Міністерство освіти і науки України

Національний технічний університет України

«Київський політехнічний інститут імені Ігоря Сікорського»

Фізико-технічний інститут

ЛАБОРАТОРНА РОБОТА №1

З предмету «Криптографія»

на тему: «Експерементальна оцінка ентропії на символ джерела відкритого тексту»

Виконала:

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Перевірив:

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Мета роботи

Засвоєння понять ентропії на символ джерела та його надлишковості, вивчення та порівняння різних моделей джерела відкритого тексту для наближеного визначення ентропії,набуття практичних навичок щодо оцінки ентропії на символ джерела.

Порядок виконання роботи

0. Уважно прочитати методичні вказівки до виконання комп'ютерного практикуму.
1. Написати програми для підрахунку частот букв і частот біграм в тексті, а також підрахунку H1 та H2 за безпосереднім означенням. Підрахувати частоти букв та біграм, а також значення H1 та H2 на довільно обраному тексті російською мовою достатньої довжини (щонайменше 1Мб), де імовірності замінити відповідними частотами. Також одержати значення H1 та H2 на тому ж тексті, в якому вилучено всі пробіли.
2. За допомогою програми CoolPinkProgram оцінити значення (10) H , (20) H , (30) H . 3. Використовуючи отримані значення ентропії, оцінити надлишковість російської мови в різних моделях джерела.

Частота монограм:

З пропусками:	Без пропусків:
"ё" - 8.36297e-05	"ё" - 9.99261e-05
"а" - 0.0656589	"а" - 0.0784534
"б" - 0.0158156	"б" - 0.0188974
"в" - 0.0388247	"в" - 0.0463902
"г" - 0.014682	"г" - 0.017543
"д" - 0.0259652	"д" - 0.0310249
"е" - 0.071538	"е" - 0.0854781
"ж" - 0.00919927	"ж" - 0.0109919
"з" - 0.0141252	"з" - 0.0168777
"и" - 0.0574177	"и" - 0.0686064
"й" - 0.00898656	"й" - 0.0107377
"к" - 0.0343091	"к" - 0.0409947
"л" - 0.0378979	"л" - 0.0452828
"м" - 0.0251203	"м" - 0.0300153
"н" - 0.0525181	"н" - 0.062752
"о" - 0.0947634	"о" - 0.113229
"п" - 0.0236781	"п" - 0.0282921
"р" - 0.0352599	"р" - 0.0421308
"с" - 0.0419426	"с" - 0.0501157
"т" - 0.0502197	"т" - 0.0600056
"у" - 0.0248358	"у" - 0.0296753
"ф" - 0.00102583	"ф" - 0.00122572
"х" - 0.0079921	"х" - 0.00954946
"ц" - 0.00291113	"ц" - 0.00347841
"ч" - 0.0157115	"ч" - 0.0187731
"ш" - 0.00817299	"ш" - 0.00976561
"щ" - 0.00246208	"щ" - 0.00294185
"ъ" - 0.000254071	"ъ" - 0.00030358
"ы" - 0.0157542	"ы" - 0.0188241
"ь" - 0.0166455	"ь" - 0.0198891
"э" - 0.00185349	"э" - 0.00221467
"ю" - 0.00529913	"ю" - 0.00633173
"я" - 0.0159919	"я" - 0.0191082
" " - 0.163084	

" а" - 0.00223528	"а " - 0.0153156	"би" - 0.00060313	"ву" - 0.000606316	"дж" - 5.45412e-06	"еп" - 0.000997194	"зж" - 0.00015498	"ир" - 0.00061222	"ки" - 0.003482	"лы" - 0.00058177
" б" - 0.00732988	"аё" - 7.27216e-06	"бк" - 0.000129081	"вх" - 2.09074e-05	"дз" - 9.09019e-06	"ер" - 0.0053873	"зз" - 1.95439e-05	"ис" - 0.00222119	"кк" - 8.18117e-06	"ль" - 0.00389015
" в" - 0.0152897	"аб" - 0.000607679	"бл" - 0.000794483	"вц" - 3.49972e-05	"ди" - 0.00212801	"ес" - 0.00445192	"зи" - 0.000344064	"ит" - 0.00368107	"кл" - 0.000579045	"лю" - 0.00088811
" г" - 0.00411468	"ав" - 0.00303749	"бм" - 2.09074e-05	"вч" - 7.2267e-05	"дк" - 0.000268161	"ет" - 0.00515096	"зк" - 9.99921e-05	"иу" - 2.72706e-06	"кн" - 0.000525413	"ля" - 0.00136126
" д" - 0.00812345	"аг" - 0.000621315	"бн" - 0.00028406	"вш" - 0.00132717	"дл" - 0.00056995	"еу" - 0.00010181	"зл" - 0.000189531	"иф" - 0.00017180	"ко" - 0.0102628	"м " - 0.00785029
" е" - 0.00344882	"ад" - 0.00166032	"бо" - 0.00201121	"вщ" - 3.63608e-06	"дм" - 0.00010453	"еф" - 8.18117e-06	"зм" - 0.00017862	"их" - 0.0017535	"кр" - 0.00147943	"ма" - 0.00238981
" ж" - 0.0020153	"ае" - 0.00128217	"бр" - 0.0015217	"въ" - 1.68169e-05	"дн" - 0.00175032	"ех" - 0.000690855	"зн" - 0.00169305	"иц" - 0.00092810	"кс" - 8.59023e-05	"мб" - 1.77259e-05
" з" - 0.00430784	"аж" - 0.00142534	"бс" - 0.000131353	"вы" - 0.00274069	"до" - 0.00328429	"ец" - 0.000580409	"зо" - 0.000543139	"ич" - 0.00257571	"кт" - 0.000471327	"мг" - 3.13612e-05
" и" - 0.010236	"аз" - 0.00368789	"бт" - 1.49988e-05	"вь" - 0.000186349	"дп" - 0.00011635	"еч" - 0.00112537	"зп" - 4.09059e-06	"иш" - 0.00050768	"ку" - 0.0024139	"ме" - 0.00371153
" й" - 1.36353e-06	"аи" - 8.40843e-05	"бу" - 0.00141898	"вю" - 1.81804e-06	"др" - 0.00146716	"еш" - 0.00088447	"зр" - 0.000134535	"ищ" - 0.00016589	"кх" - 1.81804e-06	"мз" - 1.81804e-06
" к" - 0.00965606	"ай" - 0.000740396	"бх" - 4.22694e-05	"вя" - 0.000286341	"дс" - 0.000479508	"ещ" - 0.00078584	"зс" - 4.99961e-05	"иэ" - 2.72706e-06	"кц" - 4.99961e-06	"ми" - 0.00310566
" л" - 0.00243526	"ак" - 0.00680128	"бц" - 5.45412e-06	"г " - 0.000641768	"дт" - 0.000170896	"ею" - 0.0002368	"зт" - 1.90894e-05	"ию" - 0.00029724	"кш" - 1.40898e-05	"мк" - 9.49925e-05
" м" - 0.00520005	"ал" - 0.00683264	"бч" - 1.22718e-05	"га" - 0.000776303	"ду" - 0.00186349	"ея" - 0.000113627	"зу" - 0.000239981	"ия" - 0.00131126	"кю" - 4.5451e-07	"мл" - 0.00015498
" н" - 0.0168778	"ам" - 0.00355108	"бш" - 2.04529e-05	"гб" - 7.27216e-06	"дх" - 5.09051e-05	"ж " - 0.000637677	"зц" - 9.5447e-06	"й " - 0.00725443	"л " - 0.00651585	"мм" - 2.2725e-05
" о" - 0.0094788	"ан" - 0.00354109	"бщ" - 0.00013817	"гв" - 1.54533e-05	"дц" - 0.00022543	"жа" - 0.00096537	"зч" - 3.77243e-05	"йб" - 4.09059e-06	"лё" - 3.63608e-06	"мн" - 0.00129899
" п" - 0.0172023	"ао" - 6.81765e-06	"бъ" - 7.45396e-05	"гг" - 4.5451e-07	"дч" - 3.22702e-05	"жб" - 6.5903e-05	"зш" - 9.99921e-06	"йд" - 0.00012635	"ла" - 0.0048128	"мо" - 0.00276206
" р" - 0.0036029	"ап" - 0.000865386	"бы" - 0.00388651	"гд" - 0.000979468	"дш" - 6.6812e-05	"жг" - 4.5451e-07	"зъ" - 4.99961e-05	"йе" - 4.5451e-07	"лб" - 3.86333e-05	"мп" - 4.04514e-05
" с" - 0.0150834	"ар" - 0.00248071	"бь" - 4.40874e-05	"ге" - 0.000447238	"дъ" - 5.49957e-05	"жд" - 0.00073039	"зы" - 0.00038406	"йк" - 0.000280887	"лв" - 7.77212e-05	"мр" - 2.63616e-05
" т" - 0.00885976	"ас" - 0.00310385	"бю" - 1.27263e-05	"гж" - 4.5451e-07	"ды" - 0.00045223	"же" - 0.00404059	"зь" - 0.000141353	"йл" - 2.04529e-05	"лг" - 0.000156351	"мс" - 0.00011408
" у" - 0.00407786	"ат" - 0.00453146	"бя" - 0.000519959	"ги" - 0.00062995	"дь" - 0.000875386	"жж" - 1.4544e-05	"зю" - 4.09059e-06	"йм" - 8.68114e-05	"лд" - 2.81796e-05	"мт" - 1.59078e-05
" ф" - 0.000563138	"ау" - 6.77219e-05	"в " - 0.00656857	"гк" - 0.000108628	"дю" - 2.9531e-05	"жи" - 0.00130535	"зя" - 0.000519959	"йн" - 0.00031361	"ле" - 0.00355108	"му" - 0.00205393
" х" - 0.00169714	"аф" - 6.09043e-05	"ва" - 0.00516187	"гл" - 0.00115127	"дя" - 0.000325883	"жк" - 0.00015862	"и " - 0.0182781	"йо" - 6.81765e-06	"лж" - 0.00029815	"мф" - 5.4541e-06
" ц" - 0.000291341	"ах" - 0.000999921	"вб" - 7.72667e-06	"гм" - 5.90863e-06	"е " - 0.0186981	"жл" - 1.9543e-05	"иа" - 2.2271e-05	"йп" - 1.81804e-06	"лз" - 4.5451e-06	"мц" - 1.54533e-05
" ч" - 0.00680401	"ац" - 5.49957e-05	"вв" - 4.49965e-05	"гн" - 0.00024998	"еа" - 2.72706e-05	"жм" - 2.4089e-05	"иб" - 0.0008113	"йр" - 9.09019e-07	"ли" - 0.00628405	"мч" - 2.36345e-05
" ш" - 0.000694491	"ач" - 0.000782211	"вг" - 4.22694e-05	"го" - 0.00809755	"еб" - 0.00150034	"жн" - 0.00089220	"ив" - 0.00219074	"йс" - 0.000446329	"лк" - 0.00037088	"мш" - 3.6360e-06
" щ" - 0.00016726	"аш" - 0.00076903	"вд" - 0.000325429	"гр" - 0.000734942	"ев" - 0.00192303	"жо" - 3.95423e-05	"иг" - 0.000539049	"йт" - 0.00024589	"лл" - 7.68121e-05	"мщ" - 1.4089e-05
" ъ" - 3.63608e-06	"ащ" - 0.00023861	"ве" - 0.0052964	"гс" - 6.81765e-06	"ег" - 0.00293659	"жр" - 1.81804e-06	"ид" - 0.001209	"йф" - 4.5451e-07	"лм" - 9.5447e-06	"мы" - 0.00086084
" э" - 0.00179986	"аэ" - 9.09019e-07	"вз" - 0.00042633	"гт" - 8.18117e-06	"ед" - 0.00294068	"жс" - 2.59071e-05	"ие" - 0.00210893	"йх" - 1.81804e-06	"лн" - 0.000201348	"мь" - 6.04498e-05
" ю" - 3.90878e-05	"аю" - 0.00076857	"ви" - 0.00304658	"гу" - 0.000794028	"ее" - 0.00126717	"жу" - 0.00019271	"иж" - 0.00026907	"йц" - 3.27247e-05	"ло" - 0.00579136	"мя" - 0.00044405
" я" - 0.00144807	"ая" - 0.00173214	"вк" - 0.000250435	"гч" - 2.04529e-05	"еж" - 0.00076494	"жч" - 3.63608e-05	"из" - 0.00206075	"йч" - 4.68145e-05	"лп" - 2.09074e-05	"н " - 0.00346745
"ё " - 5.99953e-05	"б " - 0.000261343	"вл" - 0.00057041	"гш" - 5.90863e-06	"ез" - 0.00113037	"жь" - 4.8178e-05	"ии" - 0.00035633	"йш" - 0.0001159	"лс" - 0.00141852	"на" - 0.00919973
"ёг" - 1.81804e-06	"ба" - 0.00150988	"вм" - 0.00013589	"д " - 0.00108264	"еи" - 0.000132717	"з " - 0.00124672	"ий" - 0.00128535	"к " - 0.00521004	"лт" - 7.90847e-05	"нб" - 1.63623e-05
"ём" - 1.81804e-06	"бв" - 4.13604e-05	"вн" - 0.00119309	"да" - 0.00504642	"ей" - 0.00199075	"за" - 0.00517823	"ик" - 0.0030534	"ка" - 0.00883067	"лу" - 0.00132035	"нв" - 0.00131808
"ён" - 1.81804e-06	"бг" - 7.72667e-06	"во" - 0.00641222	"дб" - 3.90878e-05	"ек" - 0.00126763	"зб" - 0.00019953	"ил" - 0.00474826	"кв" - 0.000160896	"лф" - 1.68169e-05	"нг" - 3.54518e-05
"ёр" - 7.27216e-06	"бд" - 2.4089e-05	"вп" - 0.000255889	"дв" - 0.000884476	"ел" - 0.00587454	"зв" - 0.000985832	"им" - 0.00266706	"кд" - 5.90863e-06	"лц" - 1.81804e-06	"нд" - 0.00016726
"ёс" - 1.81804e-06	"бе" - 0.002263	"вр" - 0.000618588	"дг" - 3.63608e-06	"ем" - 0.00392742	"зг" - 0.000262252	"ин" - 0.00317657	"ке" - 0.00074176	"лч" - 9.22655e-05	"не" - 0.0095797
"ёт" - 7.27216e-06	"бж" - 1.59078e-05	"вс" - 0.00298567	"дд" - 2.77251e-05	"ен" - 0.00641904	"зд" - 0.00103855	"ио" - 0.00015635	"кж" - 2.90886e-05	"лш" - 4.5451e-07	"нж" - 4.99961e-06
"ёх" - 1.81804e-06	"бз" - 5.90863e-06	"вт" - 0.000184985	"де" - 0.00455055	"ео" - 0.00022271	"зе" - 0.000386788	"ип" - 0.00025407	"кз" - 1.36353e-06	"лщ" - 5.45412e-06	"нз" - 2.27255e-05

