



## THE SPREAD OF FOLKLORIC MOTIFS AS INFORMATION EXCHANGE, OR, WHERE EAST MEETS WEST

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**Abstract:** The author describes the results of statistical processing of data on the distribution of 548 motifs corresponding to episodes of adventure and tricks according to 309 traditions of the Old World. Factor analysis has been applied. The totality of traditions can be understood as a cloud of dots with uneven density. Traditions which contain similar sets of motifs are located close to each other and those that share a minimum number of common motifs are the most distant from each other. The program finds such assemblies of dots in pairs and confers every dot a conditional number which is positive for one group and negative for the opposite one. Every pair of assemblies of dots corresponds to a principal component of which the first two provide information on the most important tendencies. The intensity of the exchange of the motifs between traditions can be taken as a proxy for exchange of information between people in the pre-industrial epoch. The results of the analysis demonstrate that besides the Americas, Australia and Oceania, the islands of Southeast Asia and Northern and Northeast Siberia were the most isolated regions from nuclear Eurasia (the latter encompasses the Mediterranean, Europe, Southwest, Central, South and East Asia). The nuclear Eurasian contacts of Sub-Saharan Africa were significantly more intensive. The Chinese tradition contains much less typically Nuclear Eurasian motifs than the Korean and the Japanese ones. Inside nuclear Eurasia itself, the Eastern and the Western interaction spheres can be selected, the borderline between them going across Eastern Europe and then separating the Turkic and Iranian traditions from the Arabian ones. Traditions of the Baltic peoples, Belarusians and Ukrainians are in the western cluster, those of the peoples of the Caucasus, the Bashkir and the Volga Tatars in the eastern one. The Russians, the Setu (southeast Estonians) and the Mordvinians have a slight preponderance of the western motifs while the Gagauz and the Crimea Tatars have a slight preponderance of the eastern motifs. An increase of the share of the eastern motifs in the southern Balkans and Central Mediterranean can be a consequence of the Osman onslaught. Though the described tendencies accumulate only 18% of all the information that the factor analysis is able to extract from the data, just this information reflects the most significant regularities in the areal distribution of the motifs in continental scale.

**Key words:** folklore databases, folklore indexes, folktales, cultural borders, nuclear Eurasia, Eastern Europe.

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## The Spread of Folkloric Motifs as Information Exchange, or, Where East Meets West<sup>1</sup>

The author describes the results of statistical processing of data on the distribution of 548 motifs corresponding to episodes of adventure and tricks according to 309 traditions of the Old World. Factor analysis has been applied. The totality of traditions can be understood as a cloud of dots with uneven density. Traditions which contain similar sets of motifs are located close to each other and those that share a minimum number of common motifs are the most distant from each other. The program finds such assemblies of dots in pairs and confers every dot a conditional number which is positive for one group and negative for the opposite one. Every pair of assemblies of dots corresponds to a principal component of which the first two provide information on the most important tendencies. The intensity of the exchange of the motifs between traditions can be taken as a proxy for exchange of information between people in the pre-industrial epoch. The results of the analysis demonstrate that besides the Americas, Australia and Oceania, the islands of Southeast Asia and Northern and Northeast Siberia were the most isolated regions from nuclear Eurasia (the latter encompasses the Mediterranean, Europe, Southwest, Central, South and East Asia). The nuclear Eurasian contacts of Sub-Saharan Africa were significantly more intensive. The Chinese tradition contains much less typically Nuclear Eurasian motifs than the Korean and the Japanese ones. Inside nuclear Eurasia itself, the Eastern and the Western interaction spheres can be selected, the borderline between them going across Eastern Europe and then separating the Turkic and Iranian traditions from the Arabian ones. Traditions of the Baltic peoples, Belarusians and Ukrainians are in the western cluster, those of the peoples of the Caucasus, the Bashkir and the Volga Tatars in the eastern one. The Russians, the Setu (southeast Estonians) and the Mordvinians have a slight preponderance of the western motifs while the Gagauz and the Crimea Tatars have a slight preponderance of the eastern motifs. An increase of the share of the eastern motifs in the southern Balkans and Central Mediterranean can be a consequence of the Osman onslaught. Though the described tendencies accumulate only 18 % of all the information that the factor analysis is able to extract from the data, just this information reflects the most significant regularities in the areal distribution of the motifs in continental scale.

