Lexis

Journal in English Lexicology

6 | 2011

Diminutives and Augmentatives in the Languages of the World

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Electronic version

URL: <http://journals.openedition.org/lexis/409>

DOI: 10.4000/lexis.409

ISSN: 1951-6215

Publisher

Université Jean Moulin - Lyon 3

Electronic reference

Livia Körtvélyessy, « A Cross-Linguistic Research into Phonetic Iconicity », *Lexis* [Online], 6 | 2011, Online since 27 March 2011, connection on 02 May 2019. URL : <http://journals.openedition.org/lexis/409> ; DOI : 10.4000/lexis.409

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A Cross-Linguistic Research into Phonetic Iconicity

Lívía Körtvélyessy¹

Abstract

Phonetic iconicity in evaluative morphology is an integral part of sound symbolism in natural languages. Former research in this field has brought contradictory results. On the one hand, there is Universal #1926 (Plank and Filimonova’s Universals Archive, Konstanz) claiming universal marking of diminutives by front high vowels, and of augmentatives by high back vowels. Furthermore, there are papers extending the idea of phonetic iconicity to the front-back opposition of consonants. On the other hand, there are studies (Ultan [1978], Nieuwenhuis [1985], Gregová, Körtvélyessy and Zimmermann [2009]) indicating that (a) this phenomenon is of areal rather than universal nature; (b) there are substantial differences between languages within individual genetic families, (c) front high vowels are typical of augmentatives rather than diminutives; diminutive affixes are acoustically realized by central vowels

The paper presents the results of cross-linguistic research into a balanced sample of 60 languages of the world. The focus is this time on the verification of the hypothesis in question by comparing languages of various genetic, geographical and morphological types. Special attention is paid to (a) checking the postulated front-back opposition in languages with both morphological diminutives and augmentatives, (b) the relevance of phonetic iconicity in terms of geographical, genetic, and morphological classifications of the sample languages; comparison of the data obtained with the results arrived at in the previous stages of our research which dealt with 35 European languages. The discussion is supported by numerous examples.

Keywords: diminutives – augmentatives – phonetic iconicity – cross-linguistic research

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1. Introduction

This paper was motivated by the *Universals and Typology in Word-Formation* conference (Košice, August 2009). Encouraged by a positive response to our presentation² on phonetic iconicity I decided to take up a follow-up research, and to compare languages of Europe and Africa in terms of phonetic iconicity in evaluative morphology. I could rely on a comprehensive database characterizing languages of the world according to various evaluative morphology parameters. A general background for my research and the state-of-the-art in the field are outlined in Section 2, followed by the specification of the method of research and a sample of languages analyzed (Section 3); the issue of areal typology is briefly introduced in Section 4; an analysis of the data is provided in Section 5. The Conclusions section summarizes the results.

2. Background

2.1. General

*And the raven, never flitting, still is sitting, still is sitting
On the pallid bust of Pallas just above my chamber door;
And his eyes have all the seeming of a demon's that is dreaming,
And the lamp-light o'er him streaming throws his shadow on the floor;
And my soul from out that shadow that lies floating on the floor
Shall be lifted – nevermore!*

In 1845 Alan Edgar Poe loyal to his *Poetry is the rhythmical creation of beauty in words* wrote the world-famous poem *Raven*. Subsequently, he published in *Graham's Magazine* an essay *The philosophy of composition* where he inter alia accounted for choice of the refrain *Nevermore*.

The question now arose as to the *character* of the word. Having made up my mind to a *refrain*, the division of the poem into stanzas was, of course, a corollary: the *refrain* forming the close to each stanza. That such a close, to have force, must be sonorous and susceptible of protracted emphasis, admitted no doubt: and these considerations inevitably led me to the long *o* as the most sonorous vowel, in connection with *r* as the most producible consonant.

The sound of the *refrain* being thus determined, it became necessary to select a word embodying this sound, and at the same time in the fullest possible keeping with that melancholy which I had predetermined as the tone of the poem. In such a search it would have been absolutely impossible to overlook the word ‘Nevermore.’ In fact, it was the very first which presented itself.

Poe chose the word *nevermore* because of the strong ‘o’ sound, feeling that this particular vowel best expressed a feeling of sadness. Contemporary linguistics would probably cast doubts upon the idea that [r] is the most ‘producible’ consonant. However, Poe himself indirectly claimed the importance of sound symbolism in both language production and perception.

