

Mutations_explore_v2

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6/20/2020

R Markdown

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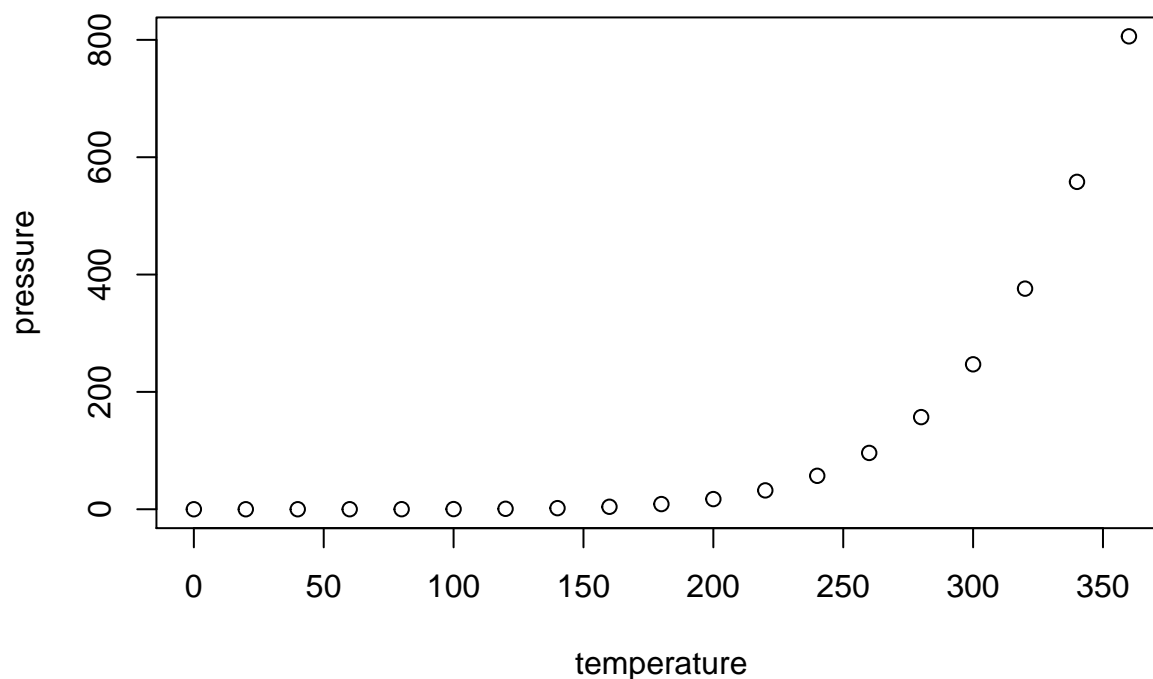
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed      dist
##  Min.   : 4.0    Min.   : 2.00
##  1st Qu.:12.0    1st Qu.: 26.00
##  Median :15.0    Median : 36.00
##  Mean   :15.4    Mean   : 42.98
##  3rd Qu.:19.0    3rd Qu.: 56.00
##  Max.   :25.0    Max.   :120.00
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

This is a notebook exploring the SARS-CoV-2 mutagenic data. The first step is to import the tidyverse library which will be used to conduct exploratory data analysis.

```
library(tidyverse)
```

```
## -- Attaching packages ----- tidyverse 1.3.0 --
```

```
## v ggplot2 3.3.1    v purrr   0.3.4
## v tibble  3.0.1    v dplyr   1.0.0
## v tidyr   1.1.0    v stringr 1.4.0
## v readr   1.3.1    v forcats 0.5.0
```

```
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()
```

```
file<-read.csv("data.csv",header= TRUE, sep=",")
file
```

```
##      Residue.. Substitution    Top_rep1    Top_rep2 Bottom_rep1 Bottom_rep2
## 1           19             A -0.176499880  0.297845106 -0.203902733 -0.247898186
## 2           19             C -0.909614397 -1.428489840  0.555962406  0.039718889
```

## 3	19	D	-1.491130884	-1.215513281	0.967244711	1.277368691
## 4	19	E	-1.061323956	-1.811667888	1.473590584	1.772408599
## 5	19	F	1.229899726	1.034432136	-1.066261907	-1.181496817
## 6	19	G	-1.282081146	-1.437413080	0.923935195	1.216422680
## 7	19	H	0.044788796	-0.344728471	-0.177778271	-1.121182378
## 8	19	I	0.649452342	0.893369844	-0.774762412	-2.127108211
## 9	19	K	-0.424756406	-0.760236249	0.521444908	-0.057169524
## 10	19	L	-0.378044415	-0.610965361	-0.052735465	-0.111010238
## 11	19	M	-0.730082212	-0.365967449	-0.016706279	-0.364097289
## 12	19	N	-0.260996775	-0.516062351	-0.009230030	-0.467088710
## 13	19	P	2.144872331	2.510764399	-1.185172647	-1.213125575
## 14	19	Q	-1.062061187	-1.849205639	0.292209228	0.912819766
## 15	19	R	-0.604280662	-0.426647439	-0.300200191	-0.659425676
## 16	19	S	0.000000000	0.000000000	0.000000000	0.000000000
## 17	19	T	0.779422016	0.660539278	-0.457523885	-1.158613960
## 18	19	V	1.096987564	1.080528369	-1.044185631	-2.085450725
## 19	19	W	1.048231988	1.090520339	-1.335614056	-2.347040428
## 20	19	Y	1.070697061	1.028125685	-0.854649087	-0.817110326
## 21	20	A	0.021064520	-0.048697607	-0.317717139	-0.506558490
## 22	20	C	-0.289291272	-1.080620710	-0.646281765	-0.906913366
## 23	20	D	-0.489006451	-1.007726178	0.083278510	-0.303042817
## 24	20	E	-0.109002672	-0.383602449	0.152749156	-0.418809958
## 25	20	F	-1.020611730	-2.175192053	0.461521516	0.493542100
## 26	20	G	-0.358236140	-0.221875196	0.087015855	0.038151930
## 27	20	H	-1.153784657	-1.119103031	0.617280338	0.338021453
## 28	20	I	-1.236909118	-1.060698023	0.062365330	-0.220566521
## 29	20	K	-1.183733107	-0.657471235	-0.153547268	-0.552751740
## 30	20	L	-1.267682708	-0.746025603	0.108913399	0.196308052
## 31	20	M	-0.797367354	-1.158536936	0.213926601	-0.077679927
## 32	20	N	-0.271755932	-0.533245816	-0.004368218	-0.487400434
## 33	20	P	-0.329072550	-0.777201131	0.150845347	0.295524649
## 34	20	Q	-0.631360857	-1.313032096	-0.025583885	0.118012965
## 35	20	R	-0.336274466	-0.473295228	-0.018801311	-0.055111525
## 36	20	S	0.076803190	0.116553856	-0.737182386	-0.964758387
## 37	20	T	0.000000000	0.000000000	0.000000000	0.000000000
## 38	20	V	-0.641848278	-0.742308258	-0.385606496	-0.242563865
## 39	20	W	-1.349539115	-1.697937062	1.675121171	2.153573662
## 40	20	Y	-1.894864280	-1.532133272	0.670373869	0.911551706
## 41	21	A	-0.909173612	-1.470530553	0.412809664	0.021104017
## 42	21	C	-0.764737809	-1.700046922	0.703649685	0.708208427
## 43	21	D	-0.489796305	-1.743871451	0.939543237	1.179590952
## 44	21	E	-0.847602454	-1.445105460	0.401516807	1.011138515
## 45	21	F	-1.121331573	-1.460583945	0.618721910	0.664597794
## 46	21	G	0.252818550	-0.116630059	-0.540539865	-0.942140186
## 47	21	H	-0.651396550	-1.879610438	0.125045295	0.858986381
## 48	21	I	0.000000000	0.000000000	0.000000000	0.000000000
## 49	21	K	-1.577295079	-1.692090710	0.350847044	1.027085636
## 50	21	L	-1.581753840	-1.147555629	0.405210215	0.742262669
## 51	21	M	-1.150737649	-2.609667759	1.099320471	0.836343061
## 52	21	N	-1.137339107	-0.872227827	0.952474936	1.012682263
## 53	21	P	-0.674100679	-0.871159739	0.178627997	0.208229556
## 54	21	Q	-0.672335979	-1.568825477	0.793639656	0.671363376
## 55	21	R	-1.895399067	-2.419190331	0.831208239	1.203957482
## 56	21	S	-1.040979847	-0.857584735	0.372104752	0.099951286

## 57	21	T	-0.092073739	0.236289800	-0.076755096	-0.766756457
## 58	21	V	0.768457729	0.625567065	-0.584000656	-0.801563364
## 59	21	W	-2.012647871	-2.254938008	0.993638717	0.941209332
## 60	21	Y	-1.276718473	-0.975320582	0.854828262	0.705246686
## 61	22	A	-1.509867424	-1.189578680	0.396900552	0.305082064
## 62	22	C	-0.954437465	-0.833510130	0.237567299	-0.416698999
## 63	22	D	0.519967876	0.213874686	-0.360175528	-0.473760449
## 64	22	E	0.000000000	0.000000000	0.000000000	0.000000000
## 65	22	F	-0.414912229	-0.749626126	-1.166607079	-1.116165799
## 66	22	G	-0.282460169	-0.790376186	-0.130492700	-0.318545030
## 67	22	H	-1.238539852	-0.604592722	-0.632069322	-0.326872526
## 68	22	I	-1.488343523	-0.553116000	-0.144757648	-0.647969185
## 69	22	K	-0.915729811	-0.778097237	0.484119919	0.654788307
## 70	22	L	-0.600375428	0.187217828	-0.737244717	-0.774073259
## 71	22	M	-0.802437638	-1.403187984	-0.143985694	-0.736789860
## 72	22	N	-2.172054992	-1.087248828	0.393903579	0.112193683
## 73	22	P	-1.887383890	-0.986337919	0.294742559	0.683608107
## 74	22	Q	0.201084922	0.882144563	-0.976440298	-2.130783255
## 75	22	R	-1.303276426	-2.106509946	0.559206773	0.972023144
## 76	22	S	-0.625153750	-1.254424822	-0.426729453	-0.584607964
## 77	22	T	1.018971367	0.749992713	-1.278308992	-1.820798844
## 78	22	V	-1.225136573	-1.070384138	0.128931653	0.174135838
## 79	22	W	-1.347366598	-1.904511000	0.543914368	0.466204261
## 80	22	Y	-1.135768354	-0.094404017	-0.070786579	0.123769401
## 81	23	A	-0.231090531	0.149340735	-0.655010312	-0.691305037
## 82	23	C	0.889112622	0.855657899	-0.805695436	-0.826374197
## 83	23	D	0.478766706	0.121783640	-0.669109600	-1.307991584
## 84	23	E	0.000000000	0.000000000	0.000000000	0.000000000
## 85	23	F	2.066332498	1.665960578	-1.911739437	-3.409226354
## 86	23	G	0.550727463	0.640130743	-0.934850830	-1.756553733
## 87	23	H	0.234455590	0.216565376	-1.041962797	-1.782898517
## 88	23	I	-0.223241306	-0.777036882	-0.770832774	-1.110750003
## 89	23	K	0.887096286	0.408457768	-0.489050044	-1.017436214
## 90	23	L	-0.032321120	0.528864856	-0.780824822	-1.126788654
## 91	23	M	1.299691436	0.396686360	-1.195752801	-1.552665849
## 92	23	N	0.717791704	0.682391806	-1.230353806	-0.697250051
## 93	23	P	-0.163259680	-0.650069819	-0.059001456	-0.248334872
## 94	23	Q	0.803649250	1.003458911	-2.172370235	-1.420632157
## 95	23	R	0.168313142	0.302122503	-0.846444701	-1.088074800
## 96	23	S	0.333639752	0.643508982	-1.420823292	-1.928273792
## 97	23	T	1.032119823	0.682545993	-1.391762327	-1.948643286
## 98	23	V	-0.122476142	0.210879080	-0.927780590	-1.581119860
## 99	23	W	0.062222476	0.498718053	-1.456003856	-1.569900888
## 100	23	Y	0.162294393	-0.448776039	-1.217743400	-3.822954483
## 101	24	A	-1.206598423	-2.482472432	1.525084643	1.871028742
## 102	24	C	-1.316336057	-2.194245237	1.715599486	2.281463813
## 103	24	D	-1.543926423	-3.135264422	2.029091641	2.270557245
## 104	24	E	-0.375160790	-1.408147114	0.112603138	0.454555214
## 105	24	F	-1.924631383	-2.819048018	2.027616668	2.358052815
## 106	24	G	-1.276012998	-2.275084949	1.702237265	2.144330412
## 107	24	H	-0.691819632	-1.834914368	1.181370647	1.860786015
## 108	24	I	-2.615558729	-1.754754389	1.598097687	1.880676624
## 109	24	K	-1.030403090	-2.149617016	1.771229394	2.140388461
## 110	24	L	-1.351818162	-1.265883751	1.185778626	1.506690183

## 111	24	M	-1.106273041	-1.294471466	1.013994745	1.492421843
## 112	24	N	-2.054172640	-2.599595037	1.412618924	2.000954527
## 113	24	P	0.046749729	-0.350998747	-0.437446327	0.114943522
## 114	24	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 115	24	R	-1.756791484	-1.398875020	1.754013738	1.885371614
## 116	24	S	-1.970883680	-1.667976556	1.273130445	1.632044113
## 117	24	T	1.758142451	1.388214211	-1.581479064	-3.269832414
## 118	24	V	-2.074283000	-1.685877140	1.145715586	1.401209673
## 119	24	W	-1.334828281	-0.926231640	0.955228873	0.859953854
## 120	24	Y	-3.884458257	-2.877085607	2.169123418	2.453987516
## 121	25	A	0.000000000	0.000000000	0.000000000	0.000000000
## 122	25	C	-0.847716563	-0.829613817	-0.636661629	-0.502019927
## 123	25	D	-1.710611221	-2.022300757	1.091157759	1.527772220
## 124	25	E	-1.563767530	-2.278253760	1.136989252	1.419027531
## 125	25	F	1.187690860	1.259972489	-3.053520601	-2.529930256
## 126	25	G	-0.137953697	-0.575801063	-0.805861816	-0.952701388
## 127	25	H	-2.337937320	-2.893522244	1.265813414	1.692308518
## 128	25	I	1.062683780	0.803271026	-0.839010314	-1.730174690
## 129	25	K	-1.634947775	-1.432462839	1.460810631	1.404624006
## 130	25	L	-1.416417629	-1.553610058	1.136415187	1.405037911
## 131	25	M	-0.735795401	-2.279461485	1.524974966	1.237121404
## 132	25	N	-1.926116900	-2.383848814	1.288498256	1.695361406
## 133	25	P	-2.053203305	-1.915850991	1.368324246	1.777418289
## 134	25	Q	-3.914621034	-3.630944962	1.266831120	1.501296151
## 135	25	R	-1.998475326	-1.783375944	1.521035861	1.960955113
## 136	25	S	-0.517403198	-0.516099143	-0.184210299	-0.298665239
## 137	25	T	1.410959416	1.441797174	-1.163369799	-1.284377375
## 138	25	V	2.765710635	2.719104503	-3.117524805	-3.035634308
## 139	25	W	-2.748407651	-3.150454874	0.995760262	1.623550350
## 140	25	Y	-0.782679928	-2.288043201	1.155825472	1.516725779
## 141	26	A	1.478441086	1.753695552	-1.679449591	-1.756688152
## 142	26	C	-0.376642397	0.209424076	-0.655551659	-0.649395074
## 143	26	D	1.627816999	2.115548621	-2.743265931	-2.347586076
## 144	26	E	0.824522239	0.322463616	-0.445512377	-1.139294196
## 145	26	F	-0.671244185	-0.395499981	-0.052728870	-0.728498621
## 146	26	G	-0.457408483	-0.349398707	0.067688963	0.070756193
## 147	26	H	-0.247886928	-0.425583100	0.123585127	-0.272020727
## 148	26	I	2.037968373	1.404123946	-2.170345132	-2.691760086
## 149	26	K	0.000000000	0.000000000	0.000000000	0.000000000
## 150	26	L	0.140780914	0.166299798	-0.772211912	-0.881137152
## 151	26	M	-0.048321640	0.402307799	-0.453330607	-0.846610823
## 152	26	N	0.017765333	0.213343884	-0.509504111	-0.797067493
## 153	26	P	-1.634727736	-1.517522137	0.556018373	1.151748214
## 154	26	Q	0.373326170	0.364960628	-0.657117544	-1.167116944
## 155	26	R	1.312015980	1.146477411	-1.649576715	-2.241423843
## 156	26	S	0.752112866	0.640917695	-1.852082899	-2.209649447
## 157	26	T	0.722328988	0.465495511	-0.061748233	-1.222679398
## 158	26	V	1.437397265	1.395575950	-1.034124222	-2.145020518
## 159	26	W	-0.012209653	-0.284470692	-0.967697462	-0.612214357
## 160	26	Y	-0.857627412	-1.200531488	-0.040583485	0.700837573
## 161	27	A	2.113006946	2.113842951	-1.662960088	-2.206907757
## 162	27	C	2.421701179	2.410414927	-3.730556115	-3.502381668
## 163	27	D	2.240504757	1.964055468	-2.235162221	-2.566844237
## 164	27	E	-2.265662346	-2.006761488	1.457848341	2.003130127