"ни" - 0.00741714	"ох" - 0.000531322	"рк" - 0.000447692	"сф" - 4.09059e-06	"тю" - 0.00011180	"фт" - 1.99984e-05	"че" - 0.00342882	"ъя" - 0.0001109	"ьс" - 0.00098765	"юх" - 4.40874e-05
"нк" - 0.000400423	"оц" - 6.18133e-05	"рл" - 0.000106355	"сх" - 0.000179077	"тя" - 0.000524959	"фу" - 3.31792e-05	"чи" - 0.00345246	"ы " - 0.00441965	"ьт" - 0.000153624	"юц" - 1.81804e-06
"нл" - 9.09019e-07	"оч" - 0.00201484	"рм" - 0.00016089	"сц" - 1.86349e-05	"у " - 0.0064404	"фф" - 1.81804e-06	"чк" - 0.000554502	"ыб" - 0.00013862	"ьф" - 4.5451e-07	"юч" - 0.00011908
"нн" - 0.00279569	"ош" - 0.001134	"рн" - 0.00077903	"сч" - 0.000261343	"уа" - 2.09074e-05	"фч" - 3.63608e-06	"чл" - 1.45443e-05	"ыв" - 0.00085175	"ьч" - 4.36329e-05	"юш" - 0.00018725
"но" - 0.0095647	"ощ" - 0.00015635	"ро" - 0.00774894	"сш" - 6.72674e-05	"уб" - 0.000796301	"фы" - 1.0453e-05	"чн" - 0.000757668	"ыг" - 0.000119536	"ьш" - 0.00039451	"ющ" - 0.00030634
"нр" - 6.27223e-05	"оэ" - 3.63608e-05	"рп" - 9.5447e-05	"съ" - 3.81788e-05	"ув" - 0.00070449	"фь" - 2.18165e-05	"чо" - 0.000101356	"ыд" - 9.90831e-05	"ьщ" - 3.18157e-06	"юю" - 3.4542e-05
"нс" - 0.000348609	"ою" - 0.0009072	"рр" - 1.59078e-05	"сы" - 0.00030043	"уг" - 0.0012199	"фю" - 4.5451e-07	"чр" - 5.49957e-05	"ые" - 0.00131626	"ью" - 0.00026043	"я " - 0.00958697
"нт" - 0.000271342	"оя" - 0.000530413	"рс" - 0.00028725	"сь" - 0.0026957	"уд" - 0.00191939	"фя" - 5.45412e-06	"чт" - 0.00372062	"ыж" - 1.8180e-05	"ья" - 0.000461782	"яб" - 3.18157e-05
"ну" - 0.00265206	"п " - 5.09051e-05	"рт" - 0.000766303	"сэ" - 4.5451e-07	"уе" - 0.00024998	"х " - 0.00388879	"чу" - 0.000742214	"ыз" - 3.81788e-05	"ья" - 0.000461782	"яв" - 0.000261798
"нф" - 2.04529e-05	"па" - 0.0012099	"ру" - 0.00265116	"сю" - 0.00017225	"уж" - 0.00188531	"ха" - 0.000634496	"чш" - 0.00013408	"ыи" - 2.2271e-05	"э " - 5.90863e-06	"яг" - 7.86302e-05
"нх" - 4.09059e-06	"пе" - 0.00217392	"рф" - 4.95416e-05	"ся" - 0.0039256	"уз" - 0.000389969	"хв" - 0.000198166	"чь" - 0.000194076	"ый" - 0.00148397	"эг" - 5.90863e-06	"яд" - 0.000452237
"нц" - 0.00032224	"пи" - 0.00099264	"рх" - 0.000164533	"т " - 0.00558683	"уи" - 4.99961e-06	"хе" - 0.00010181	"чю" - 4.5451e-07	"ык" - 0.00027452	"эд" - 4.5451e-05	"яе" - 8.13572e-05
"нч" - 0.000183622	"пк" - 0.000161351	"рц" - 2.77251e-05	"тё" - 3.63608e-06	"уй" - 0.000146352	"хи" - 0.000197257	"ш " - 0.000168623	"ыл" - 0.00226437	"эз" - 9.09019e-07	"яж" - 0.00014589
"нш" - 5.90863e-06	"пл" - 0.000666766	"рч" - 6.13588e-05	"та" - 0.00544775	"ук" - 0.000799483	"хл" - 0.000200893	"ша" - 0.00097037	"ым" - 0.00123263	"эй" - 2.4089e-05	"яз" - 0.000224073
"нщ" - 5.6359e-05	"пн" - 0.00011817	"рш" - 0.00041769	"тб" - 1.09082e-05	"ул" - 0.00106992	"хм" - 2.09074e-05	"шв" - 2.4998e-05	"ын" - 0.00019953	"эк" - 0.000121809	"яи" - 8.54478e-05
"ны" - 0.00334383	"по" - 0.00963924	"рщ" - 1.6816e-05	"тв" - 0.00213529	"ум" - 0.00109946	"хн" - 0.000174986	"ше" - 0.00194712	"ып" - 0.00018044	"эл" - 1.22718e-05	"яй" - 0.000186803
"нь" - 0.00134171	"пп" - 2.04529e-05	"ры" - 0.00129581	"тг" - 7.72667e-06	"ун" - 0.000191349	"хо" - 0.00224164	"ши" - 0.00220892	"ыр" - 0.00034406	"эм" - 2.63616e-05	"як" - 0.000369516
"ню" - 0.00017680	"пр" - 0.0072667	"рь" - 0.000541321	"тд" - 0.000124081	"уп" - 0.000871295	"хп" - 1.81804e-06	"шк" - 0.00083038	"ыс" - 0.00054541	"эн" - 1.81804e-06	"ял" - 0.000580863
"ня" - 0.00104265	"пс" - 1.18173e-05	"рю" - 0.00016726	"те" - 0.00523504	"ур" - 0.000628132	"хр" - 0.000101356	"шл" - 0.00044632	"ыт" - 0.000618588	"эп" - 8.63568e-06	"ям" - 0.0004586
"о " - 0.021626	"пт" - 5.81772e-05	"ря" - 0.000929018	"тз" - 2.99976e-05	"ус" - 0.001174	"хс" - 5.40867e-05	"шм" - 4.0905e-06	"ыу" - 6.81765e-06	"эр" - 4.5451e-07	"ян" - 0.000702672
"оа" - 3.18157e-06	"пу" - 0.000594953	"с " - 0.00264343	"ти" - 0.00307476	"ут" - 0.00156579	"хт" - 1.13627e-05	"шн" - 0.00025816	"ых" - 0.0010031	"эс" - 5.90863e-06	"яо" - 1.81804e-06
"об" - 0.00368971	"пх" - 1.81804e-06	"сё" - 6.18133e-05	"тк" - 0.000544503	"уу" - 9.09019e-07	"ху" - 0.000145443	"шо" - 0.00034588	"ыц" - 8.18117e-06	"эт" - 0.00152943	"яп" - 4.36329e-05
"ов" - 0.00837934	"пц" - 5.72682e-05	"са" - 0.00172214	"тл" - 0.000170896	"уф" - 9.99921e-06	"хш" - 1.45443e-05	"шп" - 3.68153e-05	"ыч" - 0.00011953	"эф" - 7.27216e-06	"яр" - 8.59023e-05
"ог" - 0.00424058	"пч" - 6.77219e-05	"сб" - 5.90863e-05	"тм" - 5.95408e-05	"ух" - 0.000501779	"хъ" - 1.81804e-06	"шр" - 1.81804e-06	"ыш" - 0.00042178	"эх" - 5.68137e-05	"яс" - 0.000375425
"од" - 0.00506142	"пш" - 1.49988e-05	"св" - 0.00128808	"тн" - 0.00128854	"уц" - 2.72706e-06	"хэ" - 1.81804e-06	"шт" - 5.59047e-05	"ыщ" - 2.727e-05	"ээ" - 4.5451e-07	"ят" - 0.00152988
"ое" - 0.00203257	"пщ" - 2.1362e-05	"сг" - 1.63623e-05	"то" - 0.0129426	"уч" - 0.000877204	"хю" - 4.5451e-07	"шу" - 0.00025407	"ыя" - 4.5451e-07	"ю " - 0.00331247	"ях" - 0.000227255
"ож" - 0.00187531	"пы" - 0.00018953	"сд" - 0.000274069	"тп" - 0.000118627	"уш" - 0.00092765	"хя" - 4.5451e-07	"шы" - 1.8180e-06	"ь " - 0.0103283	"юб" - 0.00027225	"яц" - 2.1362e-05
"оз" - 0.0015217	"пь" - 6.45404e-05	"се" - 0.00386288	"тр" - 0.00239027	"ущ" - 0.00019453	"ц " - 0.000577227	"шь" - 0.00061722	"ьб" - 8.59023e-05	"юг" - 5.90863e-06	"яч" - 0.00013408
"ои" - 0.00079766	"пю" - 9.09019e-07	"сж" - 9.09019e-06	"тс" - 0.00115582	"уэ" - 9.09019e-06	"ца" - 0.000710853	"шю" - 4.5451e-07	"ьв" - 1.27263e-05	"юд" - 0.00027725	"яш" - 1.77259e-05
"ой" - 0.00312703	"пя" - 0.000294977	"сз" - 1.77259e-05	"тт" - 6.77219e-05	"ую" - 0.00109582	"цв" - 6.8631e-05	"щ " - 1.22718e-05	"ьг" - 5.86318e-05	"юж" - 2.8179e-05	"ящ" - 0.00015726
"ок" - 0.00206257	"р " - 0.000754032	"си" - 0.00135217	"ту" - 0.00147579	"уя" - 3.86333e-05	"це" - 0.000716307	"ща" - 0.00032088	"ьд" - 4.77235e-05	"юз" - 5.45412e-06	"яю" - 8.63568e-05
"ол" - 0.00563365	"рё" - 5.45412e-06	"ск" - 0.00370425	"тф" - 5.90863e-06	"ф " - 1.18173e-05	"ци" - 0.00014544	"ще" - 0.0012599	"ье" - 0.000529049	"юи" - 4.5451e-07	"яя" - 6.40859e-05
"ом" - 0.00506778	"ра" - 0.00624905	"сл" - 0.00268024	"тх" - 1.72714e-05	"фа" - 0.0002368	"цк" - 3.54518e-05	"щи" - 0.00073221	"ьж" - 5.45412e-06	"юк" - 1.99984e-05	
"он" - 0.00489825	"рб" - 8.54478e-05	"см" - 0.00071312	"тц" - 7.49941e-05	"фе" - 0.00022725	"цм" - 9.09019e-07	"щн" - 1.6816e-05	"ьз" - 0.000197257	"юл" - 1.31808e-05	
"оо" - 0.000196803	"рв" - 0.000232254	"сн" - 0.000762213	"тч" - 0.000164078	"фи" - 0.00018862	"цо" - 0.00025270	"що" - 2.2725e-06	"ьи" - 8.09027e-05	"юм" - 3.3179e-05	
"оп" - 0.00122945	"рг" - 0.000175441	"со" - 0.0025548	"тш" - 1.54533e-05	"фл" - 1.95439e-05	"цу" - 0.000207711	"щр" - 4.5451e-06	"ьй" - 4.5451e-07	"юн" - 3.63608e-05	
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"ос" - 0.00563274	"ре" - 0.00556911	"ср" - 0.000137716	"тъ" - 1.40898e-05	"фн" - 1.81804e-06	"ч " - 0.000574955	"щь" - 1.81804e-05	"ьм" - 0.00030224	"юр" - 7.40851e-05	
"от" - 0.00628723	"рж" - 0.00023361	"сс" - 0.000607679	"ты" - 0.00151034	"фо" - 8.40843e-05	"чё" - 1.81804e-06	"ъ " - 7.27216e-06	"ьн" - 0.00111673	"юс" - 0.00014544	
"оу" - 7.45396e-05	"рз" - 2.18165e-05	"ст" - 0.00975423	"ть" - 0.00590499	"фр" - 0.00015044	"ча" - 0.00197666	"ъе" - 0.000130444	"ьо" - 1.09082e-05	"ют" - 0.00036860	
"оф" - 8.86294e-05	"ри" - 0.00492598	"су" - 0.000748123	"тэ" - 1.81804e-06	"фс" - 4.5451e-06	"чв" - 2.27255e-06	"ъю" - 5.45412e-06	"ьп" - 4.5451e-07	"юф" - 1.0908e-05	