Sound symbolism or phonetic iconicity in various languages, ranging from Indo-European to Amero-Indian languages, was studied by many linguists, for example, Sapir [1929], Jespersen [1933], Ultan [1978], Nieunwehuis [1985], Diffloth [1994] and Bauer [1996].

² Gregová, Körtvélyessy, Zimmermann [2010].

Their efforts resulted in partial support to and partial denial of Universal #1926 (originally #1932) as formulated in Plank and Filimonova’s *Universals Archive*:

There is an apparently universal iconic tendency in diminutives and augmentatives: diminutives tend to contain high front vowels, whereas augmentatives tend to contain high back vowels.

Anderson in his *A Grammar of Iconism* [1998: 106] points out that

[s]ound symbolism usually is organized in terms of phonemic polarities or binary oppositions: front versus back, high versus low, rounded versus unrounded, acute versus grave, compact versus diffuse. These correlate with the discontinuities of human experience in terms of semantic contrasts or polarities, such as small versus large, proximate versus distant, weak versus strong, light versus dark, and so forth, in accordance with principle of phonemic relativism: the iconic potential of any given phoneme depends not on its inherent acoustic or kinesthetic features per se, but rather, on the extent to which these features lend themselves to contrasts within the phoneme system of the language...

This indicates link between phonetic iconicity and evaluative morphology understood by Štekauer [2010] as deviation from a standard, default value. This field, as many others in linguistics, can be viewed as a continuum with prototypical cases expressing the meaning of quantity under or above the default value (which may change from language to language, from speech community to speech community and, obviously, from situation to situation. This definition is more liberal than that proposed by Grandi [2002] who delimits the scope of evaluativeness along two axes: SMALL ↔ BIG and GOOD ↔ BAD. Štekauer’s definition also encompasses, *inter alia*, attenuatives or deintensifiers, such as *reddish* (because *reddish* deviates from the default value of ‘redness’).

2.2. State of the art

Sound symbolism has been successfully exploited in poetry and fiction (level of *parole*). Its *langue* counterpart, the connection of sound symbolism and evaluative morphology at the level of language system also inspired a number of linguists to take up cross-linguistic research. In fact, there are several major cross-linguistic studies, in particular, those by Ultan [1978], Nieuwenhuis [1985] and Bauer [1996]. In spite of their unbalanced samples of languages they contributed to the examination of validity of the above-mentioned Universal. Two important conclusions have been drawn. First, it was pointed out that phonetic iconicity in evaluative morphology is not only bound to specific vowels. It was found out that fronted consonants are iconic symbols of diminutiveness, too. Second, it is assumed that, cross-linguistically, phonetic symbolism in evaluative morphology is primarily governed by the areal factor (Ultan [1978: 545]). This translates to the assumption that rather than of universal nature, phonetic symbolism in evaluative morphology is a phenomenon that occurs in certain geographically defined areas of the world. This is also confirmed by Bauer [1996: 201] who, on the basis of a sample of 50 languages, concludes that

[t]here does not appear to be any universal principle of sound symbolism operating in markers of the diminutive and augmentative such that palatal articulation correlates with diminutives and not with augmentatives.

Similar results are reported in Štekauer, Valera & Körtvélyessy [2010] for a different sample of 55 languages.

Furthermore, Diffloth [1994] points out that iconic values of vowels in Bahnar expressives are High = Big, Low = Small, i.e., exactly the opposite to the postulated cross-linguistic situation.

Interesting results were arrived at within a research project at Šafárik University in Košice (Štekauer *et al.* [2009]). An analysis of four genera – the Slavic, the Germanic, the Romance and the Finno-Ugric – shows that in both diminutive and augmentative categories it is the