## 165	27	F	2.158693387	2.429540833	-3.183517489	-4.244026411
## 166	27	G	-2.191286245	-1.928596055	1.263086280	1.716446506
## 167	27	H	2.159517149	2.514767007	-1.862104780	-2.113640149
## 168	27	I	-0.705205197	0.160309250	-0.511061010	-0.782807830
## 169	27	K	1.672420334	1.630951805	-1.583287572	-1.906517792
## 170	27	L	2.787294881	2.902852860	-3.818996481	-4.446709167
## 171	27	M	2.408643172	2.700398143	-2.765895517	-3.375629159
## 172	27	N	0.341658565	-0.687824485	-0.514269451	-0.836793987
## 173	27	P	0.739204259	0.277007188	-0.724303357	-1.106281043
## 174	27	Q	-0.498310570	-1.006582839	0.291615425	0.760360881
## 175	27	R	0.283865656	0.222380831	-0.715818141	-0.845067999
## 176	27	S	0.871454613	0.660040479	-1.369316269	-1.266251524
## 177	27	T	0.000000000	0.000000000	0.000000000	0.000000000
## 178	27	V	-0.900563324	-1.335488018	0.027826804	0.134308218
## 179	27	W	2.185077793	2.025516272	-2.551482701	-3.106053941
## 180	27	Y	2.665353833	2.726970737	-3.102817260	-2.885891170
## 181	28	A	-1.463333472	-2.170500626	1.467039950	1.763702237
## 182	28	C	-1.363622776	-2.504881097	1.450414670	1.777830186
## 183	28	D	-1.301074485	-2.380601234	1.558023988	1.638319855
## 184	28	E	-2.717820327	-3.856462700	1.660721509	1.776128026
## 185	28	F	0.000000000	0.000000000	0.000000000	0.000000000
## 186	28	G	-2.391864348	-2.526942818	1.140622236	1.570802601
## 187	28	H	-1.647012159	-3.498624645	2.116895351	2.004018686
## 188	28	I	-2.225033231	-0.990955619	1.463469688	1.950401585
## 189	28	K	-2.709101885	-3.965413022	1.413515021	1.687995560
## 190	28	L	-1.093523464	-1.972217411	1.312275649	1.502970921
## 191	28	M	-1.907446582	-0.790296334	0.666793256	1.378704350
## 192	28	N	-2.123292632	-2.733805648	1.186132727	1.812462443
## 193	28	P	-1.592682169	-1.454713609	0.024753093	0.747007761
## 194	28	Q	-2.873663163	-1.851948819	1.646360741	2.064262251
## 195	28	R	-1.991374309	-1.996585695	1.565989004	1.835389796
## 196	28	S	-1.665813503	-1.625431227	1.668957703	1.881043888
## 197	28	T	-1.801859664	-1.754446769	1.937097304	2.167270077
## 198	28	V	-1.550091209	-2.554938107	1.516252469	1.824330208
## 199	28	W	-0.673663825	-1.315267860	0.603334645	0.918986925
## 200	28	Y	0.775972198	0.833661592	-1.023073099	-1.566116075
## 201	29	A	-1.480403983	-1.506946013	0.726894249	1.278374241
## 202	29	C	-2.486377091	-2.697713356	0.943579243	0.926834732
## 203	29	D	-5.000000000	-2.769219164	-0.791593799	0.270596843
## 204	29	E	-0.644317057	-0.327511542	-0.118991554	0.157964461
## 205	29	F	1.894681054	1.720901588	-1.558623092	-1.284857986
## 206	29	G	-2.829862550	-1.865400160	0.900982335	1.089652648
## 207	29	H	-1.689735755	-2.003065521	0.454316827	0.838382845
## 208	29	I	-1.027726456	-2.370509547	0.743507897	0.602029369
## 209	29	K	-2.264226844	-3.393699741	-0.187414154	0.610925899
## 210	29	L	0.000000000	0.000000000	0.000000000	0.000000000
## 211	29	M	-1.120296321	-1.617209648	0.889374552	0.767166244
## 212	29	N	-2.779487361	-1.619815112	0.514556850	1.067937677
## 213	29	P	-3.067666936	-2.506150287	-1.287151929	0.187676486
## 214	29	Q	-2.008695963	-1.419177543	0.690252763	0.987575545
## 215	29	R	-1.994584953	-2.411209022	-0.577768580	-0.296095753
## 216	29	S	-1.352923055	-1.867534588	0.708940699	1.132527130
## 217	29	T	-2.344387344	-1.905421209	1.232314685	1.619263165
## 218	29	V	-1.910514618	-1.856731853	1.138782115	1.597281122

## 219	29	W	-1.343784163	-1.810423967	0.921045200	1.572359022
## 220	29	Y	-0.958861694	-0.619822030	-0.623455465	-0.782727332
## 221	30	A	-1.703191355	-1.469964437	0.712647320	0.815814368
## 222	30	C	-2.336361420	-1.658464786	0.576445892	0.644142867
## 223	30	D	0.000000000	0.000000000	0.000000000	0.000000000
## 224	30	E	2.357000330	2.220146024	-2.446263310	-2.866029979
## 225	30	F	-3.808443946	-2.324981201	0.370590549	0.811272702
## 226	30	G	-1.844427795	-1.640043657	1.255284325	1.529365698
## 227	30	H	-2.770070555	-1.341425320	0.690991615	1.180625833
## 228	30	I	1.567195576	1.672530301	-2.664878276	-5.000000000
## 229	30	K	-2.133952124	-1.385726451	1.377904830	1.689647801
## 230	30	L	-1.005154306	-1.145078791	-0.507657935	-0.468936468
## 231	30	M	-0.538690649	-0.626763605	-0.066474217	0.610261837
## 232	30	N	-1.263720625	-1.604162850	0.641745929	0.781467171
## 233	30	P	-1.624023582	-2.210124932	1.111893960	1.693957841
## 234	30	Q	-0.712648129	-1.775037110	0.402814325	0.645337257
## 235	30	R	-1.311054556	-2.040518458	1.217081699	1.519761418
## 236	30	S	-1.255787741	-2.348792033	0.367117661	0.770671497
## 237	30	T	0.747221662	0.328563904	-1.651252656	-2.025587459
## 238	30	V	1.273115969	1.202406391	-1.816148446	-2.557453281
## 239	30	W	-1.618787861	-2.352446399	1.066656366	1.787660655
## 240	30	Y	-1.252908957	-1.695387469	0.316970534	0.733149702
## 241	31	A	-1.394425176	-2.481334850	1.663611864	1.985056190
## 242	31	C	-1.922532922	-1.595440248	1.831724262	2.033639773
## 243	31	D	-1.627392599	-2.854739197	2.171134939	2.526480565
## 244	31	E	-1.249938109	-1.755812901	1.717638966	2.061811841
## 245	31	F	0.767954046	0.728032184	-0.552388393	-1.489462063
## 246	31	G	-2.028098367	-2.015680294	1.929507143	2.197443638
## 247	31	H	-0.924943633	-0.565990016	0.241545608	-0.024122771
## 248	31	I	-2.021457941	-1.237447663	1.474253458	1.789596439
## 249	31	K	0.000000000	0.000000000	0.000000000	0.000000000
## 250	31	L	-0.480971773	-0.773901036	0.501442955	0.837749828
## 251	31	M	-0.272369786	-0.594807626	0.482314832	0.038999226
## 252	31	N	-0.978220592	-2.478691871	1.387623023	1.789275613
## 253	31	P	-2.025889926	-3.426973126	1.704007259	1.921519543
## 254	31	Q	-1.400456344	-1.843432752	1.778169448	2.027512286
## 255	31	R	-1.159076366	-2.059878001	1.100896546	1.298987300
## 256	31	S	-2.236026741	-1.884635222	1.927679204	2.161068282
## 257	31	T	-2.384539941	-2.224467400	2.091638552	2.340648757
## 258	31	V	-1.530755437	-2.211997871	1.335915305	1.744396866
## 259	31	W	2.560026590	2.553565096	-2.687458211	-3.239576790
## 260	31	Y	2.024635260	1.680029440	-1.167924927	-2.181358867
## 261	33	A	-0.579185389	-1.095573827	0.279013248	0.548145415
## 262	33	C	1.541072689	1.362506056	-1.288411925	-1.610154455
## 263	33	D	1.987688315	1.974546268	-1.778569832	-2.001446972
## 264	33	E	0.595065900	0.777818389	-1.158108724	-1.495881042
## 265	33	F	-1.413133121	-2.419860969	1.017213729	1.566725104
## 266	33	G	-0.463203511	-0.408356138	0.327414736	0.428454815
## 267	33	H	0.916079974	1.323390882	-1.631037172	-2.112088795
## 268	33	I	-1.564593464	-1.572014014	0.633559753	0.867864378
## 269	33	K	-1.271087901	-1.408775416	0.875441494	1.382687206
## 270	33	L	-1.048959902	-0.970663017	0.777551495	1.084057174
## 271	33	M	-1.164815176	-0.640995994	-0.165480600	-0.141674002
## 272	33	N	0.000000000	0.000000000	0.000000000	0.000000000

## 273	33	P	-2.647280515	-2.895243543	1.623784272	2.219278689
## 274	33	Q	0.537091733	0.301367213	-0.949038288	-0.834190413
## 275	33	R	-1.460078674	-1.696310875	1.114881758	1.495708358
## 276	33	S	0.884787200	0.962864863	-1.025350740	-1.131500898
## 277	33	T	0.181442525	0.103740085	-0.453322724	-0.956015812
## 278	33	V	-0.450821030	-0.265158232	0.415407693	0.222403754
## 279	33	W	-2.005169431	-1.805021493	1.579393746	1.742978209
## 280	33	Y	-1.120347188	-1.466982603	1.318649820	1.988401790
## 281	34	A	3.163631462	3.175550133	-4.283405321	-4.344021661
## 282	34	C	-0.860988976	-1.732617822	0.849448319	1.396333848
## 283	34	D	-2.416776753	-1.635811734	1.602341181	1.954120174
## 284	34	E	-0.919168873	-1.425024700	1.234017531	1.029486952
## 285	34	F	-2.278609012	-2.575641356	1.695828008	2.032343981
## 286	34	G	-0.901551766	-0.682509838	0.712272576	0.555151043
## 287	34	H	0.000000000	0.000000000	0.000000000	0.000000000
## 288	34	I	-1.926885967	-1.045326321	0.803035233	0.848146077
## 289	34	K	-1.611776927	-2.116712466	1.784841124	1.894065202
## 290	34	L	-1.171494830	-1.868468327	1.652047512	1.922316550
## 291	34	M	-0.638677549	-0.719166595	0.549527106	0.920542497
## 292	34	N	-0.872674284	-1.212053884	0.625859347	0.965866895
## 293	34	P	2.602538631	2.713008439	-2.821665857	-3.571673299
## 294	34	Q	-1.394004224	-1.812164001	0.561857713	0.879246932
## 295	34	R	-1.183915021	-0.968147617	1.295359623	1.353417050
## 296	34	S	1.601773192	1.779311774	-1.455974025	-2.295011852
## 297	34	T	-0.245362076	-0.291417681	-0.136437626	-0.545342187
## 298	34	V	2.756540989	2.989785100	-3.224884889	-4.002855182
## 299	34	W	-0.536688777	-0.117580467	-0.282752356	-0.371648674
## 300	34	Y	-1.168621411	-1.862562690	1.379988599	1.631358809
## 301	35	A	0.483442022	0.690672132	-0.298573436	-1.253541736
## 302	35	C	1.769924264	1.814318031	-2.790012526	-3.463772993
## 303	35	D	1.456088315	1.371752815	-1.374992582	-2.094001323
## 304	35	E	0.000000000	0.000000000	0.000000000	0.000000000
## 305	35	F	-1.856748116	-1.690076689	1.115249736	0.898839205
## 306	35	G	0.178382313	-0.384973278	-0.179844100	-0.489197400
## 307	35	H	-0.291707670	-1.707532528	0.050999636	0.985137137
## 308	35	I	-1.389725496	-0.016567352	-0.546993627	-0.701047785
## 309	35	K	-0.985990190	-1.412516120	0.895897174	0.952278738
## 310	35	L	-0.570983484	-0.395564099	0.086465752	-0.437776751
## 311	35	M	1.198639943	0.878401039	-1.362542529	-2.233738157
## 312	35	N	-0.623297243	-0.588659141	0.292806711	-0.707489753
## 313	35	P	-2.179805508	-1.725160516	1.604727729	1.661184849
## 314	35	Q	-0.018871381	0.658356845	-1.486367535	-1.203016380
## 315	35	R	-1.373870292	-1.784454529	0.989010048	1.410835286
## 316	35	S	-2.146277028	-2.358510068	1.528548095	1.973548972
## 317	35	T	-1.977246794	-2.511587697	1.419398733	1.769875819
## 318	35	V	1.786884662	1.700734255	-1.525486832	-3.191535477
## 319	35	W	-0.842688851	-1.087401793	0.617852722	0.079121909
## 320	35	Y	-1.627788126	-1.846478612	0.965658781	1.168768565
## 321	37	A	-0.722281466	-1.769139607	0.664463455	1.206740926
## 322	37	C	-2.982838046	-2.739334802	0.359829061	0.574257380
## 323	37	D	-1.646646336	-1.711534972	0.724123378	1.016945596
## 324	37	E	0.000000000	0.000000000	0.000000000	0.000000000
## 325	37	F	-2.551609378	-2.600363136	0.905974395	1.271673848
## 326	37	G	-1.654907537	-1.625751729	1.133085752	1.528297461