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The theme of this article is the spread of information between the societies of the Old World in pre-industrial times. My research material is the areal distribution of folkloric motifs. Elements of narrative texts that are not strictly connected with a particular cultural or natural milieu are easily borrowed. The amount of borrowing must reflect the frequency and length of contact between people. It was at its highest in nuclear Eurasia. Beginning in the Hellenistic / Han period, this territory was criss-crossed with trade routes, and this facilitated cultural exchange. It included regions with the highest demographic density in the world, which were part of world empires. Contacts between the societies of nuclear Eurasia and the societies of Sub-Saharan Africa, Oceania and the islands of Southeast Asia — not to mention America and Australia — were less close than contacts within that area. By processing a mass of folkloric material it has been possible to

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discover differences in the degree of isolation of peripheral regions and to identify information frontiers within nuclear Eurasia itself.

### On subjects and indexes

The adequacy of statistical procedures depends on the reliability of the database. Let us try to explain what has determined our choice of analytical units and how they are related to actual textual material.

Folklorists use indexes of two kinds: Stith Thompson's index of elementary motifs [Thompson 1955–1958] and indexes of the tale-types of international folklore, ranging from the first variant, by Antti Aarne, to that by Hans-Jörg Uther [Aarne 1910; Aarne, Thompson 1961; Uther 2004]. Dozens of regional indexes of various extent have been compiled following the ATU (Aarne-Thompson-Uther) system. Unfortunately, however, neither system can be used as an immediate source for the study of the sort of historical questions that interest us here.

Thompson created his index of elementary motifs for the express purpose of describing worldwide folklore in the abstract from its regional specifics [Thompson 1932: 2]. The root definitions of most motifs are so formulated as to be free of any concrete reference (A1730. *Creation of animals as punishment*), while their further definitions are, on the contrary, exceedingly specific (A1731. *Creation of animals as punishment for beating forbidden drum*). Sometimes the root definitions include superfluous details, which are not essential to the motif and are characteristic only of those variants which have been published in particular works. An example of this is the famous motif A812. *Earth Diver*, which is orientated towards the text of the North American Algonquin and Athabascans.

Thompson also has motifs which are defined quite concretely and which describe images and episodes that are widespread but not universal (for example, A665.6. *Serpent supports sky*; F67. *White sheep carries to upper world, black to lower*). However, such examples make up only an infinitesimal part of the total number of motifs, and moreover they are far from encompassing the whole set of recurring and regionally specific elements of world folklore.

Indexes of tale-types present a different sort of problem. Aarne compiled his in the context of research by the Finnish School, the object of which was to discover where a subject had originally arisen and how it had spread. This task related to the problems of the historical discipline, but the suggested hypotheses were not confirmed, and the Finnish School's basic positions were the subject of severe criticism [Jason 1970].

Works written in the same spirit are nevertheless still being produced. Their present variant takes the form of research structured on the model of the analysis of the genome: the subject is divided into elements and by correlating these elements the points of bifurcation

into variants are determined [Tehrani 2013]. There are doubts about the correctness of this procedure. Unlike the genotype of eukaryotes, folkloric texts are capable of inheriting information not only vertically, from ancestral texts, but also horizontally, from texts about other subjects. The probability of such borrowing is not equal in all cases, but its possibility is evident, which makes the reconstruction of connections between variants unreliable.

There is another reason why the methods of genetics may not legitimately be transferred wholesale to folklore studies. A geneticist who takes material for analysis may be sure that it contains all the haplogroups which characterise a particular person, and, with a sufficient sample, the whole population under study. The folklorist, though, is sure of quite the reverse: to take into account the whole mass of folkloric episodes and images that characterise a discrete tradition is practically impossible. This is true even of very well studied traditions, like the Russian one, even more so of moribund and poorly described traditions. Consequently, the absence of particular episodes and images in the material being analysed may be real, or it may be illusory and due to the lack of relevant fieldwork or the inaccessibility of publications.

There is only one way of overcoming problems of this sort: not studying separate subjects, but the material *en masse* and using statistical methods to analyse it. In a large sample non-systemic errors and omissions will balance each other out and will not obscure the fundamental tendencies. Even if subjects always evolved from a single root through the appearance and divergence of variants (which, as has been said above, is improbable), we would hardly be able to identify and localise that root reliably. However, there is nothing to stop us from evaluating the degree of similarity or dissimilarity between the totality of folkloric texts characteristic of different areas or different ethnic groups.

Indexes constructed on the ATU system are useful for the study of the tendencies of the geographical distribution of the mass of folkloric material. However, since the statistical processing of such material was not one of the aims of the people who developed this system, the ATU system cannot serve as the basis for our database. Above all, this index is Eurocentric and for a large part of the Old World it only rarely gives any reference to concrete ethnic traditions. The problem is not solved by supplementing ATU with regional indexes. Some of them are practically useless, for example the Chinese one, which often contains Uigur, Mongol, Miao and other material with no indication that it does not relate to the Han [Ting 1978]. In the Arabic and South Asian indexes [Thompson, Roberts 1960; El-Shamy 2004], the ethnos may only occasionally be 'deduced' from the references to original sources. For many regions indexes do not even exist.

