

## On Indo-European Triliteralism

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### Abstract

The old Benveniste theory on Proto-Indo-European roots, namely, that they are represented by a sequence made up of consonant + vowel *e* + consonant, is still probably the most influential theory of root-structure today in this linguistic discipline. However, this theory has very doubtful foundations and lacks typological support.

In the academic field of Indo-European studies, as Clackson recognizes, “The most influential theory of root-structure was put forward by Benveniste”.<sup>[1]</sup> According to this scholar, the basic structure of the Proto-Indo-European root was \**CeC-*, *i. e.*, consonant + vowel /*e*/ + consonant, and “every root with a structure more complex than \**CeC-* was an extended root”<sup>[2]</sup> or *thème* (literally ‘theme’) in Benveniste’s terminology. This theory is accepted without further criticism by many scholars. Thus, in Fortson’s manual one can read: “The structure of most PIE roots can be boiled down to a single template, \**CeC-*, where *C* stands for any consonant and *e* is the fundamental vowel”.<sup>[3]</sup> Likewise, according to Swiggers, Benveniste’s most fundamental contribution to the reconstruction of Proto-Indo-European is “the constituency of the Indo-European root as trisegmental (CVC), with formative restrictions [...] and a characterization of the degree of the root vowel when combined with a suffix”.<sup>[4]</sup>

Certainly, in its formulation and strict application to Indo-European Linguistics, this theory about the ancestral exclusivity of *triliteral* roots is essentially due to a work (“*Esquisse d’une théorie de la racine*”) present in a work originally published in 1935<sup>[5]</sup> by Émile Benveniste, disciple of Antoine Meillet (1866–1936) and born as Ezra Benveniste in 1902 in Syria, in the bosom of a Jewish family, before becoming a French citizen in 1924. According to Benveniste, “The Indo-

European root is monosyllabic, triliteral, composed of the fundamental vowel *ě* between two different consonants”.<sup>[6]</sup> Nevertheless, this almost already *classical* proposal in Indo-European linguistics has very doubtful foundations and lacks typological support. Here, and without going too far into specific questions of detail, are the main basic objections:

1. To begin with, “in language, asymmetry outweighs symmetry [...] It is improbable that all roots have the same length in a language”.<sup>[7]</sup>

2. In addition, we cannot think of any law, say, biological, physical or even *cosmic* that could also guarantee *per saecula saeculorum* the fulfillment of that constant structure in all its speakers.

3. On the other hand, as is easily verifiable, conjunctions, exclamations or interjections and often prepositions usually have uniliteral roots in most languages, usually vowels (V-) but sometimes also consonants (C-). In Madagascan Merina, for example, the only patrimonial word with the vowel [o] is the vocative interjection<sup>[8]</sup>, a word that is equal, therefore, in form and meaning to the Latin *o* or the English *oh!* So that, unless Proto-Indo-European was totally devoid of interjections, it is difficult, for example, to assume that no interjection was composed of a single phoneme.

4. There is also very good evidence of biliteral roots, notably with consonant-vowel (CV-) structure, in the common Indo-European dialect concatenation, where,