## 327	37	H	-1.998943361	-2.147287135	-0.180314190	1.187025606
## 328	37	I	-2.551371124	-2.949400127	0.542771595	1.084175683
## 329	37	K	-0.987706691	-1.712266433	1.672098773	1.832019755
## 330	37	L	-0.933340533	-1.306120139	0.304344748	0.017269783
## 331	37	M	-1.182708596	-1.187805109	0.347952156	0.772424904
## 332	37	N	-1.984388783	-2.108779375	1.195253577	1.287422475
## 333	37	P	-0.905735253	-0.991676594	0.509496025	0.906206295
## 334	37	Q	-0.579124986	-1.501258451	0.479078132	0.719489153
## 335	37	R	-1.742901092	-2.158820711	1.337010378	1.575159561
## 336	37	S	-1.702402352	-2.002938447	0.684604068	1.145261460
## 337	37	T	-0.779020849	-1.492815840	0.574751624	0.887476469
## 338	37	V	-1.504574756	-1.489611307	0.846122583	1.255085615
## 339	37	W	-1.537079039	-2.019846481	1.071681860	1.294138529
## 340	37	Y	-1.970487462	-2.188153858	0.683799114	1.218849745
## 341	38	A	-1.629378743	-2.303335899	1.671000366	1.914477547
## 342	38	C	-1.800638418	-2.900435360	1.428068240	1.737526156
## 343	38	D	0.000000000	0.000000000	0.000000000	0.000000000
## 344	38	E	-0.385052762	-1.536529824	0.367013122	0.029590725
## 345	38	F	-2.225743470	-2.180243979	1.367330268	1.822277462
## 346	38	G	-1.405472494	-1.673437329	1.254490425	1.692564539
## 347	38	H	-0.738448576	-3.225892874	1.155992450	1.172173918
## 348	38	I	-1.885204679	-2.301968325	1.505527861	1.690525194
## 349	38	K	-2.328653034	-1.777638687	1.784579594	2.188607854
## 350	38	L	-1.758521879	-2.098444555	1.224001209	1.547134811
## 351	38	M	-1.751562689	-1.348270086	1.458102516	2.034067301
## 352	38	N	-1.245640791	-1.244735226	-0.166757530	-0.103787195
## 353	38	P	-2.041770943	-2.905908863	1.855370634	1.977046362
## 354	38	Q	-1.196034548	-1.973530747	1.267018567	1.039517251
## 355	38	R	-2.115501182	-2.619530764	1.347046936	1.715408589
## 356	38	S	-2.092987420	-1.998872894	1.373175631	1.808765026
## 357	38	T	-1.359416277	-2.313249412	1.456985418	1.983525397
## 358	38	V	-1.710087560	-2.217381877	1.646259405	1.988425271
## 359	38	W	-2.614184722	-2.205248909	1.204643858	1.516340149
## 360	38	Y	-2.714598293	-2.339571721	1.188297104	1.843520929
## 361	39	A	0.999319118	0.889303988	-0.724577829	-1.027865114
## 362	39	C	0.750756365	0.831141558	-1.312238616	-1.926430528
## 363	39	D	-1.513752943	-1.016822933	0.928964430	0.826554130
## 364	39	E	0.434290810	0.913983162	-0.898226034	-1.216621620
## 365	39	F	0.300017079	0.175278303	-0.248018669	-1.187939226
## 366	39	G	0.863850358	0.605394692	-0.528502104	-1.695221663
## 367	39	H	0.547133056	0.789852879	-0.688251073	-1.169119761
## 368	39	I	1.018781932	1.448010737	-1.231210510	-1.630289621
## 369	39	K	2.332444210	2.147366263	-2.070239901	-3.087346380
## 370	39	L	0.000000000	0.000000000	0.000000000	0.000000000
## 371	39	M	0.496697747	0.459802664	-0.960959233	-0.934316217
## 372	39	N	0.636522373	0.369397814	-0.662587937	-1.514637113
## 373	39	P	0.246945377	0.031430672	0.012521562	-0.414819818
## 374	39	Q	0.677185500	1.189274550	-0.501043444	-1.199614911
## 375	39	R	2.363037191	2.422075770	-2.708855101	-3.165339668
## 376	39	S	0.016393430	0.244050961	-0.233389022	-0.668620518
## 377	39	T	-0.168042802	0.659747018	-0.747261810	-0.852792816
## 378	39	V	1.092200054	1.001133920	-1.245878585	-2.001001578
## 379	39	W	-0.328537305	0.258832286	-0.211431707	-0.604079853
## 380	39	Y	0.401805278	0.136727937	-1.066717929	-0.776971988

## 381	40	A	0.450265717	0.896811351	-0.940426987	-1.582186893
## 382	40	C	0.715986866	0.966176616	-0.621444007	-1.195643341
## 383	40	D	1.653775314	1.755013646	-0.869214262	-2.330984500
## 384	40	E	1.481087502	0.871618508	-0.385121191	-1.004971162
## 385	40	F	0.000000000	0.000000000	0.000000000	0.000000000
## 386	40	G	-0.225491579	-0.425388988	0.159211823	-0.048220940
## 387	40	H	-0.071511623	-0.237746432	0.136323931	-1.399192785
## 388	40	I	-1.066668995	-0.413737056	0.624957821	0.436339569
## 389	40	K	1.431959029	1.255577254	-1.723076523	-2.580140488
## 390	40	L	0.536764300	0.361339137	-0.525698541	-0.594586909
## 391	40	M	0.453959028	0.900113327	-1.349202051	-1.975051170
## 392	40	N	0.602843305	0.831127672	-1.023644749	-1.701395751
## 393	40	P	-1.614819651	-1.745063141	0.508342159	1.537339150
## 394	40	Q	0.330681606	0.774520919	-0.992728875	-0.402962179
## 395	40	R	1.509070699	1.527575582	-1.761741826	-2.305742502
## 396	40	S	0.250172905	0.288359160	-0.498797350	-0.704703575
## 397	40	T	-0.686537197	-0.930666372	0.317869186	0.861703197
## 398	40	V	-0.441630644	-0.356076532	0.161032827	0.026581957
## 399	40	W	-0.249550701	0.097363615	-0.700153528	-1.008390527
## 400	40	Y	0.305553374	-0.395354991	0.137098529	-0.663024385
## 401	41	A	-1.487520173	-2.069024055	1.825084877	2.027156322
## 402	41	C	-1.769966622	-1.544024743	1.443891774	1.477247457
## 403	41	D	-2.048708411	-2.253840394	1.617196871	1.863109086
## 404	41	E	-2.059332261	-2.223509727	1.834565879	2.335792475
## 405	41	F	-2.127394669	-2.245467478	1.620123080	1.901005978
## 406	41	G	-1.736124576	-2.608073555	1.617904437	1.906570169
## 407	41	H	-1.111168833	-1.287674769	1.638794226	1.844816422
## 408	41	I	-3.007029090	-4.026921899	1.676959908	2.068142356
## 409	41	K	-2.690032238	-2.293550642	1.778678266	2.014415300
## 410	41	L	-1.489218664	-1.036902491	0.572116150	0.978822422
## 411	41	M	-1.078526931	-2.430744174	0.943121947	1.544438376
## 412	41	N	-1.530071662	-1.973733093	0.883414850	1.737347476
## 413	41	P	-1.747468690	-3.028428502	1.403620950	1.847765677
## 414	41	Q	-1.372361363	-0.897444716	0.896927762	1.218549122
## 415	41	R	1.508461326	1.851598245	-1.942871800	-3.003518214
## 416	41	S	-1.244997701	-2.008438019	1.505580604	1.941640934
## 417	41	T	-1.366193702	-2.289184305	1.412198790	1.801925918
## 418	41	V	-1.547959606	-2.167367753	1.909514970	1.870292912
## 419	41	W	-1.729235618	-2.747443054	1.953373878	2.250619626
## 420	41	Y	0.000000000	0.000000000	0.000000000	0.000000000
## 421	42	A	-1.349224173	-1.715085470	1.318570128	1.636324578
## 422	42	C	2.870519591	2.838050900	-4.022755393	-4.346314774
## 423	42	D	-2.498444519	-1.833007103	1.588681473	1.725293216
## 424	42	E	-1.349318413	-1.739961011	1.686513740	1.996194482
## 425	42	F	-1.319699660	-2.095872144	1.341970031	1.815087124
## 426	42	G	-0.701381448	-0.618016444	0.121144396	0.203209150
## 427	42	H	1.351085630	1.441632840	-1.216266353	-1.921337044
## 428	42	I	1.576809266	1.843398343	-2.150828760	-2.354504785
## 429	42	K	1.631698909	1.826788535	-1.134009406	-1.467568548
## 430	42	L	2.786947927	2.697306715	-3.329891453	-3.616387428
## 431	42	M	2.369695202	2.589749645	-4.094105986	-3.790067453
## 432	42	N	-1.052624745	-1.822870576	1.378640495	1.540809985
## 433	42	P	-2.488625213	-1.437096948	1.490429003	2.062570386
## 434	42	Q	0.000000000	0.000000000	0.000000000	0.000000000

## 435	42	R	0.764221303	0.908388774	-1.323746666	-1.565540214
## 436	42	S	-1.161566526	-1.050092968	0.691916417	0.825704470
## 437	42	T	0.492627972	0.295861116	-0.790915707	-1.393004073
## 438	42	V	1.867447655	1.965122004	-2.390250331	-3.227037771
## 439	42	W	-1.678245179	-3.193771035	1.914970251	2.166350386
## 440	42	Y	-1.818852205	-2.536147907	1.385358110	1.721061760
## 441	45	A	-2.334641617	-1.814543890	1.012405901	1.488113607
## 442	45	C	-1.482905902	-2.990247386	1.194159502	1.318256956
## 443	45	D	-1.446752607	-1.851056495	1.098763033	1.266102450
## 444	45	E	-2.760304522	-1.909517328	0.927007885	1.200646042
## 445	45	F	-0.531163500	-0.680659475	-0.123711652	-0.030334793
## 446	45	G	-2.609762973	-2.343832399	0.540349851	0.736779313
## 447	45	H	-0.585345732	-2.004083855	1.316329190	1.375850464
## 448	45	I	0.524075036	-0.114914947	-0.850703830	-0.912185579
## 449	45	K	-1.643576438	-2.644343439	1.354654512	1.639626602
## 450	45	L	0.000000000	0.000000000	0.000000000	0.000000000
## 451	45	M	-0.017520149	-0.208072130	-0.919363720	-2.036794862
## 452	45	N	-1.621909447	-1.923250830	1.386032886	1.867135843
## 453	45	P	-1.397390232	-1.563610934	0.465352915	1.114504294
## 454	45	Q	-1.945202440	-2.002634421	0.246299842	0.889603604
## 455	45	R	-1.837003472	-2.373823233	1.255762788	1.687643212
## 456	45	S	-1.660541897	-1.675984905	0.761273266	0.955953911
## 457	45	T	-0.600033214	-0.707289950	-0.002403912	0.243516098
## 458	45	V	-1.020275617	-1.862496704	0.181783650	0.587879308
## 459	45	W	-2.912724717	-1.394710337	0.707244222	0.627384162
## 460	45	Y	-1.056791303	-1.602400801	0.548122783	0.826596634
## 461	46	A	0.000000000	0.000000000	0.000000000	0.000000000
## 462	46	C	-0.770530723	-1.083743943	-0.233506172	-0.608835416
## 463	46	D	-0.717151351	-0.866716178	0.660969103	0.768058830
## 464	46	E	-2.038898535	-0.819626352	0.278498571	0.345524102
## 465	46	F	-1.516922176	-0.602689028	0.543022740	0.720168631
## 466	46	G	-0.965605608	-1.148492434	0.104183932	-0.089409198
## 467	46	H	-0.003416418	-0.521991754	0.364021279	-0.276333592
## 468	46	I	-0.966087282	-1.406527677	1.110341966	0.974331885
## 469	46	K	-1.243633373	-1.539994499	-0.256444857	0.247248071
## 470	46	L	-1.308223235	-0.873999771	0.410942419	0.637315510
## 471	46	M	-0.641729782	-0.995034000	-0.265866803	0.036249063
## 472	46	N	-0.083919400	-0.837598698	0.273940609	0.030777818
## 473	46	P	-1.505269910	-2.168853281	0.867913779	1.656182770
## 474	46	Q	-1.343264452	-1.024293759	0.585745014	0.179603092
## 475	46	R	-1.171113852	-1.553998030	0.813342905	0.789366875
## 476	46	S	-0.616116323	-0.459816711	-0.470114261	-0.587568000
## 477	46	T	-0.449357521	-0.875848862	0.529300334	0.373138108
## 478	46	V	-0.824878253	-1.605564907	0.355609780	0.784592610
## 479	46	W	-1.245586279	-1.285393893	0.572976146	0.854589285
## 480	46	Y	-0.554537792	-0.662287886	-0.006182493	-0.053690396
## 481	48	A	-1.686210970	-2.826375465	0.134165668	0.355502153
## 482	48	C	-1.952777974	-2.183575439	-0.396942397	0.057593846
## 483	48	D	-2.345795902	-2.954911913	-0.591656697	-0.239410326
## 484	48	E	-2.926120352	-1.993452180	-1.271695893	0.591343172
## 485	48	F	-2.561920287	-3.213889337	-0.379199844	-0.889582489
## 486	48	G	-2.158169443	-2.842878682	0.278827879	0.575817435
## 487	48	H	-2.031066688	-5.000000000	-0.919412825	-0.367405522
## 488	48	I	-4.083566864	-4.395359952	-0.796036049	-0.317244014