An even more substantial problem relates to the description of subjects. The further one gets from Europe and Western Asia, the more recognisable subject-types disappear. It is not that there is anything to prevent one from identifying new types, but that the very system of genres upon which the classification is based loses its relevance. And that is not all: for the basic zone of the Old World, the ATU subject-types turn out to be nothing more than signposts in the search for analogies. Some of the definitions that ATU proposes do indeed allow a definite assertion that the episode described in the definition really is characteristic of a given tradition and is present in the publication cited. However, there are not a few cases when a whole series of episodes (both consecutive and alternative) are described in the definition of a subject, and each of them might be present in any one of the traditions enumerated in connection with this subject, or it might not. Tendencies in the distribution of particular subjects by area never coincide exactly, and sometimes they diverge significantly.

I shall demonstrate this by tale-type 301. *The three stolen princesses* ('The three underground kingdoms' in the East Slavic index [Barag et al. 1979]). Six of the fifteen or so episodes which are frequently connected with this subject, and the geographical distribution of which can be traced from original publications, have been chosen. Like the others, these six episodes may be combined with each other in various configurations in texts that ATU refers to type 301, but may also be used in texts that are not connected with it.

***The sworn brethren and the dwarf*** (fig. 1.1). *Two or more characters one by one leave the house, or go to fetch fire for cooking, or bring food into the house. Each time a certain character appears and eats the food and / or overcomes the person who has remained behind or who has come to fetch fire.* Besides nuclear Eurasia, the episode is popular in Southeast Asia and reasonably well represented south of the Sahara.

***The hero helps the birds*** (fig. 1.2). *The hero does a good deed for the birds (in the Subcarpathian region, for the young of a flying serpent), and their grateful mother does him a favour (usually by bringing him to the locus which he is trying to reach).* This motif is completely absent from the interior of Africa, but it has reached Eastern Siberia and even been recorded among the Eskimos of Chukchi peninsular. It is one of the few episodes of the Eurasian fairy tale known from cuneiform texts from ancient Mesopotamia ('Lugalbanda and the eagle Anzud').

***The white sheep and the black sheep*** (fig. 1.3). *Having entered the underworld, the hero sees a white sheep and a black sheep (less frequently horses, etc.). The white one will carry him to the world above, the black one will take him lower still. Usually the hero accidentally touches the black sheep.* This episode is very typical of the Eastern Mediterranean,

but is not diffused beyond the Maghreb, middle Volga region and the Pamirs.

***The serpent threatens the nestlings*** (fig. 1.4). *A hydro-chthonic or unspecified monster eats or injures the young of a mighty creature (usually a bird). Their mother is powerless against the monster, but the hero kills it.* This episode is often, but not always, connected with episode 2, but in the Old World it occupies a more compact territory than episode 2. Unlike the rest, ‘The serpent threatens the nestlings’ is represented in Africa, and moreover it is one of the Kazakh versions that is closest to those from India [Berezkin 2014: fig. 1]. In the Iranian index this episode is treated as a separate tale-type, 301E [Marzolph 1984].

***The packed-up kingdom*** (fig. 1.5). *When she returns to earth from the underworld, the stolen princes places the things surrounding her (her clothes, her house, ‘the kingdom’) inside a small object (an egg, a ball of wool, etc.) which she takes with her.* This episode is rare in comparison with the others and mostly characteristic of Eastern Europe. Admittedly, I may have failed to note some instances of the use of this episode, since the corresponding motif has only recently been included in the catalogue. However, it is unlikely that the filling in of any possible gaps will significantly extend the area in which this episode is encountered.

***Feeding the bird Simurg*** (fig. 1.6). *A character must feed a powerful creature by regularly throwing it a piece of meat. There is not enough prepared, and he cuts the last piece from his own flesh (usually the bird is carrying the hero to where he needs to go, and he feeds it during the flight).* The territorial distribution is much the same as that of episode 2, but with a noticeable difference: ‘Feeding the bird Simurg’ is absent in South Asia.