as also happens in most languages, very often the ubiquitous demonstratives and their very numerous morphological derivatives —such as personal pronouns, *uerbi gratia*— tend to present the CV– root–structure. In fact, in many languages most demonstrative series are characterised by a basic or primitive appearance: a consonant + vowel structure. As a matter of fact, probably the root for negation in Proto–Indo–European, *\*na–* ‘no/ not’ would have a simple CV– structure.<sup>[9]</sup> The same could occur with the old Indo–European ‘you’: *\*tu* probably (*cf.* Albanian *ti*, Armenian *du*, Avestan *tū*, Gothic *þu*, Doric Greek τὸ, Hittite *zik*, Old Indian *tú*, Latin *tu*, Lithuanian *tù*, Old Prussian *tou*, Old Church Slavonic *ty*, East Tocharian *tu*, Welsh *ti*...). In his documented monograph Berenguer clearly states that “The basic formal structure of an Indo–European particle is [...] (*con*)sonant + vowel (CV–)”.<sup>[10]</sup> For Schmitt–Brandt, “Indeed, roots with one consonant in Proto–Indo–European times (e.g. *\*ne/NA* ‘not’, *\*me–/MA–* ‘I–deixis = middle?’ [...] as well as with two and more than two consonants should have existed (e. g. *\*derk–/T–ARK–* ‘look’, *\*b<sup>h</sup>rā–/BRAH<sub>2</sub>/4–* ‘brother’”.<sup>[11]</sup> Schmitt–Brandt also quotes onomatopoeic roots such as *\*nana–* ‘mother – grandmother’, where we would have reduplicated biliteral CV– roots (= *\*na–na–*).<sup>[12]</sup> Likewise, a clear onomatopoeic root can be posited as *\*ha–* or as reduplicated *\*haha–*<sup>[13]</sup> on the basis of possible correspondences such as Armenian *xaxank* ‘guffaw’, Old High German *kachazzen* ‘to laugh’, Greek καχάζω ‘I roar with laughter’, Latin *cachinno* ‘I roar with laughter’, Lithuanian *kikénti* ‘to giggle’, Polish *kichot* ‘guffaw’, Russian *xóxot* ‘guffaw’ and *xoxotátb* ‘to roar with laughter’, Sanskrit *kákhati* ‘s/he laughs’, Old Church Slavonic *xoxotb* ‘guffaw’... (*cf.* obviously English *ha ha!* and similar words in many other languages). Mallory admits *\*kuku–* for ‘cuckoo’ too.<sup>[14]</sup> Since far more important or, indeed, more pristine elements such as, notoriously, the interjections and demonstratives usually have simpler roots of only one single phoneme or of two phonemes respectively, it sounds reasonable to hypothesize that the different root–structures could somehow correspond to successive glottogenic phases.

5. There is no available reason to explain why the vowel should always be a short /e/ in all roots. Here,

forcing a *reductio ad unum*, “Benveniste presents us a vocalism totally outside any attestation in a human language, namely, a true typological monster”.<sup>[15]</sup>

6. Actually, /e/ does not present any articulatory feature that makes of it a unique reference in a vocalic pattern<sup>[16]</sup> neither is there any typological evidence endorsing the assumption that the short vowel /e/ should be considered the *fundamental* vowel in any language.

7. On the other hand, there is also good evidence for stems that would not fit that vowel pattern, such as the reconstructed indefinite–interrogative *\*kuis* ‘who – someone’ (*cf.* Avestan *čiš* ‘who’, Greek τίς, Hittite *kuiš*, Latin *quis*, Oscan *pís*...) or the aforementioned *\*haha–*, *\*nana–* and *\*tu–*. Moreover, as pointed out by Schmitt–Brandt, “In Proto–Indo–European names without derivational suffixes, the original form with *i–* or *u–* vocalism is still clearly recognizable”.<sup>[17]</sup> Thus, “in addition to the root type C<sub>1</sub>eC<sub>2</sub> postulated by Benveniste, there was also an old root type C<sub>1</sub>iC<sub>2</sub> and C<sub>1</sub>uC<sub>2</sub>. Therefore, we can combine these root types into one single| pattern C<sub>1</sub>VC<sub>2</sub>”.<sup>[18]</sup> In sum, one should at least correct the Benveniste’s original proposal by changing C<sub>1</sub>eC<sub>2</sub> into C<sub>1</sub>a/i/uC<sub>2</sub> or, more simply, into C<sub>1</sub>VC<sub>2</sub>.