front element that unambiguously prevails and, as a result, it is impossible to draw a line between the front marking of diminutives and the back marking of augmentatives. Furthermore, it was shown that the evaluative categories are most frequently expressed by complex markers combining iconic and non-iconic segments, which makes the process of iconicity evaluation most difficult. Neither the results obtained from a comparison of three groups of geographically and genetically different languages, including the Indo-European, the Austronesian and the Niger-Congo families (Gregová, Körtvélyessy, Zimmermann [2010]) confirm the postulate of universal iconic preference for front high vowels and front consonants in diminutives and back vowels and back consonants for augmentatives as claimed by Universal 1926 in Plank and Filimonova’s *Universals Archive*. On the contrary, a detailed analysis of diminutive and augmentative affixes, supported by the frequency distribution histograms, indicates that front high vowels are typical of augmentatives rather than diminutives. Diminutive affixes are acoustically realized by central vowels. Similarly, the behaviour of consonants contradicts any universal expectations: front consonants slightly prevail in augmentatives and back consonants are typical of diminutives. In some languages, for example, Slovak,³ the process of palatalization changes the consonant before the diminutive affix, e.g. *palic-a* ‘stick’ > *palič-k-a* ‘a little stick’. In any case, the above-mentioned observations disregard any phonetic modifications due to affixation.

3. Method and sample

The current research data has been obtained by means of two different questionnaires.

Questionnaire 1: The questionnaire consists of a list of 35 core vocabulary items. The aim was to cover both the core vocabulary and four major word-classes: nouns, verbs, adjectives, and adverbs. The structure of the core vocabulary in terms of cognitive categories is as follows:

- (1) - [Animate] - [Human] - [Kinship term]
 - [Body part]
 - [Profession]
 - [Animal]
 - [Plant]
- [Inanimate] - [Natural Object]
 - [Celestial Object]
 - [Artefact]
- [Action] - [Action Proper]
 - [State]
- [Quality]
- [Circumstance]

The data sheet with 35 lexical items was filled out by linguists. In case of several options of diminutive-formation for the individual lexical items only the most productive pattern was taken into account. Although the completed questionnaires gave us useful information, supplementary comments added by our informants proved to be a source of important details and instigated the development of another questionnaire – this time in the form of a data sheet.

³ For more detailed analysis of the Slovak diminutives cf. Böhmerová (this volume).

Questionnaire 2: The data sheet is divided into 4 sections:

- A. Diminutives
- B. Augmentatives
- C. Semantic categories of Evaluative morphology
- D. Word-classes

The basic question of the diminutive/augmentative section is: Does the language form DIMINUTIVE / AUGMENTATIVE morphologically? Various possibilities of morphological formation (prefixation, suffixation, infixation, transfixation, compounding, incorporation, reduplication, conversion) of diminutives and/or augmentatives are offered and the informants are asked for examples, including literal translation into English.

The second section focuses on semantic categories in evaluative morphology. The underlying question is: Can your language express the following semantic categories? The accompanying chart offers semantic categories of physical quantity, quantity of quality, quantity of action, gender, etc. The central question of the last section focuses on word-classes that can express diminutiveness/augmentativeness in a given language. Questionnaires were completed in two ways – either informants were approached or descriptive grammars of individual languages were used.

4. Areal typology

Areal typology is characterized by a relative paucity of literature, especially in comparison with other fields of typological research. By implication, the study of phonetic iconicity and evaluative morphology in terms of areal classification means, many times, work on untitled area. Given the main focus of this paper – the African languages, an important reference is Güldemann’s (forthcoming) outline of a synchronic macro-areal profile of Africa. Güldemann suggests 5 language areas in Africa.

The collected questionnaires represent 16 languages. Table 1 and Figure 1 illustrate their genealogical classification and geographical areas.⁴

Language	Language family	Genus	Area
Bafut	Niger-Congo	Bantoid	Cameroon
Bemba	Niger-Congo	Bantoid	Democratic republic of Congo, Southern Kivu Province
Luwanga	Niger-Congo	Bantoid	Kenya, Lake Victoria
Kiluba	Niger-Congo	Bantoid	Democratic republic of Congo, Katanga Province
Xhosa	Niger-Congo	Bantoid	South Africa
Zulu	Niger-Congo	Bantoid	South Africa
Akan	Niger-Congo	Kwa	Ghana
Yoruba	Niger-Congo	Defoid	Benin, Nigeria

⁴ The genealogical classification is based on WALS. If the language was not present there, the Ethnologue was used (e.g. in the case of language Mina).