The presence or absence of individual episodes in the European areas bordering the Atlantic, in South Asia, or in Sub-Saharan Africa is very important for tracing transcontinental contacts. However, as we have just seen, it is impossible to obtain the relevant information from the indexes. For this it is necessary to turn to the original publications and compile one’s own catalogue, in which the set of analytical units is dictated by the questions being studied, and not by classifications created for other purposes. Work on such a catalogue was begun a quarter of a century ago, and since the beginning of the present century it has been available on the internet. The text version is revised once a year <<http://www.ruthenia.ru/folklore/berezkin>>, and the English and Russian descriptions of the motifs, together with maps of their distribution, are placed on an interactive site (not yet publicly available). The statistical processing is based on a correlative table which reflects the distribution of about two thousand motifs in nearly one thousand traditions. Each unit (‘1’) in a field of

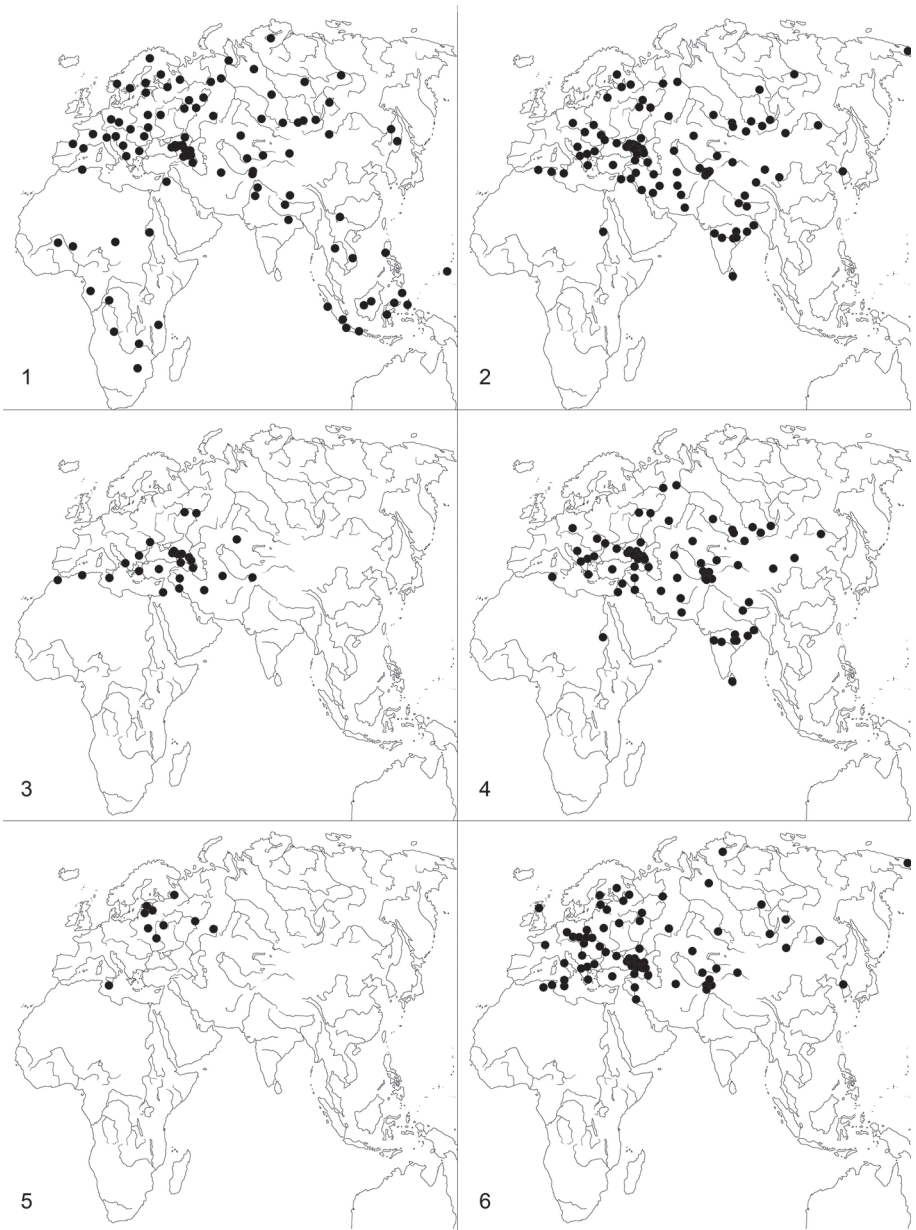


Fig. 1. Territorial distribution of six motifs / episodes found in the context of ATU 301:

1. The sworn brethren and the dwarf
2. The hero helps the birds
3. The white sheep and the black sheep
4. The serpent threatens the nestlings
5. The packed-up kingdom
6. Feeding the bird Simurg

the correlational table corresponds in the catalogue not only to a reference to sources, but also to a summary of the texts containing the given motif. This allows us to avoid chance errors, of which there are not a few in ATU, and evaluate the real similarity of the texts.