## 489	48	K	-4.078091830	-5.000000000	-1.505244785	-0.689897286
## 490	48	L	-2.487524679	-2.100918914	-0.094310920	0.349971041
## 491	48	M	-1.921641415	-2.724796185	0.460052084	0.010852128
## 492	48	N	-3.518985277	-3.251828624	-1.371840814	-0.737101545
## 493	48	P	-2.818476478	-3.513109202	-0.430915242	0.071222604
## 494	48	Q	-3.835337941	-2.500522322	-0.205998684	0.145422279
## 495	48	R	-1.321959332	-1.514665667	0.329635576	0.836161088
## 496	48	S	-1.984114607	-3.417243828	-0.348187697	-0.055574741
## 497	48	T	-3.502416551	-3.433826945	-0.251985471	0.197758197
## 498	48	V	-1.864169701	-2.477539508	-0.322609632	-0.134908535
## 499	48	W	0.000000000	0.000000000	0.000000000	0.000000000
## 500	48	Y	-2.529284638	-3.537144745	-0.586610076	-0.925269784
## 501	49	A	0.794158279	0.629785671	-3.214737511	-4.023989618
## 502	49	C	-1.294643395	-1.658361255	-1.597403789	-2.397296220
## 503	49	D	1.477059038	1.363694283	-0.526390986	-1.213648210
## 504	49	E	0.745461036	0.949016494	-1.737907451	-3.216570044
## 505	49	F	-2.287946274	-1.531172669	-1.278562970	-1.668037817
## 506	49	G	-0.578745196	-0.322870917	-1.902428244	-2.987688813
## 507	49	H	-0.168424182	-1.353209929	-0.868699724	-1.818712625
## 508	49	I	-0.286889262	-1.041701312	0.075834121	0.333276743
## 509	49	K	-0.236865557	-1.293996966	-0.376445650	-0.655727830
## 510	49	L	-1.004845519	-1.179444130	-1.374598043	-1.938848456
## 511	49	M	0.170068222	-0.240740856	-0.585943769	-1.589464587
## 512	49	N	0.000000000	0.000000000	0.000000000	0.000000000
## 513	49	P	-1.986243520	-2.348591309	0.414894661	0.126435382
## 514	49	Q	-0.169172932	-0.934377922	-1.949704382	-4.856013023
## 515	49	R	-1.837558415	-2.016519967	-0.718780124	-0.787937753
## 516	49	S	-0.000896497	0.086771971	-1.372363217	-1.736029662
## 517	49	T	0.493178720	-0.075843878	-1.304142320	-1.441302152
## 518	49	V	-1.294582930	-1.393165314	-1.118221186	-1.193530997
## 519	49	W	-1.586435240	-2.011528575	-0.885168970	-1.732712127
## 520	49	Y	-0.554324631	-0.616384076	-1.197027196	-1.337221248
## 521	50	A	-0.433258063	-0.598150761	-0.054469040	-1.626026875
## 522	50	C	-0.473102784	-1.066120267	-0.444238788	-0.423124576
## 523	50	D	-1.402898710	-1.344739871	0.801695676	0.886808872
## 524	50	E	-0.582376355	-1.480059775	0.803055637	0.772394367
## 525	50	F	-0.458247242	-0.612473473	-1.211149187	-1.531557097
## 526	50	G	-1.030346534	-1.342440141	-0.170859684	-0.301567606
## 527	50	H	-1.152496293	-0.185922180	-0.071752207	-0.247124987
## 528	50	I	-1.562372934	-1.564207347	0.095303344	0.121628707
## 529	50	K	-2.453979829	-2.503742801	0.231074239	0.158777024
## 530	50	L	-1.292984060	-1.125419462	-0.286041019	-0.272973085
## 531	50	M	-0.296805009	-1.123670122	0.113103235	-0.227218960
## 532	50	N	-1.020221918	-2.294169539	0.725970551	0.211676045
## 533	50	P	-1.334087027	-2.307110492	0.728592630	1.206763879
## 534	50	Q	-0.738899779	-1.261699250	0.490470101	0.738422983
## 535	50	R	-1.151254664	-1.222588255	0.071296234	0.283864946
## 536	50	S	-1.187629681	-1.525807285	-0.137929219	-0.062029347
## 537	50	T	-1.819711127	-0.594032017	0.411946838	0.319550659
## 538	50	V	-1.336127484	-1.226082095	-0.134795950	-0.451986429
## 539	50	W	-0.041509649	0.425390043	-0.908137935	-1.132853032
## 540	50	Y	0.000000000	0.000000000	0.000000000	0.000000000
## 541	51	A	0.269527306	-0.230475388	-0.823305498	-1.033176423
## 542	51	C	-0.293287817	-0.406187602	-0.306459785	-0.641882373

## 543	51	D	-0.442350117	-0.559380679	-0.144826872	0.175356833
## 544	51	E	-1.614024457	-1.381856911	-0.368356983	0.070589359
## 545	51	F	-0.617561784	-0.285861436	-0.769233275	-1.433266878
## 546	51	G	-1.154508340	-0.697721763	0.135193692	0.094283430
## 547	51	H	-0.262406293	0.121567174	-0.686948130	-1.072054112
## 548	51	I	-0.349950867	-0.804536765	0.405496420	-0.002480433
## 549	51	K	0.387456518	0.413245509	-0.089920492	-0.232785403
## 550	51	L	-1.021015908	-0.768350069	0.144378399	-0.177323385
## 551	51	M	0.032875686	-0.950209594	-1.233558815	-0.168703963
## 552	51	N	0.000000000	0.000000000	0.000000000	0.000000000
## 553	51	P	-1.791897016	-2.127182055	1.063267006	1.499366914
## 554	51	Q	-0.976492852	-0.656008980	-0.006938620	-0.317831163
## 555	51	R	-0.035200372	-0.365769808	0.004284476	-0.669924039
## 556	51	S	-0.880275605	-1.225281173	0.626516701	0.688741100
## 557	51	T	-1.051348739	-1.574362618	1.244731124	1.464947293
## 558	51	V	-0.568337963	-1.134018946	0.153641170	-0.195739956
## 559	51	W	-0.397740694	-0.396511641	-0.681269864	-0.854615114
## 560	51	Y	0.357678308	-0.744703850	-0.566434640	-0.843421899
## 561	54	A	-0.374314738	-0.359354179	0.336130760	-0.584790883
## 562	54	C	-0.379639740	-0.689217182	0.217235510	-0.072731293
## 563	54	D	-0.405804343	-0.921768218	0.360423541	0.458815028
## 564	54	E	0.012567984	-0.790531619	0.238071725	0.378001976
## 565	54	F	-0.476140675	-0.681183475	0.435340218	0.387995713
## 566	54	G	-0.184676443	-0.220255415	0.505170273	0.326902800
## 567	54	H	-1.377102514	-0.515118040	0.016351542	0.365054670
## 568	54	I	0.000000000	0.000000000	0.000000000	0.000000000
## 569	54	K	-0.983695089	-0.108414125	0.181463540	-0.067575857
## 570	54	L	-0.196469484	-0.142392983	-0.138626540	-0.233649945
## 571	54	M	-0.450426606	-0.167977796	-0.092197814	-0.004239977
## 572	54	N	-0.685196292	-1.077499399	0.692750931	0.059909714
## 573	54	P	-0.124732131	-0.015955209	-0.209625080	-0.536842023
## 574	54	Q	0.093611293	-0.713902896	0.283569025	-0.340562331
## 575	54	R	-0.580542599	-0.782460249	0.113691691	0.281455661
## 576	54	S	-0.348329860	-0.839768287	0.357268426	0.251074287
## 577	54	T	-0.478216443	-0.396643673	0.157439904	-0.011310470
## 578	54	V	0.149182711	0.082451910	-0.802045253	-0.926691087
## 579	54	W	-0.409945741	0.137214468	0.447498020	0.091404830
## 580	54	Y	-0.363846885	-0.674266213	-0.033260520	0.063454881
## 581	56	A	0.019556783	0.623749246	-0.494487437	-0.683935249
## 582	56	C	-0.517806888	-0.400216653	-0.873864325	-0.917958001
## 583	56	D	-0.388341770	0.016660393	-0.754849377	-0.682471642
## 584	56	E	0.000000000	0.000000000	0.000000000	0.000000000
## 585	56	F	-0.444663254	-0.475176248	-0.937607489	-1.085030831
## 586	56	G	-0.681115718	-0.837168720	-0.336600650	-0.551282747
## 587	56	H	-0.388389533	-1.178772216	-0.952946391	-1.318867610
## 588	56	I	-0.142021279	-0.516813890	-0.792714627	-2.294624148
## 589	56	K	0.819398823	0.046916109	-0.247342744	-0.844381186
## 590	56	L	-0.081794135	0.103772547	-0.630193254	-1.142710365
## 591	56	M	0.242413920	0.404618873	-0.252648500	-0.768631821
## 592	56	N	-0.462564701	-0.056906680	-0.177895373	-1.573518924
## 593	56	P	0.365535369	0.204469307	-0.526856112	-1.422383924
## 594	56	Q	0.107234817	-0.197550117	-0.751815690	-0.965054172
## 595	56	R	-0.494118845	-0.238919674	-0.690017935	-1.419723653
## 596	56	S	-0.246192840	-0.058477459	-0.749030701	-1.249879555

## 597	56	T	-0.041471117	0.216488020	-0.507944363	-0.877190971
## 598	56	V	-0.273930523	0.271960869	-0.830901878	-1.348321251
## 599	56	W	0.042902668	0.008130487	-0.840652784	-1.186979172
## 600	56	Y	-0.581370686	0.058183331	-1.053456677	-0.545324639
## 601	57	A	-0.373373828	-0.803016676	-0.882091062	-0.862756910
## 602	57	C	-1.251067949	-1.069227960	-1.251585881	-1.400235151
## 603	57	D	-0.241578889	-0.572282812	-0.199754784	-0.207344319
## 604	57	E	0.000000000	0.000000000	0.000000000	0.000000000
## 605	57	F	-0.959662917	-0.706523439	-0.604898086	-1.215248436
## 606	57	G	-0.235894537	-0.501261488	-0.256922446	-0.762087122
## 607	57	H	-2.174042206	-0.502318794	-1.411144088	-1.119334846
## 608	57	I	-0.986342876	-0.972259527	-1.045694819	-1.744574360
## 609	57	K	-0.270066762	-0.994722447	0.184530553	-0.227570561
## 610	57	L	-0.771344259	-0.570840145	-0.653531803	-1.210231736
## 611	57	M	-0.737630712	-1.116087120	-0.746991135	-1.042245198
## 612	57	N	-2.014710779	-1.063539617	-0.613184140	-1.105249455
## 613	57	P	-0.632182220	-1.231465299	-0.428037061	-0.747678404
## 614	57	Q	-1.670305744	-0.144733884	-0.609174625	-0.699974759
## 615	57	R	-0.777138359	-0.583352426	-0.221435111	-0.619496446
## 616	57	S	-0.361662873	-1.050124530	-1.070702371	-0.981111990
## 617	57	T	-0.628104725	-0.708644504	-0.915397824	-0.793628634
## 618	57	V	-0.861403972	-0.497410899	-0.668289308	-0.900174832
## 619	57	W	-0.297642027	-0.749486192	0.070285963	-0.066189055
## 620	57	Y	-0.783039223	-0.886605109	-0.556911987	-1.200561814
## 621	59	A	0.372598886	0.530264740	-0.368866176	-0.339883434
## 622	59	C	0.572923560	0.420626259	-0.567014673	-1.169379425
## 623	59	D	0.625482404	0.257932452	0.642932704	0.266392014
## 624	59	E	0.175712890	0.002609127	-0.232003932	-0.780025728
## 625	59	F	-0.125460966	0.038281201	-0.549521367	-0.928562316
## 626	59	G	0.228797628	0.089568528	-0.327151847	-0.514124062
## 627	59	H	0.366014666	-0.114999716	-0.672950758	-2.318816664
## 628	59	I	0.523043671	0.631298843	0.349269069	-0.121242987
## 629	59	K	-0.462813467	0.507634181	-0.471404990	-1.010651407
## 630	59	L	0.579332299	0.542187055	-0.611293279	-0.596411198
## 631	59	M	0.240879744	0.806127507	-0.672809579	-0.869862497
## 632	59	N	0.255167074	0.377110698	-1.439605287	-0.095023779
## 633	59	P	-1.198636425	-1.599054365	1.237835012	1.382681062
## 634	59	Q	-0.411965829	0.472640868	0.344517745	-0.744442945
## 635	59	R	0.441774982	0.351090057	-0.392774541	-0.926356064
## 636	59	S	0.310884137	0.151800566	-0.360020263	-0.797323711
## 637	59	T	0.313328817	0.158255926	-0.710586252	-0.790403974
## 638	59	V	0.000000000	0.000000000	0.000000000	0.000000000
## 639	59	W	0.033367495	0.736094274	-0.795440272	-0.634172640
## 640	59	Y	0.323652911	0.630084358	-0.651018696	-0.965645952
## 641	60	A	0.293141162	0.156349188	0.025944079	-0.552803754
## 642	60	C	-0.027410085	0.395771371	-0.067701829	-1.090019525
## 643	60	D	-0.123095701	0.221679997	-0.143605267	-0.558033237
## 644	60	E	0.141800244	0.285732002	-0.614189705	-1.051270400
## 645	60	F	0.193508540	0.146488404	-0.329587773	-0.918516749
## 646	60	G	0.066043595	-0.054524759	0.251695207	-0.386818210
## 647	60	H	-0.087595574	0.133390693	-0.272425215	-0.370541546
## 648	60	I	0.087070457	0.671157684	-0.665772054	-0.733084094
## 649	60	K	0.734004384	0.430798315	-1.103968022	-0.735061539
## 650	60	L	0.435877647	0.447986032	-0.305558999	-0.687276697

## 651	60	M	0.084607167	0.098351871	-1.398471956	-0.652354211
## 652	60	N	0.703957478	-0.517207942	-0.293289175	-0.993605099
## 653	60	P	-1.352750604	-1.156142283	-0.054850204	0.797603885
## 654	60	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 655	60	R	0.499324371	0.706372506	-0.264241066	-0.676803154
## 656	60	S	-0.217622324	-0.457913315	-0.044464318	-0.173769618
## 657	60	T	-1.811027212	-0.873534670	1.054138187	1.026834221
## 658	60	V	0.455630642	0.561162595	-0.456059343	-1.010653722
## 659	60	W	-0.064548417	0.297245078	-0.031688992	-0.389696565
## 660	60	Y	0.255526430	0.209683575	-0.509769569	-1.027025279
## 661	61	A	0.552068564	0.726000674	-0.422076888	-0.824147391
## 662	61	C	0.628287068	0.138823071	-0.336219101	-0.723598657
## 663	61	D	0.072954088	0.387027896	0.012581985	-0.531016120
## 664	61	E	0.542030472	0.219543586	-0.350397650	-2.869407644
## 665	61	F	0.736123838	-0.011852922	-0.674339499	-0.468648874
## 666	61	G	-0.013257544	0.566871630	-0.236959700	-0.705683072
## 667	61	H	0.326326632	-0.127024052	-0.761207061	-0.573633508
## 668	61	I	0.326563896	0.487840726	-1.087761164	-1.032435698
## 669	61	K	-0.106109582	-0.491790033	-0.564532957	-0.541830841
## 670	61	L	0.568537322	0.521200430	-0.551946921	-1.344674490
## 671	61	M	0.188483416	0.852555458	-1.194301520	-1.215052145
## 672	61	N	0.000000000	0.000000000	0.000000000	0.000000000
## 673	61	P	-0.917774301	0.361164607	-0.136292893	-0.541666125
## 674	61	Q	1.226299093	0.951639239	-1.104334178	-0.659195283
## 675	61	R	0.374636184	0.692428383	-0.134466422	-0.468369066
## 676	61	S	0.566091201	0.486940883	-0.247512739	-0.674811521
## 677	61	T	0.379760185	0.265827993	-0.506999356	-0.849954231
## 678	61	V	0.350156814	0.930036408	-0.301784721	-0.923849882
## 679	61	W	-0.809631445	-0.285684451	0.366482361	0.653250421
## 680	61	Y	-0.076429587	0.437603540	-0.324088440	-0.675040346
## 681	62	A	-0.129052349	0.122957690	0.144394392	-0.635650504
## 682	62	C	-0.256229181	-0.490554096	-0.525911681	-0.485900685
## 683	62	D	-1.990910068	-1.506294198	0.658778814	0.824233842
## 684	62	E	-2.128993151	-1.200565522	1.239421260	1.012554108
## 685	62	F	-0.745059199	-0.312541739	-0.030573046	-0.243557230
## 686	62	G	-1.199934561	-1.154940577	0.952898387	1.173509339
## 687	62	H	-0.999553035	-0.939005723	0.165250107	0.198277713
## 688	62	I	-0.026110826	-0.840332180	0.246217138	0.439368561
## 689	62	K	0.353985637	0.008099388	0.423174311	-0.764578246
## 690	62	L	0.067256828	-0.477982526	0.133320726	-0.259327250
## 691	62	M	0.000000000	0.000000000	0.000000000	0.000000000
## 692	62	N	-0.070420383	-1.382133830	-0.031035154	-0.053855047
## 693	62	P	-1.619864426	-1.364035012	0.759470006	1.222491300
## 694	62	Q	-0.932627856	-0.035397024	0.008608712	-0.258107951
## 695	62	R	-0.162157647	-0.099781859	-0.069975181	-0.325208211
## 696	62	S	-0.018196270	-0.584203050	0.119770461	0.068880315
## 697	62	T	-1.229453290	-0.285267225	0.142692137	0.053366913
## 698	62	V	-0.724236499	-0.841354495	0.203461022	0.056354029
## 699	62	W	0.116664133	-0.261101951	0.528986739	0.454127113
## 700	62	Y	-0.512192408	-1.006606033	0.190555265	-0.086696732
## 701	63	A	0.231043508	0.288752639	-0.019221123	-0.704918992
## 702	63	C	0.371204742	-0.135589429	-1.057258360	-1.031739561
## 703	63	D	0.814603216	-0.239462793	0.263629405	-0.041172846
## 704	63	E	0.166027948	0.403787454	0.089060958	0.181204937

