middle Elamite and Achaemenid Elamite are separate dialects, and we can see Elamitic as a Sprachband extending eastwards, including Pre-Brahui. A major development is the start of Proto-Elamitic as a field of study. It already has over 250 new terms coming from Brahui and Dravidian. It should have significant implications for Proto-Dravidian morphology, helping to differentiate cognate from areal features.

17.3 Beyond the proper scope of this article, this work implies that Zagrosian speakers migrated from southern Iran. While they were culturally significant, it does not imply that they were culturally dominant. This meshes very well with the work by David Reich (2018: 150-53), who has Iranian farmers moving into southern India, forming around 20% of the population. Except to put Dravidian speakers in the neighborhood around the right time, this work says nothing about the Indus Valley Civilization.

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