### **Types of motif, the representative nature of the data, and the common stock of nuclear Eurasian folklore**

It is the motif that is our basic analytical unit. Most often, motifs correspond to episodes like those whose distribution is indicated on fig. 1. However, the database also contains image motifs such as ‘sun — woman’ or ‘the rainbow is a snake’. No clear boundary can be drawn between episodes and images. For example, the motif of ‘the white sheep and the black sheep’ from type 301 (fig. 1.3) is easy to represent either as an image or an episode. A different division — into cosmological and aetiological (category A) motifs on the one hand, and adventure and trickster motifs (category B) on the other — is more productive. Potentially, any motifs may be used in texts of any genre, but group A motifs are much more frequent in ‘mythological prose’, whereas group B motifs are more frequent in ‘fairy tales’. The practice of processing the two categories of motifs separately has shown that they tend to have different geographical distributions and evidently spread at different times. Moreover, category A motifs may in turn be further divided into groups — from those which are properly cosmogonic to those which describe unusual creatures and objects. The distribution tendencies of some motifs in the latter group are more reminiscent of the distribution tendencies of the adventure-trickster motifs than of the cosmological and aetiological motifs belonging to category A. The category B motifs also include two groups (adventure motifs and trickster motifs), and the slight but important difference in their areal spread is now under investigation.

The statistical processing of motifs from different categories together is not rational, at least within the confines of Eurasia, where we have on the one hand relatively recently diffused fairy-tale episodes, and on the other cosmogonic subjects, part of which are of an antiquity comparable to that of the first human settlement of America. Our object in writing this article was to analyse only category B (adventure and trickster) motifs and only within the confines of the Old World. Moreover, motifs that exist only on the periphery of the Old World (in Sub-Saharan Africa, Oceania, etc.), and are absent from nuclear Eurasia, were also excluded from consideration.

As has already been said, it is not possible to give an absolutely complete account of all the motifs of a particular tradition, but when the material is processed *en masse* it is not so necessary. What is essential, however, is that the traditions being compared should



have been studied to more or less the same degree. After statistical processing traditions that have been much worse studied than the others usually receive neutral notional indices (close to zero), but the same thing happens with well represented traditions which contain in equal proportions those motifs which are not usually combined in other traditions.

The need for the traditions to have been studied to an equal degree was constantly borne in mind when the material for the database was being sought. If we count not the total number of motifs, but only adventure and trickster motifs processed for the present article, then we find that for the majority of the traditions of nuclear Eurasia and North Africa their number fluctuates within the range  $150 \pm 45$  (Spanish: 178, French: 168, Estonian: 178, Mari: 154, Bashkir: 149, Ossete: 151, Bulgarian: 195, Kabyle: 114, Egyptian Arabic: 107, Levantine Arabic: 151, Persian: 167, Tajik: 163, Buryat: 146, Southern Altaic: 111, Japanese: 121). For South Asia, China east of Ordos and Tibet, continental Southeast Asia, Arabia and Northeast Africa, the figures are lower and fluctuate within the range  $70 \pm 25$  (North Indian Hindi-speaking groups: 89, Sinhalese: 91, Maratha: 45, Santhal: 81, Gond: 42, Burmese: 57, Shan: 47, Vietnamese: 61, Mehri and Shehri: 63, Sudanese Arabic: 84, Chinese: 78, Miao: 53). At the same time, in all regions there are traditions with a more meagre representation and a number of group B motifs in the range  $30 \pm 10$  (Sorbian: 37, Votish: 27, Tabasaran: 32, Saudi Arabic: 26, Şor: 32).

Transcontinental regularities in the distribution of motifs should be judged primarily on the traditions which are best represented in the database. Thus if, statistically, the Şor folklore turns out not to be sufficiently 'Central Asiatic and Siberian', like the Altaic, this should be explained by the fact that the Şor material is less well studied, and not by the presence in it of motifs which are typical of Europe and Africa and absent in Altaic folklore. Most of the traditions of Eastern and Western Europe, in which we are particularly interested at the moment, are represented in the database by large and more or less equal numbers of recorded motifs, so there should not be any chance errors due to disproportion in the data here.

The situation regarding the evaluation of Indian and Chinese folklore within nuclear Eurasia is more complicated, for there are systematically fewer data for these territories than for Europe, the Caucasus or Central Asia; more on this below.

The distribution of 548 motifs from 309 traditions was analysed during the work. Both the number of motifs and the number of traditions identified in the database for the Old World are considerably higher, but data were only used from those traditions which have 20 or more adventure-trickster motifs registered.

As a result the majority of traditions from Oceania, Australia and some other regions (notably Taiwan) were immediately excluded from consideration.