8. Similarly, the requirement that the two consonants of the trilateral root must be different contravenes the typological documentation and in practice would greatly limit, against all logic and natural functioning of languages, the presence of basic onomatopoeic or expressive roots. Furthermore, some Indo–European roots such as *\*sas–* ‘sleep – take a nap’ would have some documentary support: Hittite *seszi* ‘sleeps’, Sanskrit *sásti* ‘sleeps’.<sup>[19]</sup> Schmitt–Brandt also quotes onomatopoeic roots with homophonic consonants such as, among others, *\*bab–* or *\*pap–* ‘swell’, *\*kuak–* ‘croak – caw – quack’, or *\*kak–* ‘crow’.<sup>[20]</sup>

9. Starting from some ideas by Schmitt–Brandt,<sup>[21]</sup> Gil observes that the Indo–European root “does not necessarily consist of an *e* framed by two consonants”, because “in a series of verbs, *\*klep–*, *\*selp–*, *\*skeng–*, etc., the putative simple root *\*kel–*, *\*sel–*, etc. is unknown”.<sup>[22]</sup> For Schmitt–Brandt: “many roots with three or more consonants cannot be explained in this way. For example, the roots *\*d<sup>h</sup>erb<sup>h</sup>–/DARB–* ‘work’, *\*d<sup>h</sup>erg<sup>h</sup>–/DARG–* ‘shrub’, and *\*d<sup>h</sup>ers–/DARS–* ‘bold – dare’ cannot be traced back to a shorter root *\*d<sup>h</sup>er–*

/DAR–, since there is no clear semantic relationship between these forms. It would also be absurd to try to postulate a different and lost root *\*\*d<sup>h</sup>er–/DAR–* for each of these roots, since we already have to reckon at least with four roots with this phonetic shape meaning ‘hold’, ‘jump’, ‘grumble’, and “*cacāre*”!<sup>[23]</sup> Truly, some original trilateral Indo–European roots may have disappeared without further ado, and only a few *lengthened* roots survived, but, as we have seen, it is usually quite difficult to trace unequivocally all these back to an original common semantic notion.

10. Even in the absence of a specific study, it seems easily verifiable that in all or at least most languages the root is monosyllabic. Although the Semitic group of Afro–Asiatic languages is quoted often as an example of the CCC– root–structure, some specialists see it rather as a testimony to the development of a previous CVC– root–structure in Proto–Afro–Asiatic. Thus, for Bomhard, “the rules governing the structural patterning of roots and stems in Proto–Afroasiatic are virtually identical to the rules posited [...] for the earliest form of pre–Proto–Indo–European” and in the Semitic group internal analysis plus comparison with the other groups of the Afro–Asiatic ensemble “indicates that at one time there were more biconsonantal roots and that the triconsonantal system has been greatly expanded in Semitic”.<sup>[24]</sup>

11. Again in the absence of a specific study, it seems easily verifiable as well that in most languages the numerically most important component of their roots has a trilateral basis (CCC, CCV, CVC, CVV, VCV...). To sum up, “the Indo–European root does not present any peculiarities such as to make it appear [...] as significantly different from a standard type of world linguistic root”.<sup>[25]</sup>

12. In any case, methodologically any feature cannot be presented as a characteristically or idiosyncratically Indo–European phenomenon without previously checking whether it likewise occurs in other linguistic ensembles. In fact, an identical basic root structure has been repeatedly proposed by Lakarra for the non–Indo–European Basque language.<sup>[26]</sup> The very main assumption of so many works by Lakarra is indeed the monosyllabic character of what he usually calls *canonical form* and that we can easily understand as the

‘root’ of other linguistic traditions. According to this author, although in the historical period disyllabic roots are “the most common in historical Basque”,<sup>[27]</sup> in an earlier period these would have been monosyllabic, and specifically with the structure —and this will not surprise anyone anymore—... consonant – vowel – consonant (CVC–). As with his usual competence Trask sums up, Lakarra “suggests that, at some exceedingly remote stage of the language, all lexical morphemes were monosyllabic, and that the dominant polysyllabic form of nouns and adjectives results from extensive compounding aided by a certain amount of reduplication”.<sup>[28]</sup> Without going deeply into particular details that are sometimes more controversial, Lakarra’s proposal is accepted by most specialists. Likewise, Gamkrelidze and Ivanov propose CVC– as the canonical formula for the Common Kartvelian root morpheme.<sup>[29]</sup>

13. Being precisely and very likely the consonant–vowel–consonant structure (CVC) the most frequent one of trilateral roots, this sequence probably conforms the general root–structure in all the world’s languages.