Без пропусків:

"ёб" - 2.17231e-06	"ат" - 0.00639147	"бэ" - 5.91954e-05	"гд" - 0.00124202	"дт" - 0.000272082	"еш" - 0.0011296	"зи" - 0.000461616	"ип" - 0.00297715	"йщ" - 1.412e-05	"ле" - 0.00460584
"ёв" - 4.34462e-06	"ау" - 0.000555568	"бю" - 1.52062e-05	"ге" - 0.000552309	"ду" - 0.00225974	"ещ" - 0.00095418	"зк" - 0.000288374	"ир" - 0.00118771	"йэ" - 6.19108e-05	"лж" - 0.00038232
"ёг" - 6.51693e-06	"аф" - 0.00016020	"бя" - 0.000632685	"гж" - 1.62923e-06	"дф" - 5.43077e-07	"еэ" - 0.000242212	"зл" - 0.000236782	"ис" - 0.00459498	"йю" - 8.68923e-06	"лз" - 0.000155863
"ёе" - 2.17231e-06	"ах" - 0.00136258	"ва" - 0.00625027	"гз" - 5.75662e-05	"дх" - 8.30908e-05	"ею" - 0.00028783	"зм" - 0.00025904	"ит" - 0.00551332	"йя" - 8.20046e-05	"ли" - 0.00800224
"ёз" - 4.34462e-06	"ац" - 9.93831e-05	"вб" - 0.000240583	"ги" - 0.000793436	"дц" - 0.00027588	"ея" - 0.00033182	"зн" - 0.00218263	"иу" - 0.000553396	"ка" - 0.0106264	"лй" - 5.43077e-07
"ёи" - 1.08615e-05	"ач" - 0.00165476	"вв" - 0.000475193	"гк" - 0.000171069	"дч" - 7.98323e-05	"жа" - 0.00116001	"зо" - 0.000723922	"иф" - 0.00028294	"кб" - 0.000401334	"лк" - 0.000780402
"ёк" - 2.17231e-06	"аш" - 0.00101555	"вг" - 0.000468676	"гл" - 0.00137779	"дш" - 8.7435e-05	"жб" - 0.00010698	"зп" - 0.000173785	"их" - 0.00234664	"кв" - 0.000746188	"лл" - 0.000154234
"ём" - 4.34462e-06	"ащ" - 0.00030792	"вд" - 0.000872725	"гм" - 1.90077e-05	"дщ" - 2.1723e-06	"жв" - 5.70231e-05	"зр" - 0.000208542	"иц" - 0.00115132	"кг" - 0.000171612	"лм" - 0.00020528
"ён" - 6.51693e-06	"аэ" - 0.000266651	"ве" - 0.0064599	"гн" - 0.000371465	"дъ" - 6.57123e-05	"жг" - 3.25846e-06	"зс" - 0.000168897	"ич" - 0.00383467	"кд" - 0.00027534	"лн" - 0.00106715
"ёо" - 2.17231e-06	"аю" - 0.00092540	"вж" - 7.49446e-05	"го" - 0.00972597	"ды" - 0.00054036	"жд" - 0.00091671	"зт" - 0.00011296	"иш" - 0.00071957	"ке" - 0.000972108	"ло" - 0.00773288
"ёп" - 4.34462e-06	"ая" - 0.00227875	"вз" - 0.000659296	"гп" - 9.884e-05	"дь" - 0.00104597	"же" - 0.00484533	"зу" - 0.000344311	"ищ" - 0.00023189	"кж" - 0.00017921	"лп" - 0.00082765
"ёр" - 1.08615e-05	"ба" - 0.00181279	"ви" - 0.00398347	"гр" - 0.000902594	"дэ" - 1.35769e-05	"жж" - 1.7378e-05	"зф" - 1.03185e-05	"иэ" - 0.000178129	"кз" - 0.00013414	"лр" - 0.000122735
"ёс" - 1.30339e-05	"бб" - 3.80154e-06	"вк" - 0.00101284	"гс" - 0.000100469	"дю" - 3.53e-05	"жз" - 3.31277e-05	"зх" - 5.43077e-06	"ию" - 0.00035788	"ки" - 0.00456402	"лс" - 0.00239008
"ёт" - 8.68923e-06	"бв" - 8.63493e-05	"вл" - 0.000809728	"гт" - 3.31277e-05	"дя" - 0.00039536	"жи" - 0.00160425	"зц" - 1.62923e-05	"ия" - 0.00171884	"кк" - 0.000354629	"лт" - 0.000399705
"ёу" - 2.17231e-06	"бг" - 1.35769e-05	"вм" - 0.00036766	"гу" - 0.000956902	"еа" - 0.000255246	"жк" - 0.00022266	"зч" - 0.000104271	"йа" - 0.000154234	"кл" - 0.00076954	"лу" - 0.00173676
"ёф" - 4.34462e-06	"бд" - 3.58431e-05	"вн" - 0.00207564	"гф" - 5.43077e-07	"еб" - 0.00300593	"жл" - 2.66108e-05	"зш" - 1.52062e-05	"йб" - 0.00036929	"км" - 0.00016944	"лф" - 3.85585e-05
"ёх" - 2.17231e-06	"бе" - 0.00271593	"во" - 0.00811683	"гх" - 1.08615e-06	"ев" - 0.00440001	"жм" - 7.06e-05	"зщ" - 5.43077e-07	"йв" - 0.000589782	"кн" - 0.001412	"лх" - 3.36708e-05
"ёц" - 2.17231e-06	"бж" - 2.118e-05	"вп" - 0.00111494	"гч" - 4.01877e-05	"ег" - 0.0040204	"жн" - 0.00118445	"зъ" - 5.97385e-05	"йг" - 0.000260677	"ко" - 0.012538	"лц" - 2.71539e-06
"ёч" - 6.51693e-06	"бз" - 1.62923e-05	"вр" - 0.00104271	"гш" - 7.06e-06	"ед" - 0.00471554	"жо" - 9.93831e-05	"зы" - 0.0004589	"йд" - 0.00065929	"кп" - 0.000530586	"лч" - 0.00072012
"аё" - 8.68923e-06	"би" - 0.00074293	"вс" - 0.00443585	"гэ" - 2.71539e-06	"ее" - 0.00191109	"жп" - 6.13677e-05	"зь" - 0.000168897	"йе" - 0.000126537	"кр" - 0.00187742	"лш" - 3.04123e-05
"аа" - 0.000265565	"бк" - 0.000161294	"вт" - 0.000807013	"гя" - 2.17231e-06	"еж" - 0.00110462	"жр" - 1.19477e-05	"зэ" - 3.42139e-05	"йж" - 0.00012545	"кс" - 0.000726094	"лщ" - 1.412e-05
"аб" - 0.00146088	"бл" - 0.000955816	"ву" - 0.000892276	"да" - 0.00603793	"ез" - 0.00208324	"жс" - 7.60308e-05	"зю" - 4.88769e-06	"йз" - 0.000173242	"кт" - 0.000923774	"лы" - 0.00069513
"ав" - 0.00549594	"бм" - 2.60677e-05	"вф" - 1.79215e-05	"дб" - 8.4177e-05	"еи" - 0.0014044	"жт" - 8.4177e-05	"зя" - 0.000628883	"йи" - 0.00060770	"ку" - 0.00303472	"ль" - 0.0046482
"аг" - 0.00119857	"бн" - 0.00036494	"вх" - 0.000114046	"дв" - 0.00114426	"ей" - 0.00237868	"жу" - 0.00023949	"иа" - 0.000276969	"йк" - 0.000952557	"кф" - 1.73785e-05	"лэ" - 5.37646e-05
"ад" - 0.0028517	"бо" - 0.00243081	"вц" - 5.53939e-05	"дг" - 6.08246e-05	"ек" - 0.00258668	"жф" - 2.1723e-06	"иб" - 0.00194096	"йл" - 0.000153148	"кх" - 4.83339e-05	"лю" - 0.00106172
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"аж" - 0.00182474	"бр" - 0.00182745	"вш" - 0.00164281	"де" - 0.00546118	"ем" - 0.00565017	"жч" - 5.48508e-05	"иг" - 0.00119477	"йн" - 0.00119043	"кч" - 0.000333992	"ма" - 0.0029891
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"аи" - 0.00121432	"бт" - 3.31277e-05	"въ" - 2.00939e-05	"дз" - 7.44016e-05	"ео" - 0.00145816	"жэ" - 2.118e-05	"ие" - 0.0029728	"йп" - 0.00095255	"кщ" - 7.06e-06	"мв" - 0.00080864
"ай" - 0.000884673	"бу" - 0.00170798	"вы" - 0.00327476	"ди" - 0.00266053	"еп" - 0.00378851	"жя" - 2.17231e-05	"иж" - 0.00049691	"йр" - 0.00030846	"кэ" - 4.56185e-05	"мг" - 0.000313899
"ак" - 0.00935016	"бх" - 5.05062e-05	"вь" - 0.000222662	"дк" - 0.0004236	"ер" - 0.00695953	"за" - 0.00619868	"из" - 0.00305427	"йс" - 0.00142069	"кю" - 1.08615e-06	"мд" - 0.00059575
"ал" - 0.00848721	"бц" - 6.51693e-06	"вэ" - 0.000192249	"дл" - 0.00071034	"ес" - 0.00738096	"зб" - 0.000288917	"ии" - 0.00167105	"йт" - 0.000674502	"кя" - 8.36339e-05	"ме" - 0.00456836
"ам" - 0.00482307	"бч" - 1.46631e-05	"вю" - 5.43077e-06	"дм" - 0.00015803	"ет" - 0.00730873	"зв" - 0.00129795	"ий" - 0.00153637	"йу" - 0.000219946	"лё" - 4.34462e-06	"мж" - 0.00013794
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"ар" - 0.00330137	"бы" - 0.000464385	"гв" - 0.000109702	"др" - 0.00179161	"ец" - 0.00074293	"зж" - 0.00018790	"ин" - 0.00601567	"йч" - 0.000425229	"лг" - 0.000364405	"мл" - 0.00032584
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"мф" - 3.4213e-05 "оа" - 0.000228635 "пс" - 1.90077e-05 "рю" - 0.00019985 "тж" - 0.00023460 "уп" - 0.00180899 "хж" - 3.63862e-05 "цф" - 2.17231e-06 "ше" - 0.00232654 "ыд" - 0.00037689

"мх" - 0.00013305 "об" - 0.00581201 "пт" - 7.27723e-05 "ря" - 0.00111983 "тз" - 0.000202025 "ур" - 0.000856433 "хз" - 0.000108072 "цх" - 2.17231e-06 "шж" - 2.1723e-06 "ые" - 0.00171612

"мц" - 2.60677e-05 "ов" - 0.0127232 "пу" - 0.00071306 "сё" - 7.38585e-05 "ти" - 0.00406602 "ус" - 0.00213212 "хи" - 0.000599014 "цц" - 2.17231e-06 "шз" - 2.71539e-06 "ыж" - 6.6255e-05

"мч" - 0.00047410 "ог" - 0.00563008 "пх" - 2.17231e-06 "са" - 0.00209628 "тй" - 5.43077e-07 "ут" - 0.0023651 "хк" - 0.000297063 "чч" - 2.28092e-05 "ши" - 0.00265565 "ыз" - 0.00020799

"мш" - 4.6161e-05 "од" - 0.00718763 "пц" - 6.95139e-05 "сб" - 0.00020474 "тк" - 0.00102805 "уу" - 0.000107529 "хл" - 0.000386128 "цы" - 0.00023406 "шк" - 0.00100958 "ыи" - 0.00045998

"мщ" - 2.824e-05 "ое" - 0.00301951 "пч" - 8.09185e-05 "св" - 0.00176663 "тл" - 0.000313356 "уф" - 4.56185e-05 "хм" - 0.00020419 "цэ" - 7.60308e-06 "шл" - 0.00053384 "ый" - 0.00177315

"мы" - 0.00102859 "ож" - 0.00287016 "пш" - 1.79215e-05 "сг" - 9.178e-05 "тм" - 0.00026502 "ух" - 0.000670157 "хн" - 0.000608789 "цю" - 2.17231e-06 "шм" - 1.1947e-05 "ык" - 0.00063377

"мь" - 7.22293e-05 "оз" - 0.00261655 "пщ" - 2.5524e-05 "сд" - 0.000460529 "тн" - 0.00221901 "уц" - 1.08615e-05 "хо" - 0.00294239 "ця" - 5.43077e-07 "шн" - 0.00032367 "ыл" - 0.00276420

"мэ" - 8.74354e-05 "ои" - 0.00220489 "пы" - 0.00022646 "се" - 0.00466015 "то" - 0.0158188 "уч" - 0.00150161 "хп" - 0.000575119 "чё" - 2.17231e-06 "шо" - 0.00042794 "ым" - 0.00168245