## 705	63	F	0.048943381	0.033182069	-0.070603863	-1.118330463
## 706	63	G	-0.225277215	-0.331645634	-0.287858242	-0.629112257
## 707	63	H	0.443770332	-0.980730007	-0.738652354	-1.099375037
## 708	63	I	0.222653390	-0.178259344	-0.227287556	-0.428698833
## 709	63	K	0.542057238	0.383810403	-0.276901135	-0.688331996
## 710	63	L	0.481583215	0.250992851	-0.082002153	-1.020381370
## 711	63	M	0.630091383	0.406482223	-0.814074133	-1.260824743
## 712	63	N	0.000000000	0.000000000	0.000000000	0.000000000
## 713	63	P	-2.641121602	-1.875028178	1.017757802	1.178010756
## 714	63	Q	0.571990047	0.762952625	-0.855166281	0.251104318
## 715	63	R	0.700221577	0.475839336	-0.607270264	-0.787005074
## 716	63	S	-0.915296181	-0.563015808	0.685751076	0.780823995
## 717	63	T	-0.702613199	0.449195102	0.775823420	0.285329515
## 718	63	V	0.427429264	0.217200185	-0.511112056	-1.110387477
## 719	63	W	-0.020534932	0.206856109	0.160502311	-0.655712589
## 720	63	Y	-0.426209315	0.129472141	-0.229352169	-0.889370378
## 721	64	A	0.623797826	0.676067825	-0.505435093	-1.077912956
## 722	64	C	0.295907107	0.080795424	-0.803431824	-0.227390189
## 723	64	D	0.679390711	-0.187332202	0.018897446	-0.057113206
## 724	64	E	-1.998806880	0.023731104	-0.217246018	0.066707386
## 725	64	F	0.687637051	-0.477521498	-1.079826182	0.073558619
## 726	64	G	0.224071199	-0.162153825	-0.652434236	-0.419281889
## 727	64	H	0.315854839	0.303432676	-0.199685834	-0.475260148
## 728	64	I	0.428738080	0.554325498	-0.689246067	-0.299019772
## 729	64	K	1.132025687	0.962393610	-0.247239619	-0.726686317
## 730	64	L	0.123128370	-0.449501831	-0.797673073	-1.201962821
## 731	64	M	-0.278208204	0.300967911	-0.272710173	-1.143123209
## 732	64	N	0.000000000	0.000000000	0.000000000	0.000000000
## 733	64	P	-1.014693604	-1.670461343	0.633361032	1.274755250
## 734	64	Q	0.156495528	0.317523971	-0.134289112	-0.822154580
## 735	64	R	0.181007754	0.695872373	-0.863206281	-1.916597936
## 736	64	S	0.587808471	-0.250713008	-0.363748904	-0.506197119
## 737	64	T	0.525161924	0.658118720	0.167041310	-0.073894702
## 738	64	V	0.403283819	-0.171372238	-0.491393982	-0.696865272
## 739	64	W	-0.204272726	-0.766780898	-0.694159217	-0.200773977
## 740	64	Y	0.524581041	0.366773580	-0.073570610	-0.437286273
## 741	65	A	0.000000000	0.000000000	0.000000000	0.000000000
## 742	65	C	-0.048812153	-0.240626030	-0.539671415	-0.939127823
## 743	65	D	-0.791176057	-1.499122507	0.516267803	0.811262520
## 744	65	E	-0.861832819	-1.475944716	0.682487653	0.250535448
## 745	65	F	-0.090279215	0.069043133	-1.125787770	-0.793545757
## 746	65	G	-1.665535483	-1.238306514	-0.232585812	-0.245957555
## 747	65	H	0.078474758	0.426931874	-0.677986787	-0.681703833
## 748	65	I	0.298063678	0.394072370	-1.881940985	-1.402862257
## 749	65	K	-0.083654318	0.237362128	-0.823636299	-1.324850815
## 750	65	L	-0.233614840	0.078936225	-0.695674459	-1.020020733
## 751	65	M	0.309654817	-0.050884438	-1.618755724	-0.955208795
## 752	65	N	-0.687077986	-0.784941007	-0.273343207	-0.569213815
## 753	65	P	-0.579385551	-1.005993633	0.555626275	1.165039654
## 754	65	Q	0.118561084	-0.286005381	-0.641863988	-1.276837145
## 755	65	R	0.570417793	0.664733339	-1.828744629	-2.200948019
## 756	65	S	-1.479471434	-1.616759675	0.464727255	0.935180264
## 757	65	T	-0.381854091	-1.091261168	0.665588127	0.524762531
## 758	65	V	0.593821850	0.187822933	-1.148394644	-1.403927082

## 759	65	W	1.510264547	1.742874819	-2.300437234	-3.710183196
## 760	65	Y	0.299603252	-0.156997466	-0.532199840	-1.677829269
## 761	67	A	-0.077970369	0.105400327	-0.869175100	-1.027542655
## 762	67	C	0.389814543	-0.193661664	-1.098567593	-1.330206901
## 763	67	D	0.000000000	0.000000000	0.000000000	0.000000000
## 764	67	E	-0.251347408	0.058968571	-0.782055004	-0.978038644
## 765	67	F	0.153507676	0.053804679	-0.247787666	-1.582074717
## 766	67	G	-0.168176022	-0.379016662	-0.722317157	-1.026504292
## 767	67	H	-0.400460553	0.143193749	-0.662412814	-0.913099016
## 768	67	I	0.596926453	0.146059279	-0.339620906	-0.957398967
## 769	67	K	0.014692604	0.479268121	-0.713884387	-0.908325136
## 770	67	L	0.277340444	0.600707879	-0.636865490	-1.490110498
## 771	67	M	0.258619365	0.524029836	-0.298106350	-0.787775263
## 772	67	N	0.752041171	0.338252855	-0.747385926	-0.371545641
## 773	67	P	-2.014517169	-1.447529163	-0.088778845	0.997684216
## 774	67	Q	-0.459936647	0.341363304	-1.493670323	-1.601187594
## 775	67	R	0.444894458	0.495979368	-0.739384644	-1.171704549
## 776	67	S	0.221280198	-0.059000380	-0.816791868	-1.072329549
## 777	67	T	0.728403762	0.258571175	-0.192671942	-0.525245718
## 778	67	V	0.071443542	-0.181810576	-0.701901826	-1.044389604
## 779	67	W	0.545071751	0.457628248	-0.286238483	-1.031422053
## 780	67	Y	0.222967693	0.451686632	-1.072859192	-1.409447578
## 781	68	A	-0.034649514	-0.720002514	0.300361510	0.568370123
## 782	68	C	0.004980171	-0.543435187	0.361168297	0.244459199
## 783	68	D	-1.930946931	-1.380074495	0.672312298	0.842074033
## 784	68	E	-0.584653918	-1.520680143	0.793742391	0.910049976
## 785	68	F	-0.984460212	-0.887654299	0.388021744	0.211227074
## 786	68	G	-0.559030240	-0.736603978	0.389169857	0.358957209
## 787	68	H	0.098432155	-0.327560183	-0.558108453	-0.323960456
## 788	68	I	-0.466513987	-0.501353906	0.484302905	0.403911311
## 789	68	K	0.000000000	0.000000000	0.000000000	0.000000000
## 790	68	L	-0.862986303	-1.210468163	0.375787174	0.418298315
## 791	68	M	-1.274185552	-0.631507584	0.339198319	0.368212549
## 792	68	N	0.403852605	-0.003604907	-0.178397193	-0.815460707
## 793	68	P	-2.498948954	-1.512198668	1.374749532	1.184000044
## 794	68	Q	-0.611467423	-0.600919306	-0.271409219	0.307989202
## 795	68	R	0.374168226	0.352385778	-0.806981137	-1.049457349
## 796	68	S	-1.047227786	-0.293283102	0.385858610	0.226524254
## 797	68	T	-0.703357551	-0.418916196	0.301773728	-0.203996617
## 798	68	V	-0.248490021	-0.632955564	0.291010333	0.273817530
## 799	68	W	-0.591683912	-1.447467061	0.252395004	0.826362258
## 800	68	Y	-0.845868007	-1.024426013	0.482976142	0.722257597
## 801	69	A	0.879948140	0.651246538	-0.363948482	-0.870530207
## 802	69	C	1.119737849	1.607907016	-1.931349991	-2.231882539
## 803	69	D	-0.842829675	-1.242133180	-0.027929706	0.476461061
## 804	69	E	-1.088816673	-0.933003356	0.378690476	0.457508919
## 805	69	F	-0.552439187	-0.439475418	-0.315822133	-0.009190419
## 806	69	G	-0.674217808	-0.515424178	-0.133746473	-0.253218072
## 807	69	H	-1.512629012	-1.160966840	0.577169986	0.891864487
## 808	69	I	2.063027511	1.933031682	-2.735767180	-2.610854677
## 809	69	K	1.936185487	1.882370981	-3.162615127	-3.387705701
## 810	69	L	1.039991252	1.215525847	-1.191950740	-1.662888787
## 811	69	M	-0.291587275	-0.730024118	0.103052996	-0.606269061
## 812	69	N	-0.025642211	0.564192925	-0.613711325	-0.787988296

## 813	69	P	-1.688920003	-0.906824534	0.439890355	0.936757465
## 814	69	Q	0.773285351	0.255130588	-0.321572098	-1.036113931
## 815	69	R	1.005913468	0.795592353	-0.938166268	-1.101301288
## 816	69	S	0.423109442	0.420028682	-0.658043052	-0.846169755
## 817	69	T	1.827375991	1.969358340	-1.719511763	-2.228871744
## 818	69	V	2.387667961	2.497198593	-2.738921928	-3.523645892
## 819	69	W	0.000000000	0.000000000	0.000000000	0.000000000
## 820	69	Y	-0.428909425	-0.869763202	-0.227534727	-0.222873111
## 821	71	A	0.000000000	0.000000000	0.000000000	0.000000000
## 822	71	C	-0.008662888	-0.161494399	-0.879730606	-1.467425492
## 823	71	D	-0.276385525	0.210267280	-0.536404177	-0.598135459
## 824	71	E	0.296277796	-0.290988247	-0.252479381	-0.920384787
## 825	71	F	-0.024324262	-0.241684949	-1.078167399	-1.428380856
## 826	71	G	0.381980541	0.141163429	-0.733093724	-1.279782411
## 827	71	H	0.064305676	0.502835852	-1.134232805	-1.614105146
## 828	71	I	-0.495036137	-0.364535254	-0.663320406	-0.978670531
## 829	71	K	0.447781367	0.590498761	-1.196425711	-1.645752271
## 830	71	L	0.268871573	0.252646513	-0.981719614	-1.298753762
## 831	71	M	0.087843678	-0.666240618	-0.641611940	-1.287539245
## 832	71	N	-0.583113127	0.237296443	-1.217065519	-0.995570698
## 833	71	P	-1.375838233	-2.462450188	0.579088421	1.199040815
## 834	71	Q	0.177962452	0.206109780	-0.668123523	-1.338960357
## 835	71	R	0.446963800	0.565128450	-1.108661560	-1.873975914
## 836	71	S	0.227861074	0.045101024	-0.395049403	-0.916259258
## 837	71	T	0.507723491	0.229282335	-0.127632894	-0.637268807
## 838	71	V	-0.051243525	0.135722216	-0.516955952	-0.908331525
## 839	71	W	0.039614036	0.236780511	-0.711092356	-1.367017424
## 840	71	Y	0.437037497	0.101066182	-0.838974196	-1.034222345
## 841	72	A	-1.115490794	-0.917687605	0.330195904	0.180414994
## 842	72	C	-1.232038749	-1.156836000	0.316091270	0.083492881
## 843	72	D	-1.898010019	-1.377582171	0.591107491	1.126623500
## 844	72	E	-1.881017089	-1.540032400	0.750153512	1.143476505
## 845	72	F	0.000000000	0.000000000	0.000000000	0.000000000
## 846	72	G	-1.390732786	-1.740235837	0.572818944	0.906000434
## 847	72	H	0.640395162	0.531209233	-1.848297337	-2.907381747
## 848	72	I	-0.593553410	-1.591589565	0.436232164	0.554781414
## 849	72	K	0.870446979	0.837273166	-1.257379087	-1.205359447
## 850	72	L	-0.386819876	-0.287825443	-0.205366094	-0.201148189
## 851	72	M	0.000386595	-1.091792083	-0.064202307	-0.751921612
## 852	72	N	-0.457452344	-0.795508779	0.109075332	0.084455244
## 853	72	P	-3.164087044	-2.428200331	-0.457944672	0.001397769
## 854	72	Q	-2.125333102	-1.566281166	-0.291576215	0.404704935
## 855	72	R	-0.539101079	-0.648895481	-0.489557757	-0.405301760
## 856	72	S	-1.127759474	-0.940930206	0.120689533	0.350880090
## 857	72	T	-1.169385458	-0.926086303	0.140848686	0.509207915
## 858	72	V	-0.807785919	-0.965684741	0.499550203	0.566861243
## 859	72	W	1.315651859	1.136682639	-1.103425396	-2.136255145
## 860	72	Y	1.983724133	2.360015182	-2.636252944	-2.250095800
## 861	73	A	0.135432173	-0.076240173	0.496049844	-0.083711498
## 862	73	C	0.073734695	0.184792914	-0.154893122	-0.556850892
## 863	73	D	-0.988797780	-1.497668551	0.307444880	0.763712578
## 864	73	E	0.402649964	-0.693690001	0.447591172	-0.067368374
## 865	73	F	-0.458263006	-0.263280262	-0.211517105	-0.280840429
## 866	73	G	-0.583159503	-0.365455572	0.050517106	0.092381536