The fact is that—seemingly—the highest number of roots is predictably the result of just three phonemes in most languages. This is probably due to the crude circumstance that, for the purposes of human language, this is the minimum number of units which, when suitably combined, can give a maximum number of meanings. If we are to take this fact as a starting point, it is by no means possible to propose a pristine stage or a pre–language, where *all* the roots without exception were trilateral, triphonematic, trisegmental, trinitarian, or *trihatever*.

The reason for this seems simple: economy. Let’s do numbers. Let us start from the most conventional model of phonetic pattern, which would be, according to a study carried out on 566 languages, that of 22 consonants.<sup>[30]</sup> Thus, in a common model of —let’s say— 27 phonemes with —let’s say— 5 vowels and 22 consonants, which is a fairly common standard average, we would practically only have 5 vowels to use as monophonemic roots. So, we would have around 5 possible uniliteral roots, that would be suitable above all for more usual conjunctions or prepositions, exclamations, interjections or onomatopoeias.

But we would not gain a larger number of roots with only two phonemes, since we would normally need at least one vowel, *i. e.*, only one of a few —5 in this case— vowels to conform a syllable, either CV– or VC–. To this circumstance, we must add the usual phonotactic restrictions, such as the non–presence of certain initial or final consonants. These kinds of restrictions are found in maybe all the world’s languages. For example, many languages simply do not admit any initial VC– syllable. Anyway, at a purely theoretical level, if we are to suppose no phonotactic restriction at all, and if we are to grant the possibility of emergence for any vowel and for any consonant, we would have, at most, 220 roots: 110 for VC– and 110 for CV–, the result of the combination of the 22 consonants with the 5 vowels. This again, even in the best of all possible expectations, would represent a number, of course, insufficient for the number of usual roots that a language would need.

Admittedly, it is not due to pure chance that the most common biliteral structure, CV–, is reserved for the roots of the versatile demonstratives and all their wide offspring of derived lexemes —adverbs, conjunctions, endings, personal pronouns...— in the vast majority of languages, where they conform very frequent epideictic stems such as \**da–*, \**ha–*, \**ja–*, \**ka–*, \**ma–*, \**na–*, \**sa–*, \**ta–*, \**wa–*... with the vowel /a/ or also very often with /i/ and /u/.

However, if we were to take as a model a structure with two of the 22 established consonants together with one of the 5 vowels (according again to the average in Maddieson’s study of 566 languages), and if applying similar criteria, we admit combinations of all the consonants and vowels within a CCV–, CVC–, or VCC– structure, the result shoots up exponentially: up to 2,420 potential roots for any possible combination, when multiplying those 110 bilateral bases by another 22 consonants (–C). Thus, the resulting 2,420 roots would be more than enough, of course, to form the lexical bases of a language, although, as usual, some combinations will be restricted, for example, some consonants in certain positions. Conversely, a structure with one consonant and two vowels would not give us more than 550 roots, the result of multiplying the 110 biliteral structures (CV–) by another 5 vowels (–V). The total sum of the three possible combinations (CVV–,

VCC– and VVC–) would give us a figure of 1,650 basic roots. A number again clearly insufficient to form a base of about 2,000 units.

Needless to say that with three vowels we would be well below our desired figure of around 2,000 units, since a quite odd and infrequent VVV– would give us, at best, a maximum of 125 basic roots.

Let’s now see in the following synoptic table the numbers of all possible combinations of root–structures in a language with the most common standard average of 5 vowels and 22 consonants (Table 1).

Table 1. Possible combinations of root–structures

Structure	Numbers
CCC–	10,648
CCV–	2,420
CVC–	2,420
VCC–	2,420
CVV–	550
VCV–	550
VVC–	550
VVV–	125
CC–	484
CV–	110
VC–	110
VV–	25
C–	22
V–	5

It is clear that the only structure that allows a sufficient and ideal lexical base (2,420 theoretically possible combinations) is that one conformed by two consonants and a vowel (CCV–, CVC–, or VCC–). With only two unities we would never reach, nor in the best case (CC– with 484 possibilities), the minimum range of practical desirable combinations. Therefore, we need a minimum of three phonemic units. Certainly, we would reach the goal too with a CCC– structure, but exceeding by far, with its 10,648 theoretically possible results, the desirable practical range of about 2,000 roots as well, hence a quite wasteful and uneconomical operation, and there is still the additional problem that most languages do not allow initial triconsonantal sequences.