The data were processed by means of factor analysis. The totality of traditions may be represented as a cloud of points of varying density. The strings of zeros and ones are considered to form vectors in a high-dimensional space of motifs. One considers this space to be spanned by underlying, hidden factors or components. The set of factors forms a simpler, lower dimensional space and the objective is to determine its principal components. The points (i.e. traditions) which contain similar sets of motifs are placed next to each other, while those which have fewest motifs in common are furthest away from each other. The programme finds pairs of such clusters and assigns a numerical reference to each, with a plus sign for one cluster and with a minus sign for the cluster furthest from it. Each such pair of clusters constitutes one Principal Component (PC). In theory the number of PCs may be equal to the number of points, but in practice, with extensive and diverse material such as ours only the first two or three components reflect results of general validity, while the rest identify various individual tendencies. In our case the first three PCs contain just over 18 % of the total information, 4 % of it in the second PC, which is the most interesting for us. It is this information which reflects transcontinental tendencies in the diffusion of motifs. Almost everything else consists of various regularities which are manifested at a local level.

The first PC (which contains 11.3 % of the information) opposes the traditions of nuclear Eurasia to all the rest (fig. 2). Since there is no other group of adventure-trickster motifs in the Old World comparable to it in force, only those traditions with a plus sign, i.e. the nuclear Eurasian traditions, have a high absolute value, while all the traditions with a minus sign have absolute values of less than 1. This result was a consequence of the actual choice of material: motifs absent in nuclear Eurasia were excluded from consideration. This, however, did not apply to motifs represented in East Asia and continental Southeast Asia. Consequently the difference between South, Southeast and East Asia in the distribution of nuclear Eurasian motifs is not a result of the filter that was applied. Nor is it conditioned by the varying degrees of completeness of the sources: as stated above, for the main traditions of Indo-Pacific Asia the difference is more or less the same ( $70 \pm 25$  registered motifs for each). At the same time, the traditions of South Asia, which are the best represented in the sources have positive indices (that is, they contain quite a large number of parallels with Europe, the Caucasus, Mongolia, etc.), while all the traditions of China and Southeast Asia (even the best represented in the sources) have negative indices.



Fig. 2. Results of an analysis of the distribution of 548 adventure and trickster motifs known in nuclear Eurasia, in 309 traditions of the Old World. First main component (PC 1).

Even sharper is the contrast between China and Japan and Korea. Japanese folklore contains abundant borrowings from the folklore of Europe, many of which cannot be clearly dated. There are also European parallels in Korea, but more analogies with Central Asia. In any case, Korean and Japanese folklore have much more in common with nuclear Eurasian folklore than Chinese folklore does.

The second substantial tendency is the difference in the representation of nuclear Eurasian motifs in Sub-Saharan Africa, on the one hand, and in the islands of Southeast Asia and Melanesia on the other. The indices are negative in both regions, but in tropical Africa some of them have a value from 0 to 0.49, whereas in the Southeast Asian Archipelago ('Nusantara') and Melanesia all traditions without exception have negative indices the absolute values of which are higher — from 0.50 to 0.85. This means that the islands of Southeast Asia, together with southern Indochina and Melanesia, were less accessible to influence from nuclear Eurasia than Sub-Saharan Africa. Northern and Northeast Siberia are also extremely isolated regions.

### The West and the East of nuclear Eurasia

Let us finally turn to the main topic of this article: the information border within nuclear Eurasia.

The second main component opposes the sets of motifs in the folklore traditions of Western Europe (with the adjacent Africa and Arabic Near East) to the sets of motifs in the traditions of the Caucasus, Iran, Kazakhstan, Central and Middle Asia and Tibet (with the adjacent Siberia). The most typically ‘European’ folklore is that of the Germans, Italians, Swedes, Latvians, Poles, Catalans and Spaniards, and the most typically ‘Asiatic’ that of the Kazakhs, Buryats, Georgians, and the peoples of the Altay, Tuva and Mongolia. The place occupied by separate traditions in either complex should not be given too much significance. As new data are added the order changes, so that it is perfectly possible that it will not be the Kazakhs, but the Buryats who are most ‘Asiatic’, and the French might displace the Catalans. Nevertheless the basic composition of the complexes is stable; at least it has not changed after more than five hundred new texts have been added to the catalogue. Nor did a certain expansion