## 867	73	H	-0.382113711	-0.264808945	-0.367675515	-0.218440871
## 868	73	I	-0.678965613	0.447785030	-0.697933933	-0.217238590
## 869	73	K	-0.064264677	0.414006457	-0.398884987	-0.754809213
## 870	73	L	0.000000000	0.000000000	0.000000000	0.000000000
## 871	73	M	-0.030944628	-0.057862658	-0.043661816	-0.314253524
## 872	73	N	0.341495305	-0.278885436	-0.238833136	-0.274216445
## 873	73	P	-2.678418042	-1.852029439	0.558085265	1.379405897
## 874	73	Q	-0.063323411	0.021918500	-0.161785788	-0.321720614
## 875	73	R	0.492372067	0.469758680	-0.333102005	-0.987282376
## 876	73	S	-0.376327417	-0.569739441	-0.238570532	-0.247241435
## 877	73	T	0.223214943	-0.770866498	0.124483661	-0.616765068
## 878	73	V	0.262422571	0.261609600	-0.421280063	-0.880145085
## 879	73	W	0.461944450	0.487008624	-0.548120978	-0.569852693
## 880	73	Y	-0.882859091	-0.925653706	0.230680952	-0.343294469
## 881	74	A	0.006772373	0.083622273	-0.286954249	-0.575411090
## 882	74	C	-0.067551712	-0.520278418	-1.263185537	-1.052563814
## 883	74	D	-0.324852537	-0.768373827	-0.348003509	-0.612150532
## 884	74	E	-0.139148930	-0.529125089	-0.229034476	-0.347492635
## 885	74	F	-0.369348097	0.058470305	-0.150972574	-1.020829477
## 886	74	G	0.193359088	0.139872574	-0.761835392	-1.101306329
## 887	74	H	0.173783300	0.368324709	-0.590343270	-2.702673012
## 888	74	I	-0.269263013	-0.903764945	-0.323719893	-1.227716478
## 889	74	K	0.000000000	0.000000000	0.000000000	0.000000000
## 890	74	L	0.099969453	-0.051976741	-0.446018765	-0.873446432
## 891	74	M	-0.235193498	-0.123704563	-0.609637607	-0.979873270
## 892	74	N	0.191398067	0.058573118	-0.181195111	-0.480399841
## 893	74	P	-1.515096700	-1.166522711	1.054962776	1.525808803
## 894	74	Q	-0.352979568	0.090694480	-0.352032937	-0.450572054
## 895	74	R	0.167843647	0.192112158	-0.556800941	-1.165694725
## 896	74	S	-0.399778637	-0.254475775	-0.640588894	-0.774560584
## 897	74	T	0.145916698	-0.178072796	-0.339698673	-0.468751148
## 898	74	V	0.114767405	-0.195303125	-0.563299043	-0.877527429
## 899	74	W	0.181623124	0.012212811	-0.432192805	-0.859055582
## 900	74	Y	-0.943039907	0.241374766	-0.869445407	-1.178044904
## 901	75	A	1.603252697	1.684646180	-2.095206426	-2.845613469
## 902	75	C	1.291158785	0.890977461	-1.547965015	-2.514372761
## 903	75	D	0.170813037	1.224169652	-0.505572212	-1.559635879
## 904	75	E	0.000000000	0.000000000	0.000000000	0.000000000
## 905	75	F	0.180169796	0.718743112	-2.233546717	-2.030453569
## 906	75	G	1.676919452	1.794780157	-1.710563843	-2.332044156
## 907	75	H	1.543591438	1.159861429	-1.361559570	-3.026333093
## 908	75	I	0.793602222	0.993302621	-1.907793501	-2.840112132
## 909	75	K	2.236030026	2.415940198	-1.794416837	-2.044462220
## 910	75	L	0.435569444	0.849038240	-1.245839040	-1.993898399
## 911	75	M	1.196754440	0.982303046	-1.693695715	-2.081919194
## 912	75	N	1.469355202	0.662453863	-2.302859372	-1.631244240
## 913	75	P	0.037221132	0.531957120	-0.906453749	-1.235002131
## 914	75	Q	0.924415813	1.640257705	-1.615499265	-2.434078026
## 915	75	R	2.010706779	2.240129334	-2.562019589	-3.667718076
## 916	75	S	1.691950900	1.675390302	-2.442485720	-3.210764311
## 917	75	T	1.375084798	1.700911240	-2.155084354	-2.554206921
## 918	75	V	0.772117875	1.296605904	-1.453615114	-2.441301796
## 919	75	W	1.669094505	1.796926850	-1.967459203	-2.602897467
## 920	75	Y	1.024464628	1.189675079	-3.008238097	-3.716526927

## 921	76	A	0.466065713	0.425703796	-0.840545168	-0.702345052
## 922	76	C	1.060379732	0.710477762	-1.239823878	-2.007123605
## 923	76	D	0.650098831	0.368678682	-0.928984417	-1.113032809
## 924	76	E	0.228191835	-0.033256712	-0.491496291	-0.891274639
## 925	76	F	1.196246505	1.400717176	-1.584332036	-2.627765564
## 926	76	G	-1.154784416	-1.866595274	0.824767673	0.952379578
## 927	76	H	-0.107192371	0.012456191	0.747955310	0.306488381
## 928	76	I	1.661186784	2.200735920	-1.794014543	-2.226026390
## 929	76	K	0.935203463	1.047884419	-0.259110293	-1.215308148
## 930	76	L	0.547196173	0.604332655	-0.543022825	-1.718342088
## 931	76	M	1.701761369	1.892323398	-1.696219820	-4.033060419
## 932	76	N	-1.481959758	-1.672508455	1.291567143	1.609233674
## 933	76	P	-1.114085501	-1.391580073	0.766747706	1.312166239
## 934	76	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 935	76	R	1.457781745	1.566335005	-1.834760274	-2.527907965
## 936	76	S	0.367694379	0.444733987	-0.933881124	-0.703591929
## 937	76	T	1.945921408	2.185239585	-2.175848485	-2.668991921
## 938	76	V	2.009945425	2.024013405	-2.900381210	-2.702094822
## 939	76	W	-0.498978637	0.016514492	-0.185480070	-0.189477999
## 940	76	Y	1.376196608	1.714455292	-2.012833178	-2.698607214
## 941	79	A	-0.286360596	-0.088488880	0.126090862	-0.078981595
## 942	79	C	-2.980008290	-1.627103925	1.081046310	1.029297118
## 943	79	D	-0.361717772	-1.240519012	1.543681710	1.343253147
## 944	79	E	-1.210207780	-2.451395748	1.575724407	2.074710701
## 945	79	F	2.634840998	2.719904307	-1.785569314	-1.898153262
## 946	79	G	-0.889938149	-0.859132991	0.484894347	0.515294418
## 947	79	H	0.292108713	-0.750480728	-0.513801153	0.271133003
## 948	79	I	2.652197284	3.145309828	-2.189907030	-2.267952480
## 949	79	K	-0.528291285	-1.025533692	0.129320142	-0.165202846
## 950	79	L	0.000000000	0.000000000	0.000000000	0.000000000
## 951	79	M	0.859501318	1.207003126	-2.649917518	-2.978132521
## 952	79	N	0.192739965	-1.744590124	-0.528898601	-1.037841747
## 953	79	P	1.935095282	1.780508523	-1.499416637	-1.486871397
## 954	79	Q	0.504585272	-0.815719998	0.630091096	0.360532923
## 955	79	R	1.084381603	1.043353194	-1.515887461	-2.183503055
## 956	79	S	-0.105725216	0.211941034	-0.737523925	-0.347937101
## 957	79	T	3.317187103	3.432413039	-3.855597599	-4.812630177
## 958	79	V	3.227085481	3.135836866	-3.114098196	-3.961985099
## 959	79	W	3.257475860	3.322328868	-4.567639936	-4.623852069
## 960	79	Y	2.800506141	2.924460350	-4.399181318	-5.000000000
## 961	82	A	-1.377918091	-1.637017633	1.232624793	1.713126890
## 962	82	C	2.058106777	1.888215376	-2.092765545	-2.939858899
## 963	82	D	-0.532100676	-1.539450082	1.811972312	2.225472375
## 964	82	E	-1.981960918	-1.735417465	1.593186751	1.585958295
## 965	82	F	0.491055128	-0.236617225	-0.369774819	-1.014468223
## 966	82	G	1.056105736	1.171496626	-1.275335654	-2.083125297
## 967	82	H	-0.030655589	0.425572387	-0.457084863	-0.528862838
## 968	82	I	-0.199583394	-0.657420172	1.327754794	1.542234006
## 969	82	K	-0.146244518	-0.512800833	0.107481677	0.199071412
## 970	82	L	0.003922662	0.530856393	-0.864914753	-1.186229419
## 971	82	M	0.000000000	0.000000000	0.000000000	0.000000000
## 972	82	N	-0.357016353	0.414179404	0.143097254	0.019770925
## 973	82	P	-1.316036343	-1.468235536	1.600144217	2.039435418
## 974	82	Q	-2.095811230	-0.995925769	0.960839101	1.117025541

## 975	82	R	1.156533730	1.019343206	-0.515672809	-1.529759298
## 976	82	S	-0.707893343	-1.069517537	1.176632013	1.427703225
## 977	82	T	-1.709872640	-1.220800663	1.276448524	1.763630303
## 978	82	V	-1.100779482	-1.919798340	1.636898765	1.977986364
## 979	82	W	-0.375825816	-0.579987254	0.495383876	0.067030168
## 980	82	Y	-0.159725337	-0.148907161	-0.859509500	-1.011757439
## 981	83	A	-0.121324719	-0.623956678	-0.023745375	-0.347843765
## 982	83	C	0.571487591	0.240551875	-0.794135946	-1.434410077
## 983	83	D	-1.800091034	-2.067906709	1.224378698	1.709690181
## 984	83	E	-2.562593471	-2.569300753	1.696480938	1.951033815
## 985	83	F	-0.036571547	-1.673991795	0.998674088	0.808117707
## 986	83	G	-2.114296686	-1.766409458	1.483570977	1.858293350
## 987	83	H	-0.764065755	-0.570204057	1.713971604	1.707941611
## 988	83	I	-0.731768770	-0.228630211	-0.586936580	-0.743685911
## 989	83	K	-1.303934429	-2.574380724	1.732685284	1.831130195
## 990	83	L	0.387566071	0.503552833	-0.912911907	-1.549381084
## 991	83	M	-0.704497113	-0.496072327	0.672985262	1.214175938
## 992	83	N	-1.511855397	-2.116072566	0.991986112	0.911851903
## 993	83	P	-1.509417302	-2.466836758	1.062657471	1.275871207
## 994	83	Q	-2.654942820	-2.041810340	1.648685512	1.725187702
## 995	83	R	-1.624004139	-1.767644454	1.085542337	1.550453389
## 996	83	S	-1.151187780	-1.386707877	1.071715890	1.449313592
## 997	83	T	-2.373466774	-1.902493554	1.456904394	1.558713026
## 998	83	V	0.630585914	0.852740591	-0.754728923	-2.036236235
## 999	83	W	-0.352292968	-0.943776994	0.795446688	0.388447782
## 1000	83	Y	0.000000000	0.000000000	0.000000000	0.000000000
## 1001	84	A	-0.064867987	-0.215037920	0.231848251	-0.047043951
## 1002	84	C	-1.071670512	-1.081424539	0.268478708	0.615294477
## 1003	84	D	0.211318742	0.088650966	0.413775268	-0.181536024
## 1004	84	E	-0.390321424	-0.155350780	0.085411879	-0.324428839
## 1005	84	F	-0.932669478	-1.160867387	0.517525811	0.377882304
## 1006	84	G	-0.164813678	-0.572723996	0.026903654	0.068037378
## 1007	84	H	-1.635530789	-0.677859803	0.865440799	0.392957214
## 1008	84	I	-1.453798718	-2.234468961	0.703774722	0.929307416
## 1009	84	K	-0.814540273	-0.524789063	0.230409500	0.535904982
## 1010	84	L	-0.743188538	-0.732721955	0.496304858	0.626925797
## 1011	84	M	-1.063676643	-0.879528902	0.108309272	0.357976173
## 1012	84	N	-1.035064607	-1.526214317	0.194332560	-0.323576407
## 1013	84	P	0.000000000	0.000000000	0.000000000	0.000000000
## 1014	84	Q	-0.484826975	-0.660279993	0.217039713	0.359555706
## 1015	84	R	-1.028513500	-0.627307317	0.679676697	0.529245862
## 1016	84	S	-0.129681656	-0.141981064	0.020043941	-0.519242246
## 1017	84	T	0.059850019	-0.898113481	0.634379059	0.398592843
## 1018	84	V	-1.214247095	-1.796476127	0.844827629	1.043416868
## 1019	84	W	-0.466517614	-0.723190266	0.821381578	0.763697414
## 1020	84	Y	-0.633640515	-2.283463343	0.485494137	0.386024052
## 1021	89	A	0.492532554	0.667513802	-1.166129010	-1.413236105
## 1022	89	C	0.684136447	0.611022635	-0.796479647	-1.469592888
## 1023	89	D	1.895718329	1.986226755	-2.154327265	-4.192339812
## 1024	89	E	1.198870644	1.471743482	-1.147296272	-2.145647350
## 1025	89	F	0.307537702	0.375110527	-0.876455765	-1.635412021
## 1026	89	G	0.634316453	0.588925474	-0.371450904	-1.092577495
## 1027	89	H	0.135798340	0.569656634	-0.662618907	-1.578840859
## 1028	89	I	1.328696813	1.874368419	-1.780063745	-3.099845707

## 1029	89	K	0.736670957	0.767000892	-0.302522014	-0.698369981
## 1030	89	L	0.250247051	0.025747128	-0.567716697	-0.665163466
## 1031	89	M	-0.088289193	-0.332142403	-0.010220387	-1.332557572
## 1032	89	N	0.937818807	0.761504039	-1.836783805	-1.593453097
## 1033	89	P	2.465362469	2.520776837	-2.867035064	-2.671122386
## 1034	89	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 1035	89	R	0.689724813	0.820501415	-0.880122646	-0.836883779
## 1036	89	S	0.057818761	0.337558640	-1.271688713	-1.678315158
## 1037	89	T	0.459078713	0.261532402	-0.413561767	-1.233082020
## 1038	89	V	0.266919244	0.374280817	-1.234606962	-1.646863111
## 1039	89	W	-0.011790507	0.229083554	-0.051803581	-0.433544474
## 1040	89	Y	0.700563200	0.410505723	-0.955896616	-1.257950565
## 1041	90	A	2.574586646	2.674258561	-3.123603120	-4.172565514
## 1042	90	C	2.361246154	2.351814524	-2.697260331	-4.593600050
## 1043	90	D	2.205165465	2.592054420	-1.812416213	-1.821045230
## 1044	90	E	2.786193689	2.802089691	-2.525798825	-4.660555735
## 1045	90	F	1.917611147	1.849423619	-1.830295811	-3.196796124
## 1046	90	G	2.321881825	2.495380420	-2.823934520	-4.111202420
## 1047	90	H	2.630147638	2.789887514	-3.814932829	-2.082955275
## 1048	90	I	2.031854243	2.429958337	-2.233723527	-2.849680476
## 1049	90	K	2.175426619	2.132695433	-1.365125071	-2.533751670
## 1050	90	L	2.234814069	2.597583069	-2.664952425	-4.070678485
## 1051	90	M	2.468396450	2.494591374	-2.291626906	-4.752605683
## 1052	90	N	0.000000000	0.000000000	0.000000000	0.000000000
## 1053	90	P	1.729160955	2.282714790	-1.132198233	-3.659956561
## 1054	90	Q	2.604493124	2.700087386	-3.375300250	-5.000000000
## 1055	90	R	2.215297265	2.392632010	-2.421734025	-2.636906637
## 1056	90	S	2.571237007	2.583594022	-2.513838340	-2.586623060
## 1057	90	T	2.486361384	2.802039546	-3.770455236	-3.681560949
## 1058	90	V	2.024692578	2.273963177	-2.560292502	-3.993926768
## 1059	90	W	1.907352169	1.967385140	-2.002382584	-2.952970433
## 1060	90	Y	1.423020333	2.135851756	-1.946811574	-2.324738212
## 1061	91	A	1.093156258	0.577410309	-0.454923787	-1.216739284
## 1062	91	C	0.827244713	0.940924566	-1.113038395	-1.820750493
## 1063	91	D	0.744559779	0.228457038	-0.499525649	-0.948403420
## 1064	91	E	0.264668530	0.338297510	-0.747503160	-0.548320616
## 1065	91	F	0.175710478	-0.141386749	-0.895976152	-1.048189443
## 1066	91	G	1.269264681	0.937922698	-1.195339210	-1.597372796
## 1067	91	H	1.009689072	1.141029479	0.079601710	-0.279559303
## 1068	91	I	0.495785766	0.417516010	-0.520212516	-1.188439806
## 1069	91	K	0.538512945	0.086568232	-0.778611239	-2.037355229
## 1070	91	L	0.000000000	0.000000000	0.000000000	0.000000000
## 1071	91	M	-0.172270857	0.585420250	-0.853348666	-0.985181932
## 1072	91	N	0.245711782	0.966267742	-1.922476169	-2.724784909
## 1073	91	P	2.440237316	2.755767628	-1.859660050	-1.780504078
## 1074	91	Q	0.090752354	-0.209085020	-0.287137417	-1.358955884
## 1075	91	R	1.358025031	1.099034859	-1.561651412	-2.076163710
## 1076	91	S	0.693274725	0.761052399	-1.071012759	-1.076011999
## 1077	91	T	1.052798067	1.023786509	-0.179839325	-2.291284810
## 1078	91	V	0.686738083	0.646351556	-0.610956743	-1.313492295
## 1079	91	W	0.585644263	0.929116196	-0.721168815	-1.432646804
## 1080	91	Y	0.530647126	-0.328872335	-0.523682071	-1.295691850
## 1081	92	A	2.356040132	2.419359164	-2.046529004	-2.104721502
## 1082	92	C	2.894023207	2.961885952	-3.763941571	-3.730838742