"мю" - 3.2584e-06 "ой" - 0.00373637 "пь" - 7.7117e-05 "сж" - 5.59369e-05 "тп" - 0.000715776 "уш" - 0.00113177 "хр" - 0.000218317 "ча" - 0.00238519 "шп" - 7.0057e-05 "ын" - 0.00087978

"мя" - 0.00060281 "ок" - 0.0036359 "пю" - 1.08615e-06 "сз" - 8.30908e-05 "тр" - 0.00298258 "ущ" - 0.00023841 "хс" - 0.000487683 "чб" - 8.68923e-06 "шр" - 2.71539e-06 "ыо" - 0.00028077

"на" - 0.0110712 "ол" - 0.00708933 "пя" - 0.000352457 "си" - 0.00170906 "тс" - 0.0018986 "уъ" - 4.34462e-06 "хт" - 0.000209628 "чв" - 6.19108e-05 "шс" - 1.19477e-05 "ып" - 0.00073695

"нб" - 0.00027045 "ом" - 0.00686884 "рё" - 6.51693e-06 "ск" - 0.00467644 "тт" - 0.000490399 "уэ" - 9.77539e-05 "ху" - 0.000284572 "чг" - 9.77539e-06 "шт" - 7.87462e-05 "ыр" - 0.00050506

"нв" - 0.00038124 "он" - 0.00864905 "ра" - 0.0074836 "сл" - 0.00326824 "ту" - 0.00197083 "ую" - 0.00131153 "хф" - 1.08615e-05 "чд" - 3.25846e-05 "шу" - 0.00031444 "ыс" - 0.00113014

"нг" - 0.000129795 "оо" - 0.0018041 "рб" - 0.00013033 "см" - 0.00095473 "тф" - 2.17231e-05 "уя" - 0.000122735 "хх" - 3.63862e-05 "че" - 0.00410403 "шх" - 4.34462e-06 "ыт" - 0.00101393

"нд" - 0.00035734 "оп" - 0.00407199 "рв" - 0.000359517 "сн" - 0.00131533 "тх" - 7.7117e-05 "фа" - 0.00028294 "хц" - 1.30339e-05 "чж" - 3.80154e-06 "шч" - 2.71539e-06 "ыу" - 0.00014934

"не" - 0.0115246 "ор" - 0.00757375 "рг" - 0.000230808 "со" - 0.00320741 "тц" - 9.8297e-05 "фг" - 5.43077e-07 "хч" - 0.000146631 "чз" - 1.46631e-05 "шы" - 2.1723e-06 "ыф" - 1.3033e-05

"нж" - 2.49815e-05 "ос" - 0.00907753 "рд" - 0.00037635 "сп" - 0.00185189 "тч" - 0.000495829 "фе" - 0.00027153 "хш" - 5.43077e-05 "чи" - 0.00418495 "шь" - 0.00073749 "ых" - 0.00125614

"нз" - 0.000135226 "от" - 0.00897272 "ре" - 0.0066679 "ср" - 0.000243299 "тш" - 3.14985e-05 "фз" - 1.08615e-06 "хщ" - 6.51693e-06 "чк" - 0.000702742 "шю" - 5.4307e-07 "ыц" - 9.77539e-06

"ни" - 0.00917312 "оу" - 0.000786376 "рж" - 0.00028185 "сс" - 0.0010237 "тщ" - 8.68923e-06 "фи" - 0.00022754 "хъ" - 2.17231e-06 "чл" - 2.06369e-05 "шя" - 2.17231e-06 "ыч" - 0.00029434

"нк" - 0.00067233 "оф" - 0.00018410 "рз" - 6.19108e-05 "ст" - 0.0119738 "тъ" - 1.68354e-05 "фк" - 1.08615e-06 "хэ" - 4.01877e-05 "чм" - 1.24908e-05 "ща" - 0.00038341 "ыш" - 0.00051972

"нл" - 4.12739e-05 "ох" - 0.000893905 "ри" - 0.00597005 "су" - 0.00100904 "ты" - 0.00180465 "фл" - 2.55246e-05 "хю" - 2.71539e-06 "чн" - 0.000979711 "щв" - 5.43077e-07 "ыщ" - 3.3127e-05

"нм" - 0.00012273 "оц" - 0.00012436 "рк" - 0.000612048 "сф" - 2.76969e-05 "ть" - 0.00705566 "фм" - 4.8876e-06 "хя" - 2.55246e-05 "чо" - 0.000173785 "ще" - 0.00150541 "ыэ" - 8.20046e-05

"нн" - 0.00378308 "оч" - 0.00358377 "рл" - 0.000140114 "сх" - 0.000249272 "тэ" - 9.61247e-05 "фн" - 2.17231e-06 "ца" - 0.000863493 "чп" - 0.000103728 "щи" - 0.00088413 "ыю" - 5.4307e-07

"но" - 0.0116854 "ош" - 0.00143807 "рм" - 0.0002118 "сц" - 3.04123e-05 "тю" - 0.00013359 "фо" - 0.00010046 "цб" - 2.824e-05 "чр" - 7.33154e-05 "щн" - 2.0093e-05 "ыя" - 3.91016e-05

"нп" - 0.00048062 "ощ" - 0.00021342 "рн" - 0.00099491 "сч" - 0.000392645 "тя" - 0.000708173 "фр" - 0.00017975 "цв" - 0.000146631 "чс" - 5.81093e-05 "що" - 3.2584e-06 "ьа" - 0.000206369

"нр" - 0.00017106 "оэ" - 0.000266108 "ро" - 0.00932192 "сш" - 9.93831e-05 "уа" - 0.000165095 "фс" - 1.03185e-05 "цг" - 1.73785e-05 "чт" - 0.00448799 "щр" - 5.4307e-06 "ьб" - 0.000568602

"нс" - 0.000877613 "ою" - 0.00108833 "рп" - 0.000210714 "сщ" - 4.88769e-06 "уб" - 0.00117631 "фт" - 2.60677e-05 "цд" - 2.93262e-05 "чу" - 0.000906939 "щс" - 2.17231e-06 "ьв" - 0.00135769

"нт" - 0.000511036 "оя" - 0.000878699 "рр" - 3.63862e-05 "съ" - 4.56185e-05 "ув" - 0.00149563 "фу" - 3.96446e-05 "це" - 0.000864036 "чф" - 1.08615e-06 "щт" - 2.17231e-06 "ьг" - 0.000310097

"ну" - 0.0033106 "па" - 0.00144621 "рс" - 0.000432289 "сы" - 0.00035897 "уг" - 0.00161674 "фф" - 2.17231e-06 "цз" - 2.87831e-05 "чх" - 8.68923e-06 "щу" - 0.00011350 "ьд" - 0.00061422

"нф" - 2.76969e-05 "пв" - 4.34462e-06 "рт" - 0.000963962 "сь" - 0.00322099 "уд" - 0.00264641 "фч" - 4.34462e-06 "ци" - 0.00022972 "чч" - 2.49815e-05 "щь" - 2.17231e-05 "ье" - 0.0010199

"нх" - 6.40831e-05 "пг" - 2.71539e-06 "ру" - 0.00320035 "сэ" - 3.85585e-05 "уе" - 0.000399162 "фы" - 1.2490e-05 "цк" - 7.98323e-05 "чш" - 0.00016346 "ъе" - 0.000155863 "ьж" - 7.82031e-05

"нц" - 0.00038612 "пд" - 9.23231e-06 "рф" - 6.08246e-05 "сю" - 0.00020582 "уж" - 0.00238682 "фь" - 2.60677e-05 "цл" - 2.17231e-06 "чь" - 0.000231894 "ъо" - 2.17231e-06 "ьз" - 0.000530586

"нч" - 0.000344854 "пе" - 0.00259808 "рх" - 0.000199309 "ся" - 0.00471554 "уз" - 0.000615306 "фю" - 5.4307e-07 "цм" - 3.85585e-05 "чэ" - 6.51693e-06 "ъп" - 2.17231e-06 "ьи" - 0.00101067

"ьй" - 5.43077e-07	"ьу" - 0.000266651	"эв" - 5.43077e-07	"эр" - 5.43077e-07	"юд" - 0.00054796	"юп" - 0.00044695	"ющ" - 0.00037689	"яж" - 0.00027805	"яр" - 0.000293262	"яэ" - 9.72108e-05
"ьк" - 0.00249978	"ьф" - 4.45323e-05	"эг" - 7.06e-06	"эс" - 7.06e-06	"юе" - 3.96446e-05	"юр" - 0.00020093	"юэ" - 2.55246e-05	"яз" - 0.000595756	"яс" - 0.00147337	"яю" - 0.00010752
"ьл" - 0.00018356	"ьх" - 0.000136855	"эд" - 5.53939e-05	"эт" - 0.001828	"юж" - 0.00010644	"юс" - 0.00048333	"юю" - 4.1273e-05	"яи" - 0.000939523	"ят" - 0.00245579	"яя" - 0.000145002
"ьм" - 0.00070111	"ьц" - 0.000169983	"ээ" - 1.08615e-06	"эф" - 8.68923e-06	"юз" - 0.0001059	"ют" - 0.00069079	"юя" - 3.58431e-05	"яй" - 0.000223205	"яу" - 0.000270995	
"ьн" - 0.00259699	"ьч" - 0.000658753	"эй" - 2.87831e-05	"эх" - 6.78846e-05	"юи" - 0.00032150	"юу" - 8.25477e-05	"яа" - 0.00016238	"як" - 0.00117359	"яф" - 3.47569e-05	
"ьо" - 0.000745102	"ьш" - 0.00050071	"эк" - 0.000145545	"ээ" - 4.88769e-06	"юк" - 0.00034322	"юф" - 3.7472e-05	"яб" - 0.000513751	"ял" - 0.000841227	"ях" - 0.000357888	
"ьп" - 0.00116273	"ьщ" - 1.24908e-05	"эл" - 1.46631e-05	"юа" - 7.7117e-05	"юл" - 7.22293e-05	"юх" - 7.65739e-05	"яв" - 0.00155537	"ям" - 0.00084937	"яц" - 4.45323e-05	
"ьр" - 0.000259048	"ьэ" - 0.000159665	"эм" - 3.14985e-05	"юб" - 0.00046324	"юм" - 0.00016781	"юц" - 2.22662e-05	"яг" - 0.000351371	"ян" - 0.00216362	"яч" - 0.000581636	
"ьс" - 0.00220924	"ью" - 0.00031118	"эн" - 2.17231e-06	"юв" - 0.00027859	"юн" - 0.00039481	"юч" - 0.00030303	"яд" - 0.00114589	"яо" - 0.0006001	"яш" - 7.22293e-05	
"ьт" - 0.000858062	"ья" - 0.000715776	"эп" - 1.08615e-05	"юг" - 0.00011296	"юо" - 0.00021614	"юш" - 0.00026067	"яе" - 0.000341052	"яп" - 0.00124636	"ящ" - 0.00019279	

Частота біграм без перетину:

З пропусками:

" а" - 0.00225709	" я" - 0.0013608	"ах" - 0.000992649	"бш" - 3.27247e-05	"вш" - 0.00140262	"дб" - 2.36345e-05	"еб" - 0.00149806	"жб" - 6.09043e-05	"зо" - 0.000570864	"ио" - 0.00014817
" б" - 0.0072267	"ё " - 4.7269e-05	"ац" - 4.45419e-05	"бщ" - 0.00014635	"вщ" - 7.27215e-06	"дв" - 0.000885385	"ев" - 0.00186531	"жд" - 0.00071903	"зп" - 4.5451e-06	"ип" - 0.00024179
" в" - 0.0153224	"ёг" - 3.63608e-06	"ач" - 0.000732669	"бъ" - 0.00010544	"въ" - 2.99976e-05	"дг" - 1.81804e-06	"ег" - 0.00284705	"же" - 0.00394696	"зр" - 0.000128172	"ир" - 0.00062631
" г" - 0.0040615	"ём" - 3.63608e-06	"аш" - 0.00073903	"бы" - 0.00383152	"вы" - 0.0027416	"дд" - 2.54525e-05	"ед" - 0.00287432	"жж" - 1.3635e-05	"зс" - 6.54494e-05	"ис" - 0.00225709
" д" - 0.00820571	"ён" - 3.63608e-06	"ащ" - 0.00022089	"бь" - 4.45419e-05	"вь" - 0.000227255	"де" - 0.00457873	"ее" - 0.0012999	"жи" - 0.0012899	"зт" - 1.90894e-05	"ит" - 0.00366244
" е" - 0.00356154	"ёр" - 3.63608e-06	"аэ" - 9.09019e-07	"бю" - 9.09019e-06	"вю" - 3.63608e-06	"дж" - 3.63608e-06	"еж" - 0.00077266	"жк" - 0.00018089	"зу" - 0.000227255	"иу" - 4.5451e-06
" ж" - 0.00206438	"ёт" - 7.27215e-06	"аю" - 0.00071812	"бя" - 0.000531776	"вя" - 0.000243617	"дз" - 7.27215e-06	"ез" - 0.00100628	"жл" - 2.27255e-05	"зц" - 8.18117e-06	"иф" - 0.00016816
" з" - 0.00443601	"а " - 0.0153897	"ая" - 0.00179713	"в " - 0.00646767	"г " - 0.000679037	"ди" - 0.00207711	"еи" - 0.00012999	"жм" - 2.2725e-05	"зч" - 4.45419e-05	"их" - 0.00168441
" и" - 0.0103174	"аё" - 7.27215e-06	"б " - 0.000229982	"ва" - 0.00521504	"га" - 0.000789938	"дк" - 0.000259979	"ей" - 0.00206711	"жн" - 0.00090447	"зш" - 1.54533e-05	"иц" - 0.0009172
" й" - 1.81804e-06	"аб" - 0.000597225	"ба" - 0.00155351	"вб" - 1.81804e-06	"гб" - 1.09082e-05	"дл" - 0.00060995	"ек" - 0.00134444	"жо" - 2.36345e-05	"зъ" - 5.36321e-05	"ич" - 0.0025498
" к" - 0.00969832	"ав" - 0.00308339	"бв" - 4.18149e-05	"вв" - 4.18149e-05	"гв" - 5.45411e-06	"дм" - 9.7265e-05	"ел" - 0.00591226	"жр" - 3.63608e-06	"зы" - 0.00037178	"иш" - 0.00045632
" л" - 0.00237163	"аг" - 0.000679037	"бг" - 8.18117e-06	"вг" - 4.18149e-05	"гг" - 9.09019e-07	"дн" - 0.00170441	"ем" - 0.00406695	"жс" - 3.63608e-05	"зь" - 0.000138171	"ищ" - 0.00017089
" м" - 0.00518868	"ад" - 0.00162624	"бд" - 1.45443e-05	"вд" - 0.000341791	"гд" - 0.000994467	"до" - 0.003407	"ен" - 0.00648767	"жу" - 0.00017180	"зю" - 4.5451e-06	"иэ" - 1.81804e-06
" н" - 0.0165469	"ае" - 0.00130262	"бе" - 0.00223164	"ве" - 0.00535958	"ге" - 0.000443601	"дп" - 0.00012453	"ео" - 0.000196348	"жч" - 2.81796e-05	"зя" - 0.000526322	"ию" - 0.00027634
" о" - 0.0093938	"аж" - 0.0015017	"бж" - 2.45435e-05	"вз" - 0.00045451	"гж" - 9.09019e-07	"др" - 0.00139898	"еп" - 0.00100447	"жь" - 5.45411e-05	"и " - 0.018384	"ия" - 0.00128263
" п" - 0.0171886	"аз" - 0.00382697	"бз" - 7.27215e-06	"ви" - 0.00297704	"ги" - 0.000575409	"дс" - 0.000459964	"ер" - 0.00537503	"з " - 0.00130172	"иа" - 3.09066e-05	"й " - 0.00703126
" р" - 0.00374607	"аи" - 9.3629e-05	"би" - 0.00061904	"вк" - 0.000234527	"гк" - 0.00012999	"дт" - 0.000156351	"ес" - 0.00437602	"за" - 0.00500324	"иб" - 0.00087174	"йб" - 3.63608e-06
" с" - 0.0151215	"ай" - 0.000707217	"бк" - 0.000121809	"вл" - 0.000564501	"гл" - 0.00123081	"ду" - 0.00185803	"ет" - 0.00507324	"зб" - 0.000174532	"ив" - 0.00222255	"йд" - 0.00012817
" т" - 0.00901383	"ак" - 0.00677583	"бл" - 0.000837207	"вм" - 0.00012817	"гм" - 3.63608e-06	"дх" - 5.36321e-05	"еу" - 0.000109082	"зв" - 0.00101356	"иг" - 0.000610861	"йк" - 0.000295431
" у" - 0.0041024	"ал" - 0.0067731	"бм" - 2.45435e-05	"вн" - 0.00117809	"гн" - 0.000241799	"дц" - 0.0002399	"еф" - 9.09019e-06	"зг" - 0.000232709	"ид" - 0.00124263	"йл" - 2.27255e-05
" ф" - 0.000519959	"ам" - 0.00359881	"бн" - 0.00029452	"во" - 0.00644404	"го" - 0.0081939	"дч" - 3.45427e-05	"ех" - 0.000663584	"зд" - 0.00110264	"ие" - 0.00206893	"йм" - 9.7265e-05
" х" - 0.00170714	"ан" - 0.00358335	"бо" - 0.00198621	"вп" - 0.000223619	"гр" - 0.000698127	"дш" - 8.8174e-05	"ец" - 0.000579045	"зе" - 0.00040815	"иж" - 0.00027361	"йн" - 0.00028452
" ц" - 0.000293613	"ао" - 3.63608e-06	"бр" - 0.00152261	"вр" - 0.000607225	"гс" - 1.27263e-05	"дъ" - 4.7269e-05	"еч" - 0.00105537	"зж" - 0.00019816	"из" - 0.00202984	"йо" - 6.36313e-06
" ч" - 0.00667311	"ап" - 0.000869931	"бс" - 0.000122718	"вс" - 0.00298249	"гт" - 5.45411e-06	"ды" - 0.0004536	"еш" - 0.00090992	"зз" - 2.18165e-05	"ии" - 0.00035179	"йр" - 9.09019e-07
" ш" - 0.000679037	"ар" - 0.0024289	"бт" - 7.27215e-06	"вт" - 0.000174532	"гу" - 0.000730851	"дь" - 0.000825389	"ещ" - 0.00077630	"зи" - 0.000329065	"ий" - 0.00140807	"йс" - 0.00042633
" щ" - 0.000170896	"ас" - 0.00317975	"бу" - 0.00137716	"ву" - 0.000614497	"гч" - 9.09019e-06	"дю" - 3.3633e-05	"ею" - 0.00021271	"зк" - 9.81741e-05	"ик" - 0.00312339	"йт" - 0.000264525
" ъ" - 7.27215e-06	"ат" - 0.00439692	"бх" - 4.636e-05	"вх" - 2.18165e-05	"гш" - 7.27215e-06	"дя" - 0.000334519	"ея" - 0.00012999	"зл" - 0.000144534	"ил" - 0.00484144	"йх" - 3.63608e-06
" э" - 0.00184531	"ау" - 7.90847e-05	"бц" - 3.63608e-06	"вц" - 2.90886e-05	"д " - 0.00109082	"е " - 0.0187785	"ж " - 0.000062086	"зм" - 0.000017453	"им" - 0.000264706	"йц" - 3.81788e-05
" ю" - 4.18149e-05	"аф" - 5.63592e-05	"бч" - 1.99984e-05	"вч" - 8.09027e-05	"да" - 0.00496415	"еа" - 1.72714e-05	"жа" - 0.00096992	"зн" - 0.00164169	"ин" - 0.00316793	"йч" - 5.09051e-05

"йш" - 9.5447e-05	"лц" - 3.63608e-06	"ни" - 0.00744487	"оц" - 5.36321e-05	"рм" - 0.00014453	"сц" - 1.63623e-05	"ув" - 0.000714489	"х " - 0.00403241	"ш " - 0.000168169	"ым" - 0.0012399
"к " - 0.00522231	"лч" - 8.27207e-05	"нк" - 0.000445419	"оч" - 0.00203166	"рн" - 0.00075630	"сч" - 0.00026907	"уг" - 0.00114718	"ха" - 0.000640858	"ша" - 0.00098446	"ын" - 0.00020180
"ка" - 0.0086175	"лш" - 9.09019e-07	"нл" - 9.09019e-07	"ош" - 0.00111082	"ро" - 0.00762667	"сш" - 8.18117e-05	"уд" - 0.00193621	"хв" - 0.000199075	"шв" - 2.27255e-05	"ып" - 0.00019089
"кв" - 0.000146352	"лщ" - 7.27215e-06	"нн" - 0.00268433	"ощ" - 0.00016725	"рп" - 9.09019e-05	"съ" - 4.5451e-05	"уе" - 0.000243617	"хе" - 0.000109082	"ше" - 0.00197439	"ыр" - 0.00036997
"кд" - 3.63608e-06	"лы" - 0.00059268	"но" - 0.00971287	"оэ" - 4.5451e-05	"рр" - 1.18172e-05	"сы" - 0.00031543	"уж" - 0.00184713	"хи" - 0.000196348	"ши" - 0.00210983	"ыс" - 0.00051086
"ке" - 0.000701763	"ль" - 0.00387878	"нр" - 7.27215e-05	"ою" - 0.00088356	"рс" - 0.000301794	"сь" - 0.00262797	"уз" - 0.000381788	"хл" - 0.0002318	"шк" - 0.00086356	"ыт" - 0.00063904
"кж" - 4.18149e-05	"лю" - 0.00095719	"нс" - 0.000327247	"оя" - 0.000536321	"рт" - 0.000742669	"сю" - 0.00015907	"уи" - 4.5451e-06	"хм" - 2.63616e-05	"шл" - 0.00046087	"ыу" - 8.18117e-06
"кз" - 1.81804e-06	"ля" - 0.00133989	"нт" - 0.000348154	"п " - 5.09051e-05	"ру" - 0.00272524	"ся" - 0.00388606	"уй" - 0.000134535	"хн" - 0.000169987	"шн" - 0.00025725	"ых" - 0.00097719
"ки" - 0.00345882	"м " - 0.00782847	"ну" - 0.0026907	"па" - 0.00122627	"рф" - 5.99953e-05	"т " - 0.0056641	"ук" - 0.000860841	"хо" - 0.00213165	"шо" - 0.00033361	"ыц" - 4.5451e-06
"кк" - 1.18172e-05	"ма" - 0.00233072	"нф" - 2.63616e-05	"пе" - 0.00226164	"рх" - 0.000190894	"та" - 0.00545775	"ул" - 0.00112991	"хп" - 3.63608e-06	"шп" - 5.09051e-05	"ыч" - 0.00011908
"кл" - 0.00053723	"мб" - 1.90894e-05	"нх" - 6.36313e-06	"пи" - 0.00097083	"рц" - 2.36345e-05	"тб" - 1.18172e-05	"ум" - 0.00108628	"хр" - 0.000113627	"шр" - 3.63608e-06	"ыш" - 0.00042087
"кн" - 0.000557229	"мг" - 2.45435e-05	"нц" - 0.00028179	"пк" - 0.000159987	"рч" - 6.45403e-05	"тв" - 0.00198166	"ун" - 0.00017635	"хс" - 3.18157e-05	"шт" - 5.72682e-05	"ыщ" - 3.0906e-05
"ко" - 0.0102256	"ме" - 0.00383152	"нч" - 0.00018544	"пл" - 0.00065813	"рш" - 0.00044087	"тг" - 1.45443e-05	"уп" - 0.00090811	"хт" - 1.36353e-05	"шу" - 0.00025725	"ь " - 0.0103655
"кр" - 0.00142716	"мз" - 3.63608e-06	"нш" - 3.63608e-06	"пн" - 0.00012362	"рщ" - 9.9992e-06	"тд" - 0.000111809	"ур" - 0.000646313	"ху" - 0.000129081	"шы" - 3.6360e-06	"ьб" - 0.000108173
"кс" - 8.72658e-05	"ми" - 0.00304885	"нщ" - 5.9086e-05	"по" - 0.00953652	"ры" - 0.00124899	"те" - 0.00505869	"ус" - 0.00118536	"хш" - 1.81804e-05	"шь" - 0.00065267	"ьв" - 1.27263e-05
"кт" - 0.000420876	"мк" - 8.63568e-05	"ны" - 0.00346154	"пп" - 2.99976e-05	"рь" - 0.000502688	"тз" - 3.90878e-05	"ут" - 0.00159806	"хю" - 9.09019e-07	"шю" - 9.0901e-07	"ьг" - 6.45403e-05
"ку" - 0.00240163	"мл" - 0.00015635	"нь" - 0.00130262	"пр" - 0.00727306	"рю" - 0.00013362	"ти" - 0.00292795	"уф" - 3.63608e-06	"хя" - 9.09019e-07	"щ " - 1.27263e-05	"ьд" - 6.90854e-05
"кх" - 3.63608e-06	"мм" - 2.6361e-05	"ню" - 0.00013908	"пс" - 1.45443e-05	"ря" - 0.000955379	"тк" - 0.000561774	"ух" - 0.000511778	"ц " - 0.000562683	"ща" - 0.00033633	"ье" - 0.000533594
"кц" - 5.45411e-06	"мн" - 0.00130899	"ня" - 0.00103446	"пт" - 6.18133e-05	"с " - 0.00259707	"тл" - 0.00015726	"уц" - 3.63608e-06	"ца" - 0.000723579	"ще" - 0.00125263	"ьж" - 1.09082e-05
"кш" - 1.45443e-05	"мо" - 0.00279069	"о " - 0.0216247	"пу" - 0.000594498	"сё" - 7.27215e-05	"тм" - 7.09035e-05	"уч" - 0.000862659	"цв" - 7.90847e-05	"щи" - 0.00071903	"ьз" - 0.000179986
"л " - 0.00639586	"мп" - 4.8178e-05	"об" - 0.00365971	"пц" - 5.27231e-05	"са" - 0.00168078	"тн" - 0.00126717	"уш" - 0.00092992	"це" - 0.000742669	"щн" - 1.9998e-05	"ьи" - 8.27207e-05
"лё" - 7.27215e-06	"мр" - 2.45435e-05	"ов" - 0.00850569	"пч" - 7.18125e-05	"св" - 0.00127354	"то" - 0.012789	"ущ" - 0.00018271	"ци" - 0.00016180	"що" - 3.6360e-06	"ьй" - 9.09019e-07
"ла" - 0.0046669	"мс" - 0.00011908	"ог" - 0.00422967	"пш" - 1.09082e-05	"сг" - 1.90894e-05	"тп" - 0.000113627	"уэ" - 9.09019e-06	"цк" - 2.54525e-05	"щр" - 9.0901e-06	"ьк" - 0.00147625
"лб" - 4.9996e-05	"мт" - 9.99921e-06	"од" - 0.0051196	"пщ" - 2.3634e-05	"сд" - 0.000230891	"тр" - 0.00232527	"ую" - 0.00110719	"цм" - 9.09019e-07	"щу" - 7.09035e-05	"ьм" - 0.00031270
"лв" - 6.45403e-05	"му" - 0.00199348	"ое" - 0.00196075	"пы" - 0.00016998	"се" - 0.00379243	"тс" - 0.00118172	"уя" - 2.72706e-05	"цо" - 0.00025270	"щь" - 1.09082e-05	"ьн" - 0.00107901
"лг" - 0.000174532	"мф" - 5.4541e-06	"ож" - 0.00182167	"пь" - 6.90854e-05	"сж" - 7.27215e-06	"тт" - 4.9996e-05	"ф " - 1.63623e-05	"цу" - 0.000248162	"ъ " - 3.63608e-06	"ьо" - 1.36353e-05
"лд" - 1.99984e-05	"мц" - 6.36313e-06	"оз" - 0.00148625	"пю" - 9.09019e-07	"сз" - 2.27255e-05	"ту" - 0.00151533	"фа" - 0.00025907	"цы" - 0.00019816	"ъе" - 0.000111809	"ьс" - 0.000975377
"ле" - 0.0036079	"мч" - 1.27263e-05	"ои" - 0.00079721	"пя" - 0.000267252	"си" - 0.00131899	"тф" - 1.18172e-05	"фе" - 0.00024089	"ч " - 0.000586317	"ъю" - 4.5451e-06	"ьт" - 0.000175441
"лж" - 0.00030179	"мщ" - 1.5453e-05	"ой" - 0.00320702	"р " - 0.000768121	"ск" - 0.00384333	"тх" - 2.09074e-05	"фи" - 0.00018271	"ча" - 0.0020562	"ъя" - 8.18117e-05	"ьф" - 9.09019e-07
"лз" - 5.45411e-06	"мы" - 0.00088538	"ок" - 0.0020362	"рё" - 1.09082e-05		"тц" - 7.09035e-05	"фл" - 1.90894e-05	"чв" - 4.5451e-06	"ы " - 0.00430148	"ьц" - 0.000131808
"ли" - 0.00635313	"мь" - 5.90862e-05	"ол" - 0.00569319	"ра" - 0.0063195	"сл" - 0.00268433	"тч" - 0.000189076	"фо" - 6.72674e-05	"чи" - 0.00355608	"ыб" - 0.00017362	"ьч" - 4.7269e-05
"лк" - 0.000323611	"мя" - 0.00045269	"ом" - 0.00499779	"рб" - 8.99929e-05	"см" - 0.00066176	"тш" - 1.90894e-05	"фр" - 0.00016725	"чк" - 0.000569046	"ыв" - 0.00081539	"ьш" - 0.00036088
"лл" - 8.36297e-05	"н " - 0.00344609	"он" - 0.00492597	"рв" - 0.000223619	"сн" - 0.000757213	"тщ" - 3.63608e-06	"фс" - 3.63608e-06	"чл" - 1.27263e-05	"ыг" - 0.000134535	"ьщ" - 1.81804e-06
"лм" - 1.18172e-05	"на" - 0.00939198	"оо" - 0.000188167	"рг" - 0.000179986	"со" - 0.00257525	"тъ" - 1.72714e-05	"фт" - 1.72714e-05	"чн" - 0.000762667	"ыд" - 7.63576e-05	"ью" - 0.00027088
"лн" - 0.000216347	"нб" - 1.54533e-05	"оп" - 0.00125717	"рд" - 0.00026543	"сп" - 0.00131717	"ты" - 0.0015826	"фу" - 3.36337e-05	"чо" - 0.000125445	"ые" - 0.0013408	"ья" - 0.000477235
"ло" - 0.00564228	"нв" - 7.27215e-06	"ор" - 0.0059568	"ре" - 0.00560138	"ср" - 0.000136353	"ть" - 0.00593499	"фф" - 1.81804e-06	"чр" - 5.09051e-05	"ыж" - 1.9998e-05	"э " - 2.72706e-06
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"лт" - 6.36313e-05	"не" - 0.00965651	"оу" - 8.27207e-05	"ри" - 0.00491143	"су" - 0.000747214	"у " - 0.00634404	"фю" - 9.0901e-07	"чш" - 0.00013635	"ый" - 0.00145898	"эй" - 3.99968e-05
"лу" - 0.00130899	"нж" - 8.18117e-06	"оф" - 0.00010635	"рк" - 0.000425421	"сф" - 9.09019e-07	"уа" - 1.81804e-06	"фя" - 3.63608e-06	"чь" - 0.000192712	"ык" - 0.00027452	"эк" - 0.000122718
"лф" - 1.45443e-05	"нз" - 1.09082e-05	"ох" - 0.000535412	"рл" - 0.000119991	"сх" - 0.000201802	"уб" - 0.00085266			"ыл" - 0.00226709	"эл" - 1.45443e-05