Moreover, the CVC– initial structure is likely the only one allowed in all the world’s languages, and also the one that best adapts to the ideal sequence with a peak of

greater loudness or sonority (vowel) in the central nucleus and an initial ascending onset and a final descending coda, a sequence that can be represented as  $cCVc-$ . As laconically expressed, for example, by Hawkins: “The greater the sonority, the more likely the sounds are to form the peak of a syllable”.<sup>[31]</sup> This phonotactic principle entails a sort of sonority hierarchy for the different kinds of phonemes in a language that can be established as follows (Table 2).<sup>[32]</sup>

Table 2. Hierarchy of phonemes

Item	Example
open vowels	[a æ...]
close vowels	[i u...]
glides	[j w...]
liquids	[l r...]
nasals	[m n...]
fricatives	[f s...]
plosives	[p t...]
affricates	[pf ts...]

So, when Clackson rightly points out that “the PIE root appears to have been based around a syllabic peak, with a progressive decline in sonority from this central peak to the edges of the root [...] All PIE roots conform to a ‘sonority rule’”,<sup>[33]</sup> one must add that nevertheless that sonority rule is again not only an Indo–European rule, but a rule for the vast majority of the world’s languages, where usually the most peripheral or outside consonants in the same syllable cannot be more sonorous than the less peripheral or inside consonants. That’s the reason in Proto–Indo–European, or in the vast majority of well documented languages, for “the avoidance of roots of the shape *\*lpet-* and *\*sedr-*”,<sup>[34]</sup> whereas, on the other hand, sequences like *\*plet-* and *\*serd-* would be perfectly admissible in many languages. So, as it is apparent in so many languages, due to a tendency to a syllabic sequence [very] close – open – close ( $oOo = CVC$ ), such as English *pan*, a  $CVC-$  root–structure is more *natural* than a  $CCV-$  root–structure (such as  $^{\dagger}pna$  or  $^{\dagger}npa$ ) or  $VCC$  (such as  $^{\dagger}apn$  or  $^{\dagger}anp$ ), and by analogical extension an expanded  $CCVVC-$  root–structure [very] close – close – open – [less] open – close ( $CVCVC$ ), such as *\*plays*, would be more *natural* than any other possible monosyllabic combination ( $^{\dagger}lpasy$ ,  $^{\dagger}lpyas$ ,  $^{\dagger}syapl$ ,  $^{\dagger}splya$ ,  $^{\dagger}lspya$ ...). In

short, the choice of the ideal root is not just a quantitative issue, it is also a qualitative one.

The more economical  $V-$  and  $CV-$  structures, universally tolerated, were all qualitatively appropriate to conform good lexical roots and indeed, as far as we know, they have been well exploited in all known historical languages, particularly for the most *pristine* words. Thus, the *onus probandi* of showing that Proto–Indo–European never had biliterate roots such as  $CV-$  or unilateral roots such as  $V-$  belongs to Benveniste’s followers.

Therefore, it is totally logical or natural that most languages have lexical bases composed mainly of three phonemes, being the minimum number with which a language can achieve its almost maximum performance. On the other hand, since only  $CV-$  appears to be the admissible initial sequence for all known languages,<sup>[35]</sup> that is to say: many do not admit neither  $VC-$  nor  $CC-$ , it seems that a monosyllabic stem like  $CVC-$  will in principle be the most common and expected. Moreover, the said structure is completely congruent with the principle of sonority hierarchy, which was still unknown in Benveniste’s *Esquisse* times. A corollary to this will be the expected greater phonemic length of the roots for those languages that have a reduced phonetic inventory—such as, for example, Rotokas in Papua or Pirahã, in Amazonia, 11 phonemes in this last case<sup>[36]</sup>— and conversely we will expect a smaller phonemic length in the stems of those languages with a rich phonemic inventory.