## 1083	92	D	2.516261936	2.590858975	-3.363145030	-4.051255978
## 1084	92	E	2.816795501	2.679310976	-2.503179457	-3.249138705
## 1085	92	F	2.605666034	2.813914957	-3.005985728	-5.000000000
## 1086	92	G	2.466953288	2.622951196	-3.140780408	-4.288910129
## 1087	92	H	2.921070231	2.933689577	-5.000000000	-5.000000000
## 1088	92	I	2.554717730	2.513855833	-1.535593615	-2.329484313
## 1089	92	K	2.392813924	2.426633045	-1.190222140	-1.419005937
## 1090	92	L	2.551876621	2.851827635	-3.700634654	-3.833853788
## 1091	92	M	2.523635035	2.763700422	-2.939105715	-3.912041802
## 1092	92	N	2.754009652	2.730554111	-4.471808231	-3.975738562
## 1093	92	P	2.168853375	2.316395483	-1.885653648	-3.032892598
## 1094	92	Q	2.592501732	3.004279947	-2.398747669	-2.937111498
## 1095	92	R	2.437221080	2.577283862	-2.676541404	-3.603259624
## 1096	92	S	0.641450583	0.908025180	-0.694576626	-1.476663027
## 1097	92	T	0.000000000	0.000000000	0.000000000	0.000000000
## 1098	92	V	2.538513263	2.858832716	-3.524404298	-3.895260540
## 1099	92	W	2.617898690	2.863537295	-3.689439676	-3.587818784
## 1100	92	Y	2.300523050	2.902660389	-3.903040098	-4.283722521
## 1101	93	A	-0.803776039	-0.927368126	0.882712381	1.117044657
## 1102	93	C	-1.449461847	-1.144352737	-0.310767174	-0.005078226
## 1103	93	D	-1.118699439	-1.652678515	0.263669282	0.923345265
## 1104	93	E	-0.874153608	-0.627590996	0.695686434	0.931103134
## 1105	93	F	-0.522640504	-1.247648958	0.412382352	0.124330820
## 1106	93	G	-1.486062299	-2.154431001	0.961279092	1.061250381
## 1107	93	H	-2.409815453	-3.129384664	0.594811645	0.839631897
## 1108	93	I	-0.360629146	0.310770105	-0.699759404	-0.487708616
## 1109	93	K	-1.242467253	-0.869593481	0.684244273	1.094904768
## 1110	93	L	-0.396652894	-0.572149474	-0.262633838	-0.664252554
## 1111	93	M	-0.243388903	-1.617826223	0.728383455	1.190446902
## 1112	93	N	-1.418041183	-2.081924376	0.625636370	0.490188369
## 1113	93	P	1.136051467	1.755236965	-1.747431492	-4.189047339
## 1114	93	Q	-1.173863903	-1.793937480	0.982844563	1.020940480
## 1115	93	R	-0.839835525	-1.226893138	0.466458628	0.500104357
## 1116	93	S	-0.579830060	-1.130063424	0.714782365	0.716650562
## 1117	93	T	0.484198857	0.248104061	-0.521848913	-0.505562735
## 1118	93	V	0.000000000	0.000000000	0.000000000	0.000000000
## 1119	93	W	-0.631507171	-1.691114730	0.925479849	1.051307603
## 1120	93	Y	-1.386078257	-1.458319596	-0.212910559	0.276937208
## 1121	95	A	0.318528244	0.344725294	-0.464797550	-1.342933330
## 1122	95	C	-0.500162667	-0.012679416	-0.961703305	-0.659331945
## 1123	95	D	0.485408272	0.741748337	-0.783347126	-1.031392466
## 1124	95	E	0.220856457	0.405622189	-0.665322258	-0.657440250
## 1125	95	F	-0.237446003	-0.108305834	-0.076056822	-0.489200159
## 1126	95	G	-0.110853279	0.026162779	-0.591180966	-1.214959035
## 1127	95	H	-0.487528769	-0.011422500	-0.563905573	-1.542938349
## 1128	95	I	0.007204147	-0.757549579	-0.536669480	-0.598781383
## 1129	95	K	0.367323827	0.569774899	-1.268602773	-2.227150400
## 1130	95	L	0.000000000	0.000000000	0.000000000	0.000000000
## 1131	95	M	0.467164602	0.612101070	-1.051282285	-1.386353791
## 1132	95	N	0.216368779	0.169611244	-0.728011194	-0.766584671
## 1133	95	P	-0.622177935	-0.245090262	0.027349263	-0.044144193
## 1134	95	Q	-0.098300831	0.030141006	-0.545988816	-1.474667715
## 1135	95	R	0.191699497	0.489657915	-0.679790785	-1.206996630
## 1136	95	S	-0.325610195	-0.356382304	-0.989272243	-1.083205229

## 1137	95	T	0.262512778	-0.285070958	-0.571444730	-0.461980058
## 1138	95	V	-0.130115667	-0.196117250	-0.405843375	-0.468535083
## 1139	95	W	0.133381441	0.279889483	-0.800102139	-1.514157912
## 1140	95	Y	0.099931973	-0.060958655	-1.099111386	-1.875224457
## 1141	96	A	-1.166937903	-0.693878774	0.404294217	0.644240350
## 1142	96	C	-0.991988039	-1.659620698	-0.121034428	0.157182385
## 1143	96	D	-1.747119683	-1.389986768	0.413843066	0.823607079
## 1144	96	E	-0.012866329	-0.282683450	-0.027687491	-0.647620447
## 1145	96	F	-2.294619103	-2.528892646	0.715221101	0.952194073
## 1146	96	G	-1.193953313	-1.364243878	0.524204073	0.731443547
## 1147	96	H	-0.392334856	-1.665552741	0.262221326	0.356461449
## 1148	96	I	-1.589073173	-1.078446940	0.217641082	-0.232615950
## 1149	96	K	-1.089974477	-0.941281818	0.572834299	0.728621989
## 1150	96	L	-0.848809091	-1.326317806	0.314116050	0.390985133
## 1151	96	M	-0.679798547	-0.643805488	0.042641866	-0.253587637
## 1152	96	N	-2.328008569	-1.453356370	0.328437380	0.350949969
## 1153	96	P	0.778802351	1.520727657	-1.286657280	-1.404615435
## 1154	96	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 1155	96	R	-1.040497756	-0.878856755	0.473750018	0.657670098
## 1156	96	S	-1.490476447	-0.904088212	0.333357428	0.519977762
## 1157	96	T	-1.720525227	-1.184060124	0.390253262	0.742917359
## 1158	96	V	-1.035535844	-1.246132257	0.579699082	1.071861201
## 1159	96	W	-1.191122615	-1.483084500	0.551088343	0.758104108
## 1160	96	Y	-1.372673611	-1.215943715	-0.167021754	-0.582229737
## 1161	98	A	0.213764280	-0.187309733	-0.913991983	-0.617077539
## 1162	98	C	0.622677349	0.777232104	-1.045263569	-1.348665360
## 1163	98	D	0.552721894	0.320488921	-1.455199428	-1.444575880
## 1164	98	E	0.546284759	0.598935217	-0.692598548	-1.967046089
## 1165	98	F	-0.668042826	-0.934427068	-1.774669068	-0.874174060
## 1166	98	G	0.495554559	0.141811603	-1.165652311	-1.322673870
## 1167	98	H	0.208464856	-0.028789632	-0.451670985	-0.911231373
## 1168	98	I	0.496948440	0.465145927	-1.364399611	-1.419632455
## 1169	98	K	0.222696197	-0.229160536	-0.552269747	-0.960292000
## 1170	98	L	0.323506863	0.393551263	-0.417442331	-0.739735677
## 1171	98	M	0.500856324	0.950302031	-0.783265852	-1.331176214
## 1172	98	N	0.247207603	-0.055804156	-0.513802909	-1.294100579
## 1173	98	P	-1.298912420	-2.582206244	0.560166169	1.168847105
## 1174	98	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 1175	98	R	0.087129668	-0.062094677	-0.464876884	-0.785312012
## 1176	98	S	0.497247533	0.699453301	-0.500484283	-1.350967441
## 1177	98	T	0.600776539	0.641302832	-0.887419553	-1.805626109
## 1178	98	V	0.508720186	0.784050870	-1.197370893	-1.798083098
## 1179	98	W	0.560796414	0.057880355	-1.125343774	-1.185549222
## 1180	98	Y	-0.583653999	-0.052486817	-1.224282758	-0.893338850
## 1181	102	A	0.268762516	0.021569614	-0.535453973	-0.471444136
## 1182	102	C	0.204267568	-0.234688216	-0.318635321	-0.872733931
## 1183	102	D	0.663198758	-0.327999934	-2.012548741	-0.733697538
## 1184	102	E	0.325034492	0.150533474	-0.906388340	-1.214765909
## 1185	102	F	-0.717402446	0.439739658	-0.430932888	-1.386347748
## 1186	102	G	0.448312076	0.100878395	-0.577253522	-0.810163126
## 1187	102	H	0.266888633	0.256154251	0.377650658	-0.649186425
## 1188	102	I	0.157099152	0.142201917	-1.561418358	-1.231405907
## 1189	102	K	-0.098928341	-0.094516856	-0.699990921	-0.879460328
## 1190	102	L	-0.388708438	0.072290404	-0.948569676	-0.932819320

## 1191	102	M	-1.327065676	0.316675197	-1.585270074	-1.010519822
## 1192	102	N	-0.375850846	0.703109574	-1.260842339	-1.264720562
## 1193	102	P	1.138513237	1.244143332	-1.137232760	-0.330588687
## 1194	102	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 1195	102	R	-0.122621343	-0.779897041	0.225208630	0.095453110
## 1196	102	S	-0.668752551	0.585208984	-0.671720150	-1.396497103
## 1197	102	T	0.439142000	0.754655623	-0.988456166	-1.190118210
## 1198	102	V	0.268454899	-0.019723555	-0.977591006	-1.523319875
## 1199	102	W	0.620776998	0.457853551	-0.939082236	-1.806813145
## 1200	102	Y	-1.045697133	-0.673315788	-0.254024059	-0.300944349
## 1201	273	A	-0.126764361	-0.382869074	-0.557498008	-0.933291382
## 1202	273	C	-0.465200771	-0.275071488	-0.992833015	-1.343360081
## 1203	273	D	-2.432182846	-0.611564310	-1.250690133	-1.171161670
## 1204	273	E	0.002673559	0.230394605	-0.356705314	-0.753802782
## 1205	273	F	-0.600741133	-0.285377086	-0.796238900	-0.460847003
## 1206	273	G	-0.202480070	-0.098332852	-0.400714530	-0.684191906
## 1207	273	H	-0.549850618	0.101879969	-0.070792463	-0.832852772
## 1208	273	I	0.704189029	-0.321180330	-0.257531003	-0.839529091
## 1209	273	K	0.466705641	0.015418335	0.624682882	-0.222281615
## 1210	273	L	-0.149396266	0.019241182	-0.542762070	-0.855398793
## 1211	273	M	0.502130304	0.239934093	-0.251787444	-0.811485732
## 1212	273	N	0.671822181	-0.701454511	0.128756881	-0.977363229
## 1213	273	P	-1.008902697	-1.783397996	-1.093946682	-1.712054723
## 1214	273	Q	-0.015159136	-0.150869986	-0.694413759	-0.790854886
## 1215	273	R	0.000000000	0.000000000	0.000000000	0.000000000
## 1216	273	S	-0.242604289	-0.296867041	-0.267488464	-1.227145886
## 1217	273	T	-0.122889255	-0.678472043	-0.464963501	-0.783984214
## 1218	273	V	-0.485270171	-0.022365575	-0.559005457	-0.871921275
## 1219	273	W	-0.332673889	-0.333675986	-0.121073581	-0.875251635
## 1220	273	Y	-0.037186817	0.393670787	-0.612985545	-1.626269230
## 1221	274	A	-0.256560985	0.070588265	-0.078619345	-0.794081899
## 1222	274	C	-0.142814965	0.099534653	-0.358765715	-0.672591020
## 1223	274	D	0.182056327	-0.104141113	-0.475062417	-1.167811224
## 1224	274	E	-0.246627265	-0.045014224	-0.404327140	-0.926190448
## 1225	274	F	0.000000000	0.000000000	0.000000000	0.000000000
## 1226	274	G	-0.413454107	-0.382007237	-0.434879115	-0.719923306
## 1227	274	H	-0.490842153	-0.633982046	-0.497371163	-0.418034453
## 1228	274	I	0.586544466	-0.000394231	0.178651544	-0.464648976
## 1229	274	K	0.438084155	-0.000411062	-0.192295953	-1.112349501
## 1230	274	L	0.163735950	0.313493086	-0.282411807	-0.247443047
## 1231	274	M	-0.536636881	0.150271122	-0.365769383	-0.884066615
## 1232	274	N	-0.238254726	-0.146653701	-0.412385224	-2.001090695
## 1233	274	P	-0.262627432	0.581247467	-0.678227503	-1.283735047
## 1234	274	Q	-0.198684079	0.784547754	-0.212616864	-1.726467745
## 1235	274	R	0.046189042	0.174748048	-0.594458345	-0.965586391
## 1236	274	S	-0.386487815	-0.051783256	-0.184787327	-0.557776573
## 1237	274	T	-0.439468330	-0.268687424	-0.004863174	-0.388461851
## 1238	274	V	-0.179664553	-0.042978897	-0.455732208	-0.682706823
## 1239	274	W	-0.195745721	0.127569556	-0.351799322	-1.197267475
## 1240	274	Y	-0.180114439	-0.049064060	-0.121365980	-0.791884545
## 1241	276	A	-0.043569621	0.103143811	-0.377162766	-0.711839062
## 1242	276	C	-0.186665492	-0.280852843	-0.444639049	-1.106269266
## 1243	276	D	0.639738859	0.027000481	-0.721931484	-1.158895544
## 1244	276	E	-0.015596153	-0.211370884	-0.580449181	-0.631507170