"эм" - 1.27263e-05	"эф" - 8.18117e-06	"юж" - 1.5453e-05	"юр" - 7.45396e-05	"юч" - 8.09027e-05	"яв" - 0.000276342	"яи" - 9.27199e-05	"яо" - 3.63608e-06	"яц" - 1.54533e-05
"эн" - 9.09019e-07	"эх" - 5.63592e-05	"юз" - 6.36313e-06	"юс" - 0.00012271	"юш" - 0.00015726	"яг" - 8.27207e-05	"яй" - 0.000198166	"яп" - 3.36337e-05	"яч" - 9.90831e-05
"эп" - 6.36313e-06	"ю " - 0.00345427	"юк" - 1.45443e-05	"ют" - 0.00036179	"ющ" - 0.00032270	"яд" - 0.000469054	"як" - 0.000368153	"яр" - 8.90839e-05	"яш" - 1.27263e-05
"эр" - 9.09019e-07	"юб" - 0.00029997	"юл" - 1.09082e-05	"юф" - 1.0908e-05	"юю" - 4.1814e-05	"яе" - 6.90854e-05	"ял" - 0.000615406	"яс" - 0.000419058	"ящ" - 0.00017180
"эс" - 4.5451e-06	"юг" - 9.09019e-07	"юм" - 4.0905e-05	"юх" - 5.18141e-05	"я " - 0.0095747	"яж" - 0.00013453	"ям" - 0.00046632	"ят" - 0.00153715	"яю" - 9.09019e-05
"эт" - 0.00147534	"юд" - 0.00028452	"юн" - 2.81796e-05	"юц" - 3.63608e-06	"яб" - 2.90886e-05	"яз" - 0.000236345	"ян" - 0.00073176	"ях" - 0.000205438	"яя" - 6.72674e-05

Без пропуску:

"ёб" - 2.17231e-06	"ан" - 0.00606834	"бт" - 3.25846e-05	"вх" - 0.000111874	"гэ" - 3.25846e-06	"еб" - 0.00300213	"же" - 0.00484642	"зо" - 0.000725551	"ип" - 0.00298258	"йф" - 4.34461e-05
"ёв" - 4.34461e-06	"ао" - 0.00101555	"бу" - 0.00170852	"вц" - 5.21354e-05	"гя" - 2.17231e-06	"ев" - 0.00439675	"жж" - 1.7378e-05	"зп" - 0.000172698	"ир" - 0.00118825	"йх" - 9.01508e-05
"ёг" - 6.51692e-06	"ап" - 0.00289894	"бх" - 4.99631e-05	"вч" - 0.000280228	"да" - 0.00604119	"ег" - 0.00402746	"жз" - 3.25846e-05	"зр" - 0.000207455	"ис" - 0.00460095	"йц" - 7.38585e-05
"ёе" - 2.17231e-06	"ар" - 0.0032791	"бц" - 6.51692e-06	"вш" - 0.00165313	"дб" - 8.03754e-05	"ед" - 0.00469436	"жи" - 0.00159122	"зс" - 0.000172698	"ит" - 0.00550354	"йч" - 0.000424686
"ёз" - 4.34461e-06	"ас" - 0.00558392	"бч" - 1.30338e-05	"вщ" - 1.08615e-05	"дв" - 0.00114155	"ее" - 0.00191163	"жк" - 0.00022700	"зт" - 0.000111874	"иу" - 0.000551766	"йш" - 0.00020202
"ёи" - 1.08615e-05	"ат" - 0.00640396	"бш" - 2.38954e-05	"въ" - 2.06369e-05	"дг" - 6.08246e-05	"еж" - 0.00110245	"жл" - 2.71538e-05	"зу" - 0.00033888	"иф" - 0.00028131	"йщ" - 1.5206e-05
"ёк" - 2.17231e-06	"ау" - 0.000546335	"бщ" - 0.00016183	"вы" - 0.00329105	"дд" - 8.14615e-05	"ез" - 0.00206152	"жм" - 6.9513e-05	"зф" - 1.19477e-05	"их" - 0.00232437	"йэ" - 6.19108e-05
"ём" - 4.34461e-06	"аф" - 0.00015857	"бъ" - 8.58061e-05	"вь" - 0.000220489	"де" - 0.00546987	"еи" - 0.00140114	"жн" - 0.0012078	"зх" - 7.60308e-06	"иц" - 0.0011535	"йю" - 8.68923e-06
"ён" - 6.51692e-06	"ах" - 0.00136638	"бы" - 0.00463136	"вэ" - 0.000194422	"дж" - 9.77538e-06	"ей" - 0.00237542	"жо" - 9.66677e-05	"зц" - 1.73785e-05	"ич" - 0.00384824	"йя" - 7.92892e-05
"ёо" - 2.17231e-06	"ац" - 9.884e-05	"бь" - 4.99631e-05	"вю" - 4.34461e-06	"дз" - 7.16861e-05	"ек" - 0.0025731	"жп" - 6.08246e-05	"зч" - 0.000101012	"иш" - 0.00070274	"ка" - 0.0105694
"ёп" - 4.34461e-06	"ач" - 0.00166507	"бэ" - 5.53938e-05	"вя" - 0.00038124	"ди" - 0.00265999	"ел" - 0.00743689	"жр" - 1.08615e-05	"зш" - 1.412e-05	"ищ" - 0.00022700	"кб" - 0.000397532
"ёр" - 1.08615e-05	"аш" - 0.00102316	"бю" - 1.52062e-05	"га" - 0.000951471	"дк" - 0.000439892	"ем" - 0.00567081	"жс" - 7.60308e-05	"зщ" - 1.08615e-06	"иэ" - 0.000175957	"кв" - 0.000750532
"ёс" - 1.30338e-05	"ащ" - 0.00030738	"бя" - 0.000639745	"гб" - 2.38954e-05	"дл" - 0.00071143	"ен" - 0.00977321	"жт" - 8.25477e-05	"зъ" - 5.86523e-05	"ию" - 0.00036386	"кг" - 0.000171612
"ёт" - 8.68923e-06	"аэ" - 0.000259591	"ва" - 0.00622149	"гв" - 0.000106443	"дм" - 0.00015966	"ео" - 0.00146196	"жу" - 0.00024004	"зы" - 0.00045401	"ия" - 0.00171721	"кд" - 0.0002824
"ёу" - 2.17231e-06	"аю" - 0.00092648	"вб" - 0.000238954	"гг" - 1.19477e-05	"дн" - 0.00229722	"еп" - 0.0038048	"жф" - 2.1723e-06	"зь" - 0.000168354	"йа" - 0.000147717	"ке" - 0.000964504
"ёф" - 4.34461e-06	"ая" - 0.00228744	"вв" - 0.000471391	"гд" - 0.00124799	"до" - 0.00396337	"ер" - 0.00695356	"жх" - 1.412e-05	"зэ" - 3.25846e-05	"йб" - 0.00037580	"кж" - 0.00017812
"ёх" - 2.17231e-06	"ба" - 0.00182257	"вг" - 0.000475735	"ге" - 0.000544163	"дп" - 0.00022483	"ес" - 0.00738476	"жч" - 5.53938e-05	"зю" - 5.43077e-06	"йв" - 0.000581092	"кз" - 0.000131425
"ёц" - 2.17231e-06	"бб" - 4.34461e-06	"вд" - 0.000867837	"гж" - 2.17231e-06	"др" - 0.0017889	"ет" - 0.00729461	"жь" - 6.19108e-05	"зя" - 0.000631055	"йг" - 0.00026828	"ки" - 0.0045651
"ёч" - 6.51692e-06	"бв" - 8.472e-05	"ве" - 0.00646153	"гз" - 5.75661e-05	"дс" - 0.000700569	"еу" - 0.000706	"жэ" - 1.84646e-05	"иа" - 0.000272625	"йд" - 0.00064843	"кк" - 0.000362775
"аё" - 8.68923e-06	"бг" - 1.412e-05	"вж" - 7.49446e-05	"ги" - 0.000797237	"дт" - 0.00026828	"еф" - 8.79785e-05	"жя" - 2.28092e-05	"иб" - 0.0019301	"йе" - 0.000124908	"кл" - 0.000753791
"аа" - 0.000262849	"бд" - 3.47569e-05	"вз" - 0.000661468	"гк" - 0.000173785	"ду" - 0.00226137	"ех" - 0.00116436	"за" - 0.00617913	"ив" - 0.00496807	"йж" - 0.00012273	"км" - 0.00017487
"аб" - 0.00147934	"бе" - 0.00271104	"ви" - 0.00398075	"гл" - 0.00136638	"дх" - 8.472e-05	"ец" - 0.000727723	"зб" - 0.000291089	"иг" - 0.0011926	"йз" - 0.000175957	"кн" - 0.00140983
"ав" - 0.00548833	"бж" - 2.06369e-05	"вк" - 0.0010123	"гм" - 1.73785e-05	"дц" - 0.00028674	"еч" - 0.00219838	"зв" - 0.00130556	"ид" - 0.00260568	"йи" - 0.00060716	"ко" - 0.0125168
"аг" - 0.00120998	"бз" - 1.73785e-05	"вл" - 0.000810271	"гн" - 0.00036712	"дч" - 7.82031e-05	"еш" - 0.00111982	"зг" - 0.000361689	"ие" - 0.00297823	"йк" - 0.000964504	"кп" - 0.00053656
"ад" - 0.0028555	"би" - 0.00074727	"вм" - 0.00037472	"го" - 0.00972325	"дш" - 8.6892e-05	"ещ" - 0.00094278	"зд" - 0.00133162	"иж" - 0.00050071	"йл" - 0.000152062	"кр" - 0.00186818
"ае" - 0.0020083	"бк" - 0.000161837	"вн" - 0.00206695	"гп" - 0.000103185	"дщ" - 2.1723e-06	"еэ" - 0.000242212	"зе" - 0.00048008	"из" - 0.00306078	"йм" - 0.00045184	"кс" - 0.000713603
"аж" - 0.00182257	"бл" - 0.000947126	"во" - 0.0081657	"гр" - 0.000894991	"дъ" - 6.84277e-05	"ею" - 0.00029217	"зж" - 0.00018356	"ии" - 0.00165421	"йн" - 0.00117956	"кт" - 0.000914541
"аз" - 0.00481492	"бм" - 2.60677e-05	"вп" - 0.001122	"гс" - 0.000101012	"ды" - 0.00055393	"ея" - 0.000336708	"зз" - 8.472e-05	"ий" - 0.00155103	"йо" - 0.00035951	"ку" - 0.00305318
"аи" - 0.00120346	"бн" - 0.00036603	"вр" - 0.00103836	"гт" - 3.25846e-05	"дь" - 0.00104488	"жа" - 0.00115675	"зи" - 0.000464874	"ик" - 0.00495069	"йп" - 0.00093952	"кф" - 1.52062e-05
"ай" - 0.000890646	"бо" - 0.00241669	"вс" - 0.0044402	"гу" - 0.000949298	"дэ" - 1.412e-05	"жб" - 0.00010970	"зк" - 0.0002824	"ил" - 0.00597385	"йр" - 0.00030629	"кх" - 4.77908e-05
"ак" - 0.00934853	"бп" - 1.62923e-05	"вт" - 0.000807012	"гх" - 1.08615e-06	"дю" - 3.2584e-05	"жв" - 5.648e-05	"зл" - 0.00024004	"им" - 0.00380805	"йс" - 0.00142395	"кц" - 1.08615e-05
"ал" - 0.00853608	"бр" - 0.00183886	"ву" - 0.000878698	"гч" - 3.91015e-05	"дя" - 0.000389929	"жг" - 3.25846e-06	"зм" - 0.00026284	"ин" - 0.00603141	"йт" - 0.000673415	"кч" - 0.000330191
"ам" - 0.00481818	"бс" - 0.000168354	"вф" - 1.84646e-05	"гш" - 7.60308e-06	"еа" - 0.000258505	"жд" - 0.00091345	"зн" - 0.00218969	"ио" - 0.00150432	"йу" - 0.000213972	"кш" - 3.47569e-05