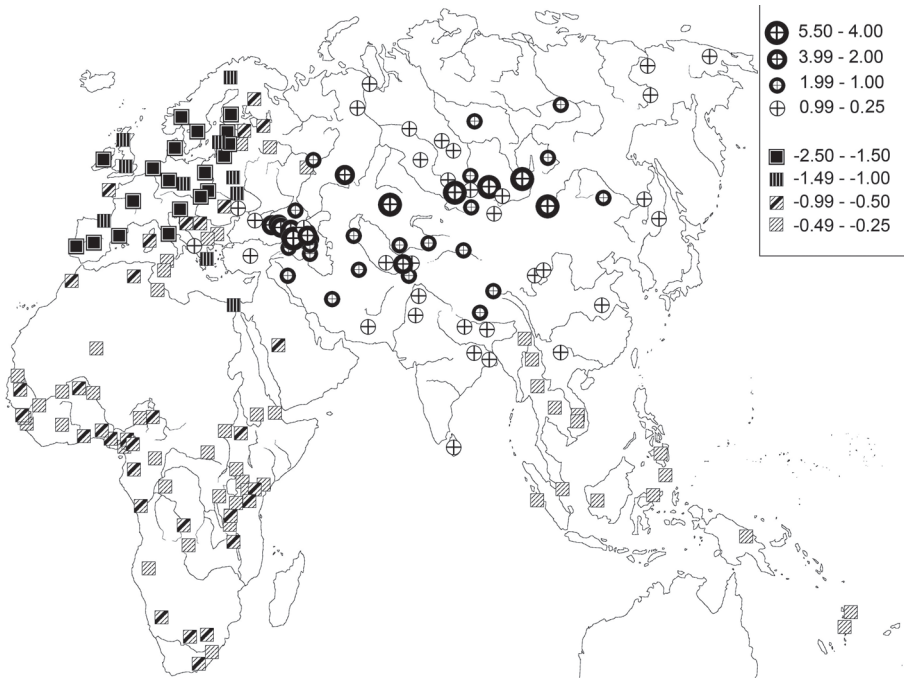


Fig. 3. Results of the analysis of the distribution of 548 adventure and trickster motifs known in nuclear Eurasia, in 309 traditions of the Old World. Second principal component (PC 2). Traditions with indices from +0.24 to -0.24 (i.e. those that are neutral relative to the eastern and western complexes) are not shown on the map.

of the list of motifs used for the analysis have any effect on the results, and neither did its reduction.

In Eastern Europe the boundary between the western and eastern complexes of motifs stretches in a broad belt from north to south. The folklore of the Finns, Estonians, Latvians and Lithuanians is typically 'western'. Among the Saami of Norway, Sweden and Finland, the Livs, the Ukrainians and Belarusians the 'western' trend is a little weaker, but there is no doubt that these traditions also belong to the 'western' complex. The folklore of all the peoples of the Caucasus, the Bashkirs and, to a somewhat lesser extent, the Kazan Tartars is typically 'eastern'. Among the Crimean Tartars and the Gagauz the 'eastern' trend is slightly predominant, as is the 'western' trend among the Russians, Mordvins and Seto. In Karelian, Vepsä and Votish folklore the 'western' component is more palpable than among the Russians and Seto, but less so than among the Finns and Estonians. It should be realised that the data on the Votes and Vepsä are significantly less than on the Karelians and Seto, so that it is hard to determine the exact positions of these traditions. The folklore of the Eastern Saami, the Komi, the Udmurts, the Mari and the Chuvash occupies a neutral position between the two complexes. (Neutral traditions are not shown on the map.)

In South-West Asia the boundary between the western and eastern complexes separates the Arabic traditions from the Turkic and Iranian. The situation in the southern Balkans and central Mediterranean is interesting. The folklore of the Greeks and Egyptian Arabs is fully 'western' (in much the same way as that of the Ukrainians or Belarusians). The 'western' trend is also dominant among the Serbs, Croats and Rumanians, though not so strongly expressed. The 'western' trend is yet weaker (on the same level as among the Russians) in Bulgaria, Macedonia, Sicily, Malta and Libya. Since the Tunisian Arabs' folklore occupies a neutral position, it is not shown on the map (as it says in the legend to the map, neutral traditions are not indicated). In this regions it is only Albanian folklore in which it is not the 'western' but the 'eastern' trend that is slightly predominant (to much the same extent as among the Turks). The Bosnians occupy a neutral position, like the Tunisians, and are not shown on the map, but there are insufficient data on their folklore for a final conclusion.

The reader is entitled to wonder how closely related traditions which are known to have a similar stock of subject-types show such significant differences: the Ukrainians and Belarusians are firmly within the 'western' complex, while the Russians are also there, but with not many more 'western' than 'eastern' motifs in their folklore. Likewise where the Seto are concerned: although the Seto have been Orthodox for a long time and have lived on Russian territory longer than the

Estonians, their folklore is still reminiscent of Estonian folklore, but the ‘western’ trend is far better expressed among the Estonians than among the Seto. One more example of similar distinctions between related traditions is the firmly ‘western’ position of the Scandinavian Saami and the neutral position of the Saami of the Kola Peninsula.