Fur	Nilo-Saharan	Fur	Sudan
Kanuri	Nilo-Saharan	Saharan	Cha, Niger, Nigeria, Sudan
Koyra Chiini	Nilo-Saharan	Songhay	Mali
Ma'di	Nilo-Saharan, Central Sudanic	Moru-Ma'di	Sudan, Uganda
Siwi	Afro-Asiatic	Berber	Egypt
Maale	Afro-Asiatic	North-Omoti	Ethiopia
Mina	Afro-Asiatic	Biu-Mandara	North Cameroon
Nama Hottentot	Khoisan	Central Khoisan	Namibia

Table 1: The genealogical classification and areas of presence of 16 African languages

Figure 1: The genealogical classification and areas of presence of 16 African languages

Güldemann proposes 5 macro-areas of Africa:

- (I) Sahara spread zone (Berber, Arabic)
- (II) Chad-Ethiopia
- (III) Macro-Sudan belt
- (IV) Bantu spread zone
- (V) Kalahari Basin

Each macro-area has its language representation in Table 1. Two languages were excluded from further analysis – Ma'di and Luwanga. They are spoken on a territory that belongs to a large area of southern Sudan, Uganda, Kenya, northern Tanzania. Güldemann characterizes it as an expansion area of Nilotic 'framed' by 4 fragmentation zones, typical of serious lack of data. For similar reasons the Kanuri language was dropped, too.

Table 2 and Figure 2 illustrate the fusion of Güldemann's linguistic areas and WALS information on sample languages.

Language area	Language	Family	Genus
	Siwa	Afro-Asiatic	Berber
Sahara spread Zone	Koyra Chiini	Nilo-Saharan	Songhay
	Fur	Nilo-Saharan	Fur
Chad-Ethiopia	Maale	Afro-Asiatic	North-Omoti
	Akan	Niger-Congo	Kwa
Macro-Sudan belt	Yoruba	Niger-Congo	Defoid
	Bafut	Niger-Congo	Bantoid
	Bemba	Niger-Congo	Bantoid
Bantu spread zone	Kiluba	Niger-Congo	Bantoid
	Khoekhoe	Khoisan	Central Khoisan
Kalahari Basin	Zulu	Niger-Congo	Bantoid
	Xhosa	Niger-Congo	Bantoid

Table 2: Fusion of Güldemann linguistic areas and WALs

Figure 2: Fusion of Güldemann linguistic areas and WALs

5. Analysis of the linguistic areas

The analysis was based on three basic questions:

1. Is there Evaluative Morphology in the African language analyzed?
2. If yes, do the morphological markers comply with the iconicity hypothesis?
3. What are the differences between African and European languages in terms of phonetic iconicity?

5.1. Is there Evaluative Morphology in the African languages analyzed?

The following table overviews the presence of evaluative morphology in the languages under investigation.

Area	Languages	Is there EM?	Iconic – Non-iconic		
			Universal		Ullan+Nieuwenhuis
			DIM	AUG	DIM
	Siwa	≈	≈	≈	≈
Sahara spread Zone	Koyra Chiini	✓	✓	×	×
	Fur	≈	≈	≈	≈
Chad - Ethiopia	Maale	✓	×	×	×
	Akan	✓	×	×	×
Macro-Sudan belt	Yoruba	≈	≈	≈	≈
	Bafut	✓	×	×	×
	Bemba	✓	×	×	×
Bantu spread Zone	Kiluba	✓	×	×	×
	Khoekbe	✓	×	×	×
Kalahari Basin	Xhosa	✓	×	×	×
	Zulu	✓	×	×	×

Table 3: Presence of EM ≈ - no EM ✓ - yes × - no

Evaluative Morphology is present in 9 of 12 African languages. The Kalahari Basin and Bantu Spread Zone completely match Güldemann’s areal classification. One of three languages of the Macro-Sudan Belt – the Yoruba language (an isolating language) – lacks evaluative morphology. The Sahara spread Zone is represented by 2 geographically distant languages in my sample, and unfortunately without sufficient information on the Siwa language – no informant was available and the grammars do not offer this kind of information. On the other hand, the previously excluded languages – Kanuri, Maadi, Luwanga. Maadi are spoken on this territory; Luwanga makes use of evaluative morphology, Kanuri does not.

Figure 3: Linguistic areas of Africa and EM

5.2. Do the morphological markers comply with the iconicity hypothesis?

In addition to the question of presence/absence of evaluative morphology in the languages under research, the nature of evaluative markers was studied. The attention was paid to their vocalic and consonantal iconicity.