"кщ" - 6.51692e-06	"мж" - 0.00013468	"нт" - 0.000496372	"оя" - 0.000868923	"рс" - 0.000433375	"сы" - 0.00035517	"уг" - 0.00162054	"фч" - 4.34461e-06	"ци" - 0.00023569	"чш" - 0.00015966
"кэ" - 4.45323e-05	"мз" - 0.00021397	"ну" - 0.0033182	"па" - 0.00143046	"рт" - 0.000966677	"съ" - 0.00318895	"уд" - 0.00265022	"фы" - 1.3033e-05	"цк" - 8.25477e-05	"чь" - 0.000236782
"кю" - 1.08615e-06	"ми" - 0.00445757	"нф" - 2.28092e-05	"пв" - 4.34461e-06	"ру" - 0.00321067	"сэ" - 3.80154e-05	"уе" - 0.000396446	"фь" - 2.60677e-05	"цл" - 2.17231e-06	"чэ" - 6.51692e-06
"кя" - 8.25477e-05	"мк" - 0.00060824	"нх" - 6.40831e-05	"пг" - 2.17231e-06	"рф" - 6.19108e-05	"сю" - 0.00020202	"уж" - 0.00238085	"фю" - 1.0861e-06	"цм" - 4.01877e-05	"чя" - 1.08615e-05
"лё" - 4.34461e-06	"мл" - 0.00032801	"нц" - 0.00039753	"пд" - 9.77538e-06	"рх" - 0.000196594	"ся" - 0.0047693	"уз" - 0.000623452	"фя" - 6.51692e-06	"цн" - 6.19108e-05	"ша" - 0.00116762
"ла" - 0.00592171	"мм" - 0.00029760	"нч" - 0.000343225	"пе" - 0.0026198	"рц" - 3.14985e-05	"тё" - 4.34461e-06	"уи" - 0.000614763	"ха" - 0.000839597	"цо" - 0.00034431	"шб" - 1.412e-05
"лб" - 0.000422514	"мн" - 0.00244602	"нш" - 1.62923e-05	"пи" - 0.00119368	"рч" - 9.884e-05	"та" - 0.00663749	"уй" - 0.000172698	"хб" - 0.000224834	"цп" - 8.25477e-05	"шв" - 4.01877e-05
"лв" - 0.000773341	"мо" - 0.00399161	"нщ" - 6.6255e-05	"пк" - 0.000192249	"рш" - 0.00049528	"тб" - 0.000354086	"ук" - 0.00144567	"хв" - 0.000582178	"цр" - 1.412e-05	"шг" - 6.51692e-06
"лг" - 0.000364948	"мп" - 0.00103293	"ны" - 0.00397532	"пл" - 0.000799409	"рщ" - 2.3895e-05	"тв" - 0.00319546	"ул" - 0.00134574	"хг" - 0.000137942	"цс" - 7.82031e-05	"шд" - 1.5206e-05
"лд" - 0.00028674	"мр" - 0.00028457	"нь" - 0.00160642	"пн" - 0.00014771	"ры" - 0.0015608	"тг" - 0.000177043	"ум" - 0.00161077	"хд" - 0.000280228	"цт" - 3.14985e-05	"ше" - 0.00230265
"ле" - 0.00460203	"мс" - 0.00098731	"нэ" - 2.824e-05	"по" - 0.0115111	"рь" - 0.000644089	"тд" - 0.000427945	"ун" - 0.00124799	"хе" - 0.000188991	"цу" - 0.000258505	"шж" - 2.1723e-06
"лж" - 0.00038341	"мт" - 0.00041165	"ню" - 0.00021071	"пп" - 2.60677e-05	"рэ" - 4.34461e-06	"те" - 0.00647999	"уо" - 0.000353	"хж" - 3.69292e-05	"цф" - 2.17231e-06	"шз" - 3.25846e-06
"лз" - 0.000159665	"му" - 0.00265782	"ня" - 0.00128275	"пр" - 0.00866208	"рю" - 0.00019550	"тж" - 0.00023243	"уп" - 0.00181714	"хз" - 0.00011296	"цх" - 2.17231e-06	"ши" - 0.0026513
"ли" - 0.00799192	"мф" - 3.2584e-05	"оа" - 0.000230265	"пс" - 1.62923e-05	"ря" - 0.00111331	"тз" - 0.000202025	"ур" - 0.000841769	"хи" - 0.00059304	"цц" - 2.17231e-06	"шк" - 0.00101338
"лк" - 0.000775514	"мх" - 0.00012708	"об" - 0.00581744	"пт" - 7.06e-05	"сё" - 7.38585e-05	"ти" - 0.00408285	"ус" - 0.00214081	"хк" - 0.000295434	"цч" - 2.28092e-05	"шл" - 0.00052461
"лл" - 0.000154234	"мц" - 2.38954e-05	"ов" - 0.0127047	"пу" - 0.000704914	"са" - 0.00209085	"тй" - 1.08615e-06	"ут" - 0.00238519	"хл" - 0.000387757	"цы" - 0.00023352	"шм" - 1.0861e-05
"лм" - 0.00020636	"мч" - 0.00047030	"ог" - 0.00562519	"пх" - 2.17231e-06	"сб" - 0.000198766	"тк" - 0.00103619	"уу" - 0.000106443	"хм" - 0.00019550	"цэ" - 6.51692e-06	"шн" - 0.00032476
"лн" - 0.00106552	"мш" - 4.5618e-05	"од" - 0.00714472	"пц" - 7.06e-05	"св" - 0.00177695	"тл" - 0.000311726	"уф" - 4.45323e-05	"хн" - 0.000612591	"цю" - 2.17231e-06	"шо" - 0.00042251
"ло" - 0.00774971	"мщ" - 2.9326e-05	"ое" - 0.00304666	"пч" - 7.82031e-05	"сг" - 9.12369e-05	"тм" - 0.00026067	"ух" - 0.000670157	"хо" - 0.00295325	"чё" - 2.17231e-06	"шп" - 7.49446e-05
"лп" - 0.000827649	"мы" - 0.00101773	"ож" - 0.00287614	"пш" - 1.84646e-05	"сд" - 0.000457271	"тн" - 0.00221901	"уц" - 8.68923e-06	"хп" - 0.000575661	"ча" - 0.00235695	"шр" - 2.17231e-06
"лр" - 0.000124908	"мь" - 7.38585e-05	"оз" - 0.00261111	"пщ" - 2.3895e-05	"се" - 0.00466069	"то" - 0.0158622	"уч" - 0.00152496	"хр" - 0.000218317	"чб" - 7.60308e-06	"шс" - 1.08615e-05
"лс" - 0.00237976	"мэ" - 9.01508e-05	"ои" - 0.00218751	"пы" - 0.00023135	"сж" - 5.86523e-05	"тп" - 0.000703828	"уш" - 0.00113612	"хс" - 0.000492028	"чв" - 5.97385e-05	"шт" - 8.36338e-05
"лт" - 0.000400791	"мю" - 3.2584e-06	"ой" - 0.00373637	"пь" - 7.60308e-05	"сз" - 8.25477e-05	"тр" - 0.00299127	"ущ" - 0.00024329	"хт" - 0.000212886	"чг" - 8.68923e-06	"шу" - 0.00031064
"лу" - 0.00172155	"мя" - 0.00059847	"ок" - 0.00363861	"пя" - 0.000346483	"си" - 0.00172698	"тс" - 0.00188122	"уъ" - 4.34461e-06	"ху" - 0.000291089	"чд" - 3.04123e-05	"шх" - 4.34461e-06
"лф" - 3.80154e-05	"на" - 0.011056	"ол" - 0.00708172	"рё" - 6.51692e-06	"ск" - 0.00469327	"тт" - 0.000484425	"уэ" - 9.99261e-05	"хф" - 1.19477e-05	"че" - 0.00409697	"шч" - 3.25846e-06
"лх" - 3.36708e-05	"нб" - 0.00027045	"ом" - 0.00688296	"ра" - 0.00748903	"сл" - 0.00326498	"ту" - 0.00197354	"ую" - 0.00130013	"хх" - 3.69292e-05	"чж" - 4.34461e-06	"шы" - 2.1723e-06
"лц" - 2.17231e-06	"нв" - 0.000385585	"он" - 0.00860777	"рб" - 0.00013251	"см" - 0.00093843	"тф" - 2.06369e-05	"уя" - 0.000120563	"хц" - 1.30338e-05	"чз" - 1.52062e-05	"шь" - 0.00074510
"лч" - 0.000716861	"нг" - 0.000123822	"оо" - 0.00179215	"рв" - 0.000360603	"сн" - 0.00131207	"тх" - 7.92892e-05	"фа" - 0.00028348	"хч" - 0.000148803	"чи" - 0.00418929	"шя" - 2.17231e-06
"лш" - 3.36708e-05	"нд" - 0.00035625	"оп" - 0.00407959	"рг" - 0.000230265	"со" - 0.0032237	"тц" - 9.77538e-05	"фе" - 0.00027696	"хш" - 5.43077e-05	"чк" - 0.000714689	"ща" - 0.00038124
"лщ" - 1.30338e-05	"не" - 0.0115078	"ор" - 0.00755854	"рд" - 0.00037363	"сп" - 0.00183886	"тч" - 0.000492028	"фз" - 1.08615e-06	"хщ" - 6.51692e-06	"чл" - 2.06369e-05	"ще" - 0.00151627
"лы" - 0.00069405	"нж" - 2.60677e-05	"ос" - 0.00908242	"ре" - 0.00667116	"ср" - 0.000244385	"тш" - 2.824e-05	"фи" - 0.00022374	"хъ" - 2.17231e-06	"чм" - 9.77538e-06	"щи" - 0.00088304
"ль" - 0.00465634	"нз" - 0.000135769	"от" - 0.00898358	"рж" - 0.00028022	"сс" - 0.00101338	"тщ" - 8.68923e-06	"фк" - 1.08615e-06	"хэ" - 3.91015e-05	"чн" - 0.000981883	"щн" - 1.6292e-05
"лэ" - 5.53938e-05	"ни" - 0.00916388	"оу" - 0.000777686	"рз" - 6.08246e-05	"ст" - 0.0119738	"тъ" - 1.52062e-05	"фл" - 2.49815e-05	"хю" - 3.25846e-06	"чо" - 0.000175957	"що" - 3.2584e-06
"лю" - 0.00107421	"нк" - 0.000672329	"оф" - 0.00019224	"ри" - 0.00599557	"су" - 0.00100035	"ты" - 0.00178564	"фм" - 4.3446e-06	"хя" - 2.71538e-05	"чп" - 0.000111874	"щр" - 5.4307e-06
"ля" - 0.00165964	"нл" - 4.34461e-05	"ох" - 0.000894991	"рк" - 0.000634314	"сф" - 2.824e-05	"ть" - 0.00703828	"фн" - 2.17231e-06	"ца" - 0.000849372	"чр" - 6.95138e-05	"щс" - 2.17231e-06
"ма" - 0.00298041	"нм" - 0.00012382	"оц" - 0.00012708	"рл" - 0.0001412	"сх" - 0.000246557	"тэ" - 9.99261e-05	"фо" - 9.884e-05	"цб" - 3.04123e-05	"чс" - 5.648e-05	"щт" - 2.17231e-06
"мб" - 0.00038124	"нн" - 0.00377656	"оч" - 0.00360929	"рм" - 0.00021071	"сц" - 3.04123e-05	"тю" - 0.00013468	"фр" - 0.00018247	"цв" - 0.000153148	"чт" - 0.00447061	"щу" - 0.00011404
"мв" - 0.00081244	"но" - 0.0116588	"ош" - 0.00146414	"рн" - 0.00100035	"сч" - 0.000394274	"тя" - 0.000699483	"фс" - 9.77538e-06	"цг" - 1.84646e-05	"чу" - 0.000901508	"щь" - 2.17231e-05
"мг" - 0.000308468	"нп" - 0.00047899	"ощ" - 0.00021723	"ро" - 0.00934418	"сш" - 9.884e-05	"уа" - 0.000164009	"фт" - 2.60677e-05	"цд" - 2.93262e-05	"чф" - 1.08615e-06	"ъе" - 0.000154234
"мд" - 0.00059847	"нр" - 0.00017595	"оэ" - 0.000259591	"рп" - 0.000217231	"сщ" - 5.43077e-06	"уб" - 0.00119368	"фу" - 4.12738e-05	"це" - 0.000870009	"чх" - 8.68923e-06	"ъо" - 2.17231e-06
"ме" - 0.00453686	"нс" - 0.000878698	"ою" - 0.00108724	"рр" - 3.25846e-05	"съ" - 4.77908e-05	"ув" - 0.00150215	"фф" - 3.25846e-06	"цз" - 2.824e-05	"чч" - 2.60677e-05	"ъп" - 2.17231e-06