It has already been said that PC 2 reflects only 4 % of the information processed by the statistical programme. Consequently, without the use of statistics it would hardly have been possible to discern the ‘western’ or ‘eastern’ trend in the set of motifs recorded in particular traditions. This does not, however, mean that it is a matter of insignificant accidents. I repeat: one can find in the Russian, Ukrainian, Tartar or any other tradition of folklore a mass of different parallels with other traditions. But it is only on the basis of the information corresponding to PC 2 that all the traditions of nuclear Eurasia can be located with reference to any common point of orientation. The data obtained permit the conclusion that information exchange between groups of people was sufficiently intensive over the whole territory from the Caucasus to Mongolia, just as it was within the confines of Europe, from the Atlantic roughly to the Dnieper. The exchange of information between these two zones, though, was less intensive. How much ‘less’, and whether such a process is at all measurable remains unclear.

The varying degree to which the ‘western’ trend is expressed in Sub-Saharan Africa on the one hand and Indochina, the Southeast Asian archipelago and Melanesia on the other also deserves attention. In Africa the relevant indices are higher, and there is no doubt that the territory south of the Sahara really is connected with the Mediterranean world, something about which I wrote even before I started to use statistics [Berezkin 2013: 277]. In South and East Asia, as one might expect, it is the ‘eastern’, not the ‘western’ complex that is predominant, though not to a significant extent, while Japanese folklore is neutral in this respect — a regular combination of the East Asian background with European borrowings. But how is the slight predominance of the western complex in Indochina, the Southeast Asian archipelago and New Guinea to be explained? Were it a question of late European borrowings, they might be encountered more readily on Timor than in Upper Burma, and to speak of European influence on the folklore of Papua is altogether absurd.

It might be supposed that within the Old World the ‘western’ complex is earlier and more traditional, whereas the ‘eastern’ complex is an innovation, possibly connected with the expansion of the cultures of the eastern Eurasian steppe zone over the last two thousand years. It is characteristic that the absolute values of the notional indices of the ‘eastern’ complex are twice those of the western complex

(+5.1 for the Kazakhs, +4.5 for the Buryats, but only –2.3 for the Germans, Italians and Swedes). Consequently, the slight predominance of ‘western’ motifs in traditions that could not have had any historical connections with the western complex only means that there are fewer innovations in the western complex than in the eastern.

As for religion as a factor that might have been responsible for the picture that has been revealed, its influence should not be exaggerated. The Turkish expansion in the Balkans and the Mediterranean probably did play its part in disseminating ‘eastern’ motifs among the Albanians, but Georgia and Armenia, which remained Christian, did not become ‘the folkloric West’.

### Conclusion

The short period, at the end of the nineteenth and beginning of the twentieth centuries, during which historical questions predominated in the study of oral traditions in the USA, Northern Europe and (with certain reservations) Germany ended in disillusion with the methods and theories of such research and the triumph of other directions — psychologism, structuralism, functionalism. Unlike the data from archaeology and, to a certain extent, genetics and linguistics, the facts of folklore do not have a chronology. They may be approximately dated only by comparing the areas in which particular elements of folklore are disseminated with areas of other commonalities reconstructed according to the data of other historical disciplines. A century ago our knowledge of the past was still entirely unsatisfactory. Besides, without a computer the effort required to process the mass of folkloric material was incommensurate. Now the situation has changed radically, so that the study of the totality of oral texts can make a serious contribution to the reconstruction of the past. There is no other historical discipline that can replace this source of data.

The results obtained are a sort of by-product of research directed towards the study of a remoter past. In particular, the data from PC 3, which are not discussed in this article, indicate the existence of a North Eurasian zone of intercultural contacts, which coincides closely with the area in which a number of motifs from group A (which may conventionally be termed ‘myths’) are distributed. This zone may have been formed a very long time ago, even at the end of the Pleistocene. As for the material with which this article is concerned, they evidently reflect a relatively recent exchange of information within the confines of the Old World. Certain motifs may be ancient in origin, but the majority of the images and episodes that determine the specific character of both the ‘eastern’ and ‘western’ complexes correspond to society and technology as they were in the Iron Age and a developed socio-political hierarchy. Moreover, many

details cannot be replaced with others; they determine the substantive peculiarities of the subject. At the same time there is no question of cultural borrowings in modern times, as the folk-tale culture of nuclear Eurasia was already fully formed by the eighteenth century, and probably several centuries earlier.

The material examined gives an outline of spheres of interaction between people: within which territories contacts were stronger, and within which they were weaker. These could have been contacts of any kind, from the routine intercourse of neighbouring populations at their borders to distant trade expeditions, military campaigns, or the translation of works of literature. We process mass folklore material in much the same way as a chemist analyses a dry deposit on the bottom of a vessel, dug up during excavations, that once contained soup. There is no possibility of judging the taste of the soup, but its ingredients at least can be partially reconstructed.

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