The occurrence of purely front high vowels in the diminutive affixes in the languages of Africa is 0%. Single-segment palatal (or alveo-palatal) consonants do not occur either. The occurrence of the combination *front high vowel + alveopalatal/palatal consonant*⁵ is also 0%. An overview of the structure of evaluative markers in the sample languages is given Table 4 and Table 5.

Analysis of diminutive and augmentative affixes

DIMINUTIVES

I. Sahara spread zone

Siwa x

Koyra Chiini

-iya front high + palatal + central low

-ije front high + palatal + front mid

II. Chad – Ethiopia

Fur x

Maale

-ómma back mid + bilabial + central low

III. Macro-Sudan belt

Akan

ba- bilabial + central low

Yoruba x

Bafut

mu- bilabial + back high

fi- labio-dental + front high

-tə alveolar + central

IV. Bantu spread Zone

Bemba

kaa - velar + central low

aka- central low + velar + central low

atu - central low + alveolar + back high

Kiluba

ká- velar + central low

V. Kalahari Basin

Khoekbe

-ró alveolar + back mid

Xhosa

-ncinci dental alveolar + front high + dental alveolar + front high

-ana central low + alveolar + central low

⁵ All vowels of I-type were characterized as front high, E-type vowels were indicated as front mid, vowels of A-type are central low, vowels O-type are back mid, and all vowels of U-type were interpreted as back high. Consonants were divided into three categories based on the place of articulation: FRONT: bilabial, labio-dental, dental; MID: alveolar, palato-alveolar, palatal; BACK: velar, laryngeal.⁵

Zulu

-anyana	central low + palatal + alveolar + central low
-ana	central low + alveolar + central low
-wana	labial velar + central low + alveolar + central low
-ane	central low + alveolar + front mid

Table 4: Analysis of diminutive affixes

If a tendency to phonetic iconicity means only the ‘appearance of a high front vowel and/or palatal/alveolar consonant’, Koyra Chiini, Bafut, Bemba, Khoekbe, Xhosa, Zulu show this tendency. However, if only vowel sounds are taken into consideration (as proposed by the Universal), no more than three languages – Bafut, Xhosa and Koyra Chiini – can be included. Bafut has two diminutive prefixes and one suffix:

- (2) *sing* ‘bird’ < *mu-sing* ‘birdie’
ngo’o ‘stone’ < *fi-ngo’o* ‘DIM+stone’
tonge ‘dig’ < *tong-tə* ‘dig + DIM’

Each of them consists of at least one iconic element – [m], [t], [i]. However, only [i] sound of the *fi-* prefix corresponds with the Universal.

The case of Xhosa is even more confusing. Both diminutive suffixes contain iconic elements. On the other hand, the fully iconic *-ncinci* only appears in one word of the questionnaire:

- (3) *ubawo* ‘father’ < *ubawoncinci* ‘daddy’

The vowel sounds of the second suffix *-ana* are non-iconic, only [n] is referred to as alveolar, thus iconic.

- (4) *isando* ‘hammer’ < *isandwana* ‘hammer + DIM’

Neither Koyra Chiini can be unambiguously characterized as an iconic language. Heath [1999: 78] states that

The old Diminutive suffix *-iya* is preserved only vestigially in a few forms like *bundiye* ‘brochette’ < *bundu* ‘stick, wood’ and *huriya* ‘knife’...plus a few flora-fauna terms like *takiriya* ‘firefinch’.

On the other hand, he also mentions compounding to be a diminutive-forming process. Determinatum of the compound is *-ije*, whereas *X-ije* literally means ‘child of X’ in the sense ‘a smaller entity associated with X’. If X denotes a physical object, *X-ije* denotes a smaller object physically associated with it or a small X. If X denotes a collectivity, mass, location, or abstraction, *X-ije* denotes an individual (Heath [1999: 78]). Considering the meaning of the compound, the meaning and the position of *-ije* never changes and preferably it can be referred to as a semiaffix and the process of coining diminutives in Koyra Chiini suffixation:

- (5) *fufu-tondi-ije* ‘small grindstone’ < *fufu-tondi* ‘grinding stones’
ferey-ije ‘piece of brick’ < *ferrey* ‘brick’
koyra-ije ‘citizen, townsperson’ < *koyra* ‘town’
wangu-ije ‘soldier’ < *wangu* ‘army, war’

Nevertheless, if *-ije* is accounted for as a (semi)affix, it is the only iconic suffix in the sample of African languages.