To conclude, on the qualitative plane  $CV(C)-$  appears to be the best structure for a root in any human language, whilst  $CVC-$  is the ideal structure on the quantitative plane. The fact that for so many languages the majority of the roots are made up of three phonemes is simply due to the fact that such a number constitutes the minimum of units that, when well combined, can give a maximum of meanings, that is to say: that can comfortably and economically provide a sufficient lexical base, but, of course, from the well expected existence of a majority of lexical roots in maybe all languages, one cannot deduce in any way a primitive stage or a chimerical proto–language where, *pace* Benveniste and his followers, necessarily each and every one of the roots were trilateral.



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## Sources

- [1] Clackson, J. *Indo–European Linguistics. An Introduction*. Cambridge University Press, 2007, p. 65.
- [2] Clackson. *Indo–European Linguistics*, p. 66.
- [3] Fortson, B. W. *Indo–European Language and Culture. An Introduction*. Wiley–Blackwell, 2004, p. 70.
- [4] Swiggers, P. “Indo–European linguistics in the 19th and 20th centuries: beginnings, establishment, remodeling, refinement, and extension(s)”. *Handbook of Comparative and Historical Indo–European Linguistics I*, De Gruyter, 2017, p. 271–211, p. 192.
- [5] Benveniste É. *Origines de la formation des noms en indo–européen*. Adrien–Maisonnewe, 1973 (= 1935), p. 147–173.
- [6] Benveniste, *Origines*, p. 170: “La racine indo–européenne est monosyllabique, trilitère, composée de la voyelle fondamentale *ē* entre deux consonnes différentes”.
- [7] Cavazza. F. *Lezioni di indoeuropeistica con particolare riguardo alle lingue classiche (sanscrito, greco, latino, gotico) II*. Edizioni ETS, p. 290: “nella lingua, l’asimmetria vince sulla simmetria [...] È inverosimile pensare che in una lingua tutte le radice abbiano la medesima lunghezza”.
- [8] See Rasoloson J. and C. Rubino (2005), “Malagasy”. *The Austronesian Languages of Asia and Madagascar*. Routledge, p. 456–488, p. 460.
- [9] Clackson. *Indo–European Linguistics*, 68: “\*ne ‘not’”.
- [10] Berenguer Sánchez, J. A. *Estudio sobre las partículas indoeuropeas con base consonántica y laríngea*. CSIC, 2000, p. 542: “La estructura formal básica de una partícula indoeuropea es [...] (con)sonante + vocal (CV–)”.
- [11] Schmitt–Brandt, R. *Einführung in die Indogermanistik*. UTB, 1998, p. 169: “In der Tat dürfte es in *g–idg.* Zeit sowohl Wurzeln mit einem Konsonanten (z.B. \*ne/NA “nicht”, \*me–/MA– “ich–Deixis = Mitte?” [...] als auch mit zwei und mehr als zwei Konsonanten gegeben haben (z.B. \*derk–/T’ARK– “schauen”, \*bhrā–/BRAH2/4– “Bruder”)”.
- [12] See Schmitt–Brandt, R. *Die Entwicklung des Indogermanischen Vokalsystems (Versuch einer inneren Rekonstruktion)*. Julius Groos Verlag, 1973, p. 100.
- [13] Schmitt–Brandt. *Die Entwicklung*, p. 100: \*kha–kha.
- [14] Mallory J. P. *À la recherche des Indo–Européens. Language, archéologie, mythe*. Seuil, 1997, p. 130–131.
- [15] Cavazza. *Lezioni*, p. 132: “Benveniste ci presenta un vocalismo completamente al di fuori di ogni attestazione di linguaggio umano, ossia un vero mostro tipologico”.
- [16] See Cavazza. *Lezioni*, p. 133.
- [17] Schmitt–Brandt. *Einführung*, p. 138: “Bei *g–idg.* Nomina ohne Ableitungssuffixe ist noch deutlich die ursprüngliche Gestalt mit *i–* oder *u–* Vokalismus zu erkennen”.
- [18] Schmitt–Brandt. *Einführung*, p. 170–171: “neben dem von Benveniste postulierten Wurzeltypus *K1eK2* auch einen alten Wurzeltypus *K1iK2* und *K1uK2* gab. Wir fassen daher diese Wurzeltypen zu einem| Muster *K1VK2* zusammen”.
- [19] See Clackson. *Indo–European Linguistics*, p. 68–69.
- [20] Schmitt–Brandt. *Die Entwicklung*, p. 100.
- [21] Schmitt–Brandt, *Die Entwicklung*.
- [22] Gil, J. *La apofonía en indoeuropeo*. Emerita. 1970, 59, p. 1–111, p. 97: “no consiste necesariamente en una e enmarcada por dos consonantes”; “en una serie de verbos, \*klep–, \*selp, \*skeng–, etc., no se conoce la supuesta raíz simple \*kel–, \*sel–, etc.”
- [23] Schmitt–Brandt. *Einführung*, 168: “sind viele drei– und mehrkonsonantige Wurzeln nicht auf diese Weise zu erklären. So sind etwa die Wurzeln \*dherbh–/DARB– “arbeiten”, \*dhergh–/DARG– “Strauch”, und \*dhers–/DARS– “kühn”, “wagen” nicht auf eine kürzere Wurzel \*dher–/DAR– zurückführen, da keine einleuchtende semantische Beziehung zwischen ihnen besteht. Auch wäre es absurd, für jede dieser Wurzeln eine verschiedene, verschollene Wurzel \*dher–/DAR– postulieren zu wollen, zudem wir schon mit mindestens vier Wurzeln diese Lautgestalt in den Bedeutungen “festhalten”, “bespringen”, “murren” una “cacäre” rechnen müssen!”. See also Schmitt–Brandt. *Die Entwicklung*, 12.