"ът" - 4.34461е-06 "ыл" - 0.00276861 "ыщ" - 3.3670е-05 "ьл" - 0.000188991 "ьщ" - 1.19477е-05 "эт" - 0.00183669 "юл" - 7.27723е-05 "ющ" - 0.00038341 "як" - 0.0011535 "яш" - 6.73415е-05

"ью" - 4.34461е-06 "ым" - 0.00167702 "ыэ" - 8.25477е-05 "ьм" - 0.00069188 "ьэ" - 0.00015532 "эф" - 8.68923е-06 "юм" - 0.00016835 "юэ" - 2.71538е-05 "ял" - 0.000843941 "ящ" - 0.00019659

"ья" - 0.000136855 "ын" - 0.00088521 "ыю" - 1.0861е-06 "ьн" - 0.00258505 "ью" - 0.00032041 "эх" - 6.73415е-05 "юн" - 0.00040079 "юю" - 4.3446е-05 "ям" - 0.00084937 "яэ" - 0.000104271

"ыа" - 6.19108е-05 "ыо" - 0.00027588 "ыя" - 3.91015е-05 "ьо" - 0.000749446 "ья" - 0.00072012 "ээ" - 5.43077е-06 "юо" - 0.00021723 "юя" - 3.58431е-05 "ян" - 0.002181 "яю" - 0.00010535

"ыб" - 0.00040187 "ып" - 0.00074292 "ьа" - 0.000210714 "ьп" - 0.00115893 "эг" - 6.51692е-06 "юа" - 7.92892е-05 "юп" - 0.00044423 "яа" - 0.000156406 "яо" - 0.000591954 "яя" - 0.000144458

"ыв" - 0.00148694 "ыр" - 0.00050832 "ьб" - 0.000572403 "ьр" - 0.000265022 "эд" - 5.53938е-05 "юб" - 0.00045944 "юр" - 0.00019224 "яб" - 0.000506148 "яп" - 0.00125342

"ыг" - 0.000261763 "ыс" - 0.00112417 "ьв" - 0.00136204 "ьс" - 0.00218208 "ээ" - 2.17231е-06 "юв" - 0.00028022 "юс" - 0.00047030 "яв" - 0.00153582 "яр" - 0.000284572

"ыд" - 0.00037472 "ыт" - 0.00101121 "ьг" - 0.000309554 "ьт" - 0.000856975 "эй" - 2.824е-05 "юг" - 0.00011187 "ют" - 0.00069188 "яг" - 0.000351914 "яс" - 0.00147934

"ые" - 0.00172373 "ыу" - 0.00014011 "ьд" - 0.00062128 "ьу" - 0.000267194 "эк" - 0.000148803 "юд" - 0.00054959 "юу" - 7.60308е-05 "яд" - 0.00115024 "ят" - 0.00245797

"ыж" - 6.4083е-05 "ыф" - 1.3033е-05 "ье" - 0.00102424 "ьф" - 4.67046е-05 "эл" - 1.19477е-05 "юе" - 4.12738е-05 "юф" - 3.5843е-05 "яе" - 0.000333449 "яу" - 0.000262849

"ыз" - 0.0002118 "ых" - 0.00125125 "ьж" - 8.03754е-05 "ьх" - 0.0001412 "эм" - 3.14985е-05 "юж" - 0.00010970 "юх" - 7.49446е-05 "яж" - 0.00027805 "яф" - 3.36708е-05

"ыи" - 0.00045075 "ыц" - 6.51692е-06 "ьз" - 0.000539818 "ьц" - 0.00016944 "эн" - 3.25846е-06 "юз" - 0.00010427 "юц" - 2.28092е-05 "яз" - 0.000583265 "ях" - 0.000358431

"ый" - 0.00178238 "ыч" - 0.00030195 "ьи" - 0.00101664 "ьч" - 0.000648434 "эп" - 1.08615е-05 "юи" - 0.00031498 "юч" - 0.00030303 "яи" - 0.000952557 "яц" - 4.12738е-05

"ык" - 0.00063865 "ыш" - 0.00052787 "ьк" - 0.00250793 "ьш" - 0.00051483 "эс" - 7.60308е-06 "юк" - 0.00034974 "юш" - 0.00026393 "яй" - 0.000221575 "яч" - 0.000585437

Ентропія та надлишковість:

	Ентропія	Налишковість
Монограма з пропусками	4.38201	0.138665
Монограма без пропусків	4.46923	0.11402
Біграма з перетином та з пропусками	3.9619	0.221243
Біг рама з перетином та без пропусків	4.1368	0.179921
Біграма без перетину та з пропусками	3.96137	0.221346
Біг рама без перетину та без пропусків	4.13653	0.179975
H(10)	2.3262<H<3.07095	0.53476<R<0.38581
H(20)	1,91633<H<2.6738	0.61673<R<0.46524
H(30)	1.54759<H<2.28462	0.69048<R<0.54308

Лабороторная работа №1 ✕

Произольная часть текста:
так_несправедливы_к_детям_та_не_совсем_чистая_сделка_о_которой_вы_почти_заб

Использованные буквы:

Порядок n-граммы:
5 символов
10 символов
15 символов
20 символов
25 символов
30 символов
35 символов
40 символов
45 символов
50 символов

Введенный символ: а
Символ по счету: 1
Номер эксперимента: 50

Поле ввода символов:
а

[Продолжить] [Другой]

Неравенство для энтропии:
2,3262019401947< H < 3,07095543307631

Двоичная таблица угаданных символов:
000001000000000000000000000000
00000010000000000000000000000000
10000000000000000000000000000000
00000001000000000000000000000000
10000000000000000000000000000000

Вероятности:
q [1] = 0,42
q [2] = 0,14
q [3] = 0,08
q [4] = 0
q [5] = 0,04
q [6] = 0,06
q [7] = 0,02
q [8] = 0
q [9] = 0,02
q [10] = 0
q [11] = 0
q [12] = 0
q [13] = 0,02
q [14] = 0,04
q [15] = 0
q [16] = 0
q [17] = 0
q [18] = 0,02
q [19] = 0,02
q [20] = 0
q [21] = 0,02
q [22] = 0
q [23] = 0
q [24] = 0,02
q [25] = 0
q [26] = 0
q [27] = 0
q [28] = 0,02
q [29] = 0,02
q [30] = 0,02
q [31] = 0,02
q [32] = 0

Строка состояния:
Вы угадали. Для продолжения опыта нажмите "Продолжить", или "Другой" для выбора другого порядка

Лабороторная работа №1 ✕

Произольная часть текста:
атимся_к_обычным_человеческим_существам_я_надеюсь_что_вы_не_поймете_преврат

Использованные буквы:
м,

Порядок n-граммы:
- 5 символов
- 10 символов
- 15 символов
- 20 символов
- 25 символов
- 30 символов
- 35 символов
- 40 символов
- 45 символов
- 50 символов

Введенный символ: л

Символ по счету: 2

Номер эксперимента: 50

Поле ввода символов:
л

[Продолжить] [Другой]

Неравенство для энтропии:
1,91633259251776< H < 2,67380065575603

Двоичная таблица угаданных символов:
```
1000000000000000000000000000000000  ^
1000000000000000000000000000000
01000000000000000000000000000000
01000000000000000000000000000000
10000000000000000000000000000000  v
```

Вероятности:
q [1] = 0,5
q [2] = 0,14
q [3] = 0,04
q [4] = 0,04
q [5] = 0,06
q [6] = 0,04
q [7] = 0
q [8] = 0
q [9] = 0,02
q [10] = 0,02
q [11] = 0
q [12] = 0
q [13] = 0
q [14] = 0
q [15] = 0
q [16] = 0
q [17] = 0
q [18] = 0
q [19] = 0,02
q [20] = 0,02
q [21] = 0
q [22] = 0,04
q [23] = 0
q [24] = 0
q [25] = 0,02
q [26] = 0
q [27] = 0
q [28] = 0
q [29] = 0
q [30] = 0
q [31] = 0,02
q [32] = 0,02

Строка состояния:
Вы угадали. Для продолжения опыта нажмите "Продолжить", или "Другой" для выбора другого порядка

Лабороторная работа №1 ✕

Произольная часть текста:
или_химические_законы_но_когда_мыслители_древности_называли_законы_добра_и_

Использованные буквы:

Порядок n-граммы:
- 5 символов
- 10 символов
- 15 символов
- 20 символов
- 25 символов
- 30 символов
- 35 символов
- 40 символов
- 45 символов
- 50 символов

Введенный символ: а

Символ по счету: 1

Номер эксперимента: 50

Поле ввода символов:
а

[Продолжить] [Другой]

Неравенство для энтропии:
1,54759710417912< H < 2,28462408236634

Двоичная таблица угаданных символов:
```
1000000000000000000000000000000000  ^
1000000000000000000000000000000
00000000000000000000000000001000
10000000000000000000000000000000
01000000000000000000000000000000  v
```

Вероятности:
q [1] = 0,6
q [2] = 0,06
q [3] = 0,08
q [4] = 0,04
q [5] = 0,02
q [6] = 0,04
q [7] = 0,04
q [8] = 0
q [9] = 0
q [10] = 0,02
q [11] = 0,02
q [12] = 0
q [13] = 0
q [14] = 0
q [15] = 0
q [16] = 0
q [17] = 0
q [18] = 0
q [19] = 0
q [20] = 0,02
q [21] = 0
q [22] = 0
q [23] = 0
q [24] = 0
q [25] = 0
q [26] = 0
q [27] = 0
q [28] = 0
q [29] = 0,04
q [30] = 0
q [31] = 0,02
q [32] = 0

Строка состояния:
Вы угадали. Для продолжения опыта нажмите "Продолжить", или "Другой" для выбора другого порядка

Висновок:

У ході виконання комп'ютерного практикуму №1, я засвоїла поняття ентропії на символ джерела та його надлишковість, вивчила та порівняла різі моделі джерела відкритого тексту для наближеного визначення ентропії, набула практичних навичок щодо оцінки ентропії на символ джерела. Також я написала програма, завдяки якої можна підрахувати частоти, ентропію та надлишковість на прикладі тексту російською мовою.