AUGMENTATIVES

I. Sahara spread zone

Siwa x

Koyra Chiini x

II. Chad – Ethiopia

Fur x

Maale

-ats central low + post alveolar

III. Macro-Sudan belt

Akan x

Yoruba x

Bafut

ma- bilabial + central low

IV. Bantu spread Zone

Bemba

cii- post-alveolar + front high

ici- front high + post-alveolar + front high

ifi- front high + labio-dental

Kiluba

kí- post-alveolar + front high

V. Kalahari Basin

Khoekbe

-kára velar + central low + alveolar + central low

Xhosa

-kazi velar + central low + dental-alveolar + front high

Zulu

-kazi velar + central low + alveolar + front high

Table 5: Analysis of augmentative affixes

Augmentative markers are used in nine out of twelve languages. Neither of them incorporates a back vowel; to the contrary, front high vowels are present – e.g. in Bemba:

- (6) *maayo* ‘mother’ < *ciimaayo* ‘AUG + mother’
utulo ‘sleep’ < *icitulo* ‘AUG+sleep’

and Kiluba:

- (7) *kíkiluwe* ‘hand’ < *kíkiluwe* ‘AUG+hand’

5.3. What are the differences between African and European languages in terms of phonetic iconicity?

The research data for the languages of Europe show two major trends.⁶ First, morphological realization of the category of diminutiveness is much more common than that of augmentativeness. The same conclusion applies to the languages of Africa, which confirms a universal implicational relation ‘IF Augmentative markers THEN diminutive markers’ (cf., for example, Štekauer, Valera and Körtvélyessy [to appear]). Second, there are considerable differences between individual language families. While Slavic languages show ‘affluence’ of evaluative morphology without substantial differences between individual languages, ranging over all main word-classes, there are considerable differences inside the other language families examined, for example, between German and English, between Estonian and Hungarian, etc. African languages seem to be more homogeneous in terms of the number of evaluative markers per language, this number ranging from one to four.

The postulate of phonetic iconicity has not been confirmed for either European languages or African languages. On both continents the major part of evaluative markers is based on a combination of iconic and non-iconic elements.

The tendency towards iconicity in African augmentatives has not been confirmed either – the results show totally opposite tendencies – similar to those mentioned by Diffloth [1994] for Bahnar languages where, as he states, high=Big and low=small. Similarly, the analysis of augmentative affixes in Slavic languages has revealed the predominance of two combinations *front high vowel + MID consonant* and *front high vowel + MID consonant + BACK consonant*. Morphological augmentatives in Germanic and Finno-Ugric languages are rare and do not permit us to draw any relevant conclusions in relation to phonetic iconicity. In Romance languages, most of the consonants are MID ones and most of vowels are central.

6. Conclusions

The basic aim of the study presented was to analyze the tendencies towards sound symbolism in the linguistic areas of Africa and to compare the results with previous conclusions. Following the Universal, the iconicity of vowels was tested and following the previous research by Ultan [1978] and Nieuwenhuis [1985], the iconicity of consonants was examined, too. Both analyses confirmed the results of research carried out on a sample of Indo-European and Austronesian languages – Universal #1932 seems to be just one of linguistic disbeliefs. The verb *seem* is used by purpose in the previous sentence. The longer (and the deeper) I have been studying the phonetic iconicity in various languages the more persuaded I am that the synchronic study should be completed with diachronic analysis and harmonized with the principles of Natural Morphology (e.g. the vowel harmony rule overpowers the iconicity principle).

The second goal of the analysis – to point out the importance of areal classification of languages within the framework of Evaluative Morphology – was proved. In this case, no *seem* is necessary – the presence/absence of evaluative morphology in the sample languages of Africa closely match the linguistic areas as proposed by Güldemann.

⁶ Štekauer *et al.* [2009], the research encompassed 25 languages: Russian, Ukrainian, Belorussian, Czech, Slovak, Polish, Bulgarian, Serbian, Croatian, Slovenian, Macedonian; English, German, Swedish, Danish, Afrikaans; French, Italian, Romanian, Portuguese, Spanish, Catalan; Finnish, Hungarian, Estonian.

At the very end, I would like to remind the readers that the presented text is based on a fraction of about 2,000 languages spoken in Africa. By implication, the results should be viewed with caution.

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