- [24] Bomhard, A. R. Towards Proto–Nostratic. A New Approach to the Comparison of Proto–Indo–European and Proto–Afroasiatic. John Benjamins, 1984, p. 289–290.
- [25] Cavazza. Lezioni, p. 32: “la radice IE non presenta delle peculiarità tali da farla apparire [...] come diferente in modo notevole da un tipo standard di radice linguistica mondiale”.
- [26] See Lakarra, J. A. “Reconstructing the Pre–Proto–Basque Root”. Towards a History of the Basque Language. John Benjamins, 1995, p. 189–206; Sobre el Europeo Antiguo y la reconstrucción del Protovasco. Anuario del Seminario de Filología Vasca Julián de Urquijo. 1996, 30, p. 1–70; Prolegómenos a la reconstrucción de segundo grado y al análisis del cambio tipológico en (proto)vasco. Palæohispanica 2005, 5, p. 407–470; Forma canónica y cambios en la forma canónica de la lengua vasca: hacia los orígenes del bisilabismo. Palæohispanica, 2009, 9, p. 557–609.
- [27] Lakarra. Forma canónica, p. 590: “las más comunes en vascuence histórico”.
- [28] Trask, R. L. The History of Basque. Routledge, 1997, p. 179.
- [29] Gamkrelidze, T. V. and V. Ivanov. Indo–European and the Indo–Europeans. A Reconstruction and Historical Analysis of a Proto–Language and a Proto–Culture. De Gruyter, 1995, p. 220–221.
- [30] See Maddieson I. “Typology of Phonological Systems”. The Oxford Handbook of Linguistic Typology. Oxford University Press, 2011, p. 540.
- [31] Hawkins, P. Introducing Phonology. Routledge, 1984, p. 98.
- [32] See Hawkins. Introducing Phonology, p. 99.
- [33] Clackson. Indo–European Linguistics, p. 69.
- [34] Clackson. Indo–European Linguistics, p. 69.
- [35] See Maddieson. “Typology”, p. 545.
- [36] See Maddieson. “Typology”, p. 540.

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