## 1245	276	F	-0.071206977	-0.213040443	-0.477347820	-1.156608510
## 1246	276	G	0.066806332	0.138691454	-0.636073402	-1.109124675
## 1247	276	H	-0.362133735	-0.421406359	-0.058213648	-0.615305819
## 1248	276	I	0.279293373	0.539264143	0.255900398	-0.688986484
## 1249	276	K	0.156808679	0.156593445	0.091178447	-0.399631347
## 1250	276	L	-0.056198743	-0.214710638	-0.651378892	-1.066067617
## 1251	276	M	-0.232231529	0.244769458	-0.647138136	-0.820637905
## 1252	276	N	-0.025327931	0.020101765	-0.736368183	-0.896624184
## 1253	276	P	-1.247204695	0.140667023	-0.949390093	-1.090817752
## 1254	276	Q	-0.229204838	0.103250215	-0.500996580	-0.869549349
## 1255	276	R	-0.011788469	-0.342850243	-0.217035276	-0.592092450
## 1256	276	S	-0.396883218	-0.073610444	-0.425415367	-0.912995955
## 1257	276	T	0.000000000	0.000000000	0.000000000	0.000000000
## 1258	276	V	-0.092070538	0.075336670	-0.969446873	-1.170541862
## 1259	276	W	-0.223596345	-0.080063602	-0.514563281	-1.282620572
## 1260	276	Y	-0.896873999	-0.251762786	-0.538995996	-0.801278375
## 1261	277	A	0.252063249	-0.012226699	-0.271676033	-0.876380591
## 1262	277	C	-1.243033730	-0.347143243	-0.930121759	-1.307457498
## 1263	277	D	0.184053556	0.137610851	-0.409167249	-1.229560775
## 1264	277	E	0.041975812	-0.267160396	-0.174895681	-0.504659792
## 1265	277	F	0.087811154	0.240833594	-0.854725174	-0.924313304
## 1266	277	G	0.301783452	0.242252719	-0.807415206	-1.220061040
## 1267	277	H	0.594480919	0.373785345	-0.832911511	-0.855304688
## 1268	277	I	-1.140542600	-0.168092649	-1.216740944	-1.588338193
## 1269	277	K	0.878874364	0.473111356	-0.314753182	-1.403876809
## 1270	277	L	0.139733332	0.097565750	-1.050810452	-1.463805477
## 1271	277	M	0.114383712	0.142947552	-0.642744456	-0.813456755
## 1272	277	N	0.000000000	0.000000000	0.000000000	0.000000000
## 1273	277	P	-0.153368872	0.040166453	-0.074751722	-1.433902220
## 1274	277	Q	-0.175281138	0.279121552	-0.552547956	-1.534773135
## 1275	277	R	0.448633882	0.332591364	-0.715016752	-1.160959273
## 1276	277	S	0.104265470	-0.010736109	-0.647184195	-0.843895213
## 1277	277	T	-0.463276220	0.160727020	-0.471707432	-0.335791751
## 1278	277	V	0.172208709	-0.161898419	-0.756340269	-0.983516525
## 1279	277	W	-0.416184231	-0.112004290	-1.182272022	-1.432728220
## 1280	277	Y	0.314071629	0.193613785	-0.498948482	-1.119321519
## 1281	290	A	0.288902554	-0.139066068	-0.136116675	-0.908142956
## 1282	290	C	0.598859590	-0.119398305	-0.206215700	-0.876189221
## 1283	290	D	0.175614837	0.389259021	-0.029051773	-0.452171962
## 1284	290	E	0.176628367	-0.005921302	-0.233206017	-0.659945702
## 1285	290	F	-0.376991226	-0.247199414	-0.441003452	-0.871650705
## 1286	290	G	0.003198106	0.192395195	-0.498026956	-0.833492226
## 1287	290	H	0.098600106	-0.862773722	0.055811591	-0.464757259
## 1288	290	I	-0.027794238	-0.203300182	-0.831664044	-0.578656076
## 1289	290	K	0.737481247	-0.268414463	-0.341473563	-0.339470891
## 1290	290	L	-0.077464415	0.213402003	-0.444712082	-0.652858155
## 1291	290	M	0.004858556	-0.014213639	-0.527659507	-0.676522536
## 1292	290	N	0.000000000	0.000000000	0.000000000	0.000000000
## 1293	290	P	0.126528801	-0.408019897	-0.681307466	-0.614201045
## 1294	290	Q	-0.987062337	-0.393039982	-0.210608392	-0.566427517
## 1295	290	R	-0.083799722	0.228551640	-0.512330149	-0.562961559
## 1296	290	S	-0.020778596	0.229805706	-0.524678017	-0.622275454
## 1297	290	T	0.271084353	0.347019507	-0.400332292	-0.987695982
## 1298	290	V	-0.038813538	-0.183146113	-0.438746319	-0.814216244

## 1299	290	W	0.083737798	-0.228894896	-0.501013188	-0.389457820
## 1300	290	Y	-0.051991993	0.576912864	-0.306043863	-0.879538488
## 1301	324	A	1.303257806	1.499120431	-1.402160893	-1.725871886
## 1302	324	C	-0.165757370	-0.743563786	-0.606910193	-1.035566212
## 1303	324	D	-0.195411831	-0.135699518	-0.916570251	-1.881550050
## 1304	324	E	2.369366170	2.609541904	-3.142961206	-5.000000000
## 1305	324	F	-1.518488859	-0.786681334	-0.109855744	-0.338921188
## 1306	324	G	-0.519997462	-1.053497766	0.134809922	-0.069806957
## 1307	324	H	-0.139010232	-1.326855078	-0.548503082	-1.140234982
## 1308	324	I	0.084668587	-0.519760926	-0.494607041	-0.560301199
## 1309	324	K	-2.306704107	-1.881590472	1.506745531	1.853796943
## 1310	324	L	-1.266631531	-1.545065105	1.053150139	1.145377754
## 1311	324	M	-1.061997834	-1.363697470	0.250099768	0.399557342
## 1312	324	N	-0.109139945	-0.353854567	0.807824484	0.690370920
## 1313	324	P	2.395558043	2.990328234	-2.689055098	-4.825744408
## 1314	324	Q	0.821928439	0.160017107	-0.507052353	-1.577661774
## 1315	324	R	-1.305549190	-1.316506693	1.176379992	1.221039010
## 1316	324	S	1.095767437	1.000140553	-0.920277523	-2.077374275
## 1317	324	T	0.000000000	0.000000000	0.000000000	0.000000000
## 1318	324	V	-0.291215250	-0.114735971	-0.544839868	-1.555473059
## 1319	324	W	-1.751501276	-1.462916138	0.375849819	0.886497379
## 1320	324	Y	-0.754391153	-1.252117583	-0.446125726	-0.427784403
## 1321	325	A	-0.522461499	0.023667920	-0.428168107	-1.018968499
## 1322	325	C	-0.507451322	-0.659614705	0.079403540	-0.076281255
## 1323	325	D	-0.925625999	-0.344809887	-0.292270538	0.058074151
## 1324	325	E	0.124392081	0.017933797	0.058477489	-0.911055633
## 1325	325	F	-0.200102124	0.005038909	0.189594194	-0.748468781
## 1326	325	G	0.329441223	0.249103966	-0.738165483	-0.851750283
## 1327	325	H	0.465379846	0.260188882	0.677069870	-0.005400504
## 1328	325	I	0.008547954	-0.042109105	-1.178990478	-1.214570101
## 1329	325	K	-0.008025141	0.165031127	-0.386657244	-0.454219564
## 1330	325	L	0.023236171	-0.417087906	0.246543609	-0.262462068
## 1331	325	M	-0.135313569	-1.425990640	-1.119814504	-0.749237730
## 1332	325	N	-0.241653554	-0.697452250	-0.411784322	-0.294397882
## 1333	325	P	2.660501412	2.867046813	-3.346715865	-3.909379377
## 1334	325	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 1335	325	R	-0.149327417	-0.516972344	-0.064906026	-0.467373972
## 1336	325	S	-0.324126454	-0.318461408	-0.773347180	-0.218142963
## 1337	325	T	0.500992696	0.263373013	-0.694895018	-1.257896807
## 1338	325	V	0.217620038	0.139750839	-0.623892741	-0.593115598
## 1339	325	W	-1.233224863	-1.291161501	0.387513140	0.201042517
## 1340	325	Y	0.737330185	-0.006182088	-0.527346027	-0.750677773
## 1341	326	A	-1.610025326	-1.671285759	1.616036810	1.822689904
## 1342	326	C	-2.705230599	-3.080849679	1.396183448	1.916658482
## 1343	326	D	-2.475565914	-2.036193618	1.558324008	1.974907700
## 1344	326	E	-1.077123057	-0.733814663	1.224092025	1.491006490
## 1345	326	F	-2.744068500	-2.234591503	0.978904354	1.832702143
## 1346	326	G	0.000000000	0.000000000	0.000000000	0.000000000
## 1347	326	H	-1.742037270	-3.487669096	0.639462512	1.572979869
## 1348	326	I	-1.306245016	-2.250193451	1.436713821	1.816996806
## 1349	326	K	-1.847946248	-2.149629390	1.560956987	1.743301753
## 1350	326	L	-1.180893622	-1.465608777	1.379364647	1.688233716
## 1351	326	M	-1.586173985	-1.461905360	1.355603960	1.273632512
## 1352	326	N	-1.661933802	-1.723369821	0.796096839	0.785503250

## 1353	326	P	-2.476445856	-1.457995765	1.671229607	1.731502251
## 1354	326	Q	-1.245345187	-2.569764900	0.054884951	0.723584866
## 1355	326	R	-1.559515327	-2.198450521	1.820958329	2.069552863
## 1356	326	S	-2.042138478	-2.407021645	1.390134368	1.584356051
## 1357	326	T	-1.746749023	-1.759891132	1.385128751	1.278167250
## 1358	326	V	-0.994811190	-2.019399391	0.752273561	1.263671681
## 1359	326	W	-1.656373937	-2.540003454	1.585587656	1.994093110
## 1360	326	Y	-2.269542813	-1.660453920	1.182470519	1.643390029
## 1361	329	A	0.415338722	0.280383940	-0.212130655	-0.659099009
## 1362	329	C	-0.525120327	-0.090217814	-0.572391550	-0.214066519
## 1363	329	D	0.439532762	0.246305724	-0.535191032	-0.515778524
## 1364	329	E	0.000000000	0.000000000	0.000000000	0.000000000
## 1365	329	F	-0.239647569	-0.937626462	0.540255687	0.341674945
## 1366	329	G	-0.472214862	-0.540717266	0.207872714	0.000219229
## 1367	329	H	-0.699449626	-1.959018195	0.318175380	-0.202099171
## 1368	329	I	-0.725482934	-0.472076395	-0.692384709	-0.400516850
## 1369	329	K	0.192754744	0.009761237	0.176361439	0.231943045
## 1370	329	L	0.004305182	-0.208643451	-0.120779123	-0.717409800
## 1371	329	M	-0.488571671	-0.119121274	0.252449914	-0.667761044
## 1372	329	N	-0.511207793	-1.673483396	0.611024231	1.280993572
## 1373	329	P	-0.890140196	-0.252788955	-0.096641708	-0.460153142
## 1374	329	Q	-0.106197638	0.166524436	-0.298929934	-1.568852534
## 1375	329	R	-0.171153868	-0.773645456	0.397045484	-0.173364698
## 1376	329	S	-0.265194119	-0.682842678	0.058130318	-0.276813901
## 1377	329	T	-1.002436284	-0.058341667	-0.059041456	-0.658662579
## 1378	329	V	-0.326381332	-0.282145749	-0.121305190	-0.163659014
## 1379	329	W	-0.637203127	-1.267759867	0.713384659	0.415218720
## 1380	329	Y	-0.672192933	-1.570001398	0.722525869	0.464146399
## 1381	330	A	-0.710365710	-0.951110404	0.554199447	0.802487149
## 1382	330	C	-1.421920084	-2.298575438	1.178864563	1.443180225
## 1383	330	D	-0.965962742	-1.021747045	1.199496838	1.414112245
## 1384	330	E	-0.941121512	-0.662267028	0.025081080	-0.264609227
## 1385	330	F	2.791070805	3.062271518	-2.580276946	-4.498524107
## 1386	330	G	-1.567586191	-1.543153630	1.508159408	1.639652364
## 1387	330	H	2.384721285	2.897616992	-2.635008807	-2.544198296
## 1388	330	I	-0.827379241	-1.090842962	0.109674791	0.263766021
## 1389	330	K	-0.681653478	-1.441709524	1.712236343	1.776803604
## 1390	330	L	2.095767415	2.270862237	-2.889125392	-3.741166661
## 1391	330	M	-0.538496336	-0.216388234	0.649390719	0.005920623
## 1392	330	N	0.000000000	0.000000000	0.000000000	0.000000000
## 1393	330	P	-2.051536503	-0.700788062	0.472725582	0.668406166
## 1394	330	Q	1.287976953	1.245529499	-1.226228750	-3.057990215
## 1395	330	R	-1.222745514	-1.955146712	1.638645537	1.814216829
## 1396	330	S	-0.771563579	-0.906260789	0.380207084	0.463647840
## 1397	330	T	0.005851334	-0.690335855	-0.483686792	-0.515927099
## 1398	330	V	-0.530291567	-0.845790314	0.123921114	-0.059609668
## 1399	330	W	2.881689769	3.021498544	-3.406981167	-4.335589581
## 1400	330	Y	3.172048539	2.988730569	-3.204577717	-3.069550223
## 1401	343	A	-0.393628989	-0.240784673	0.119800408	-0.166278198
## 1402	343	C	0.116066773	-0.487343743	-0.286893726	-0.259432865
## 1403	343	D	-0.273020903	-0.067210549	0.178391200	-0.401417442
## 1404	343	E	-0.857045245	-1.338155185	0.039874280	-0.039211197
## 1405	343	F	-0.836412954	-0.669072985	-0.356653495	-0.580516575
## 1406	343	G	-1.381145345	-1.020062799	0.506658257	0.618103849

## 1407	343	H	-0.351614292	-0.325675262	-0.283047569	-0.521685742
## 1408	343	I	0.518424244	-0.528642229	0.011589203	-0.442547202
## 1409	343	K	-0.129688763	-0.908888279	-0.071490272	-0.474413987
## 1410	343	L	0.010398999	-0.348151338	-0.533035031	-0.500282921
## 1411	343	M	-0.649111669	-0.062276806	-0.984224320	-0.561178907
## 1412	343	N	0.057085532	-0.502507051	-0.312903963	-1.080482320
## 1413	343	P	-3.069096029	-1.025434012	0.705722187	0.471422216
## 1414	343	Q	0.423552009	-0.143784277	-0.448468755	-0.378861724
## 1415	343	R	-0.450759581	-0.087876422	-0.109118113	-0.808345774
## 1416	343	S	-0.203059969	-0.364515875	-0.351364174	-0.505983297
## 1417	343	T	-0.841866515	-0.527848687	-0.061574781	0.163716025
## 1418	343	V	0.000000000	0.000000000	0.000000000	0.000000000
## 1419	343	W	-0.515380570	-0.367661801	-0.028136812	-0.798964510
## 1420	343	Y	-0.715695313	0.037095153	-0.680491254	-0.330343571
## 1421	345	A	-0.636732443	0.377869138	-0.667977262	-1.147137296
## 1422	345	C	-0.201219828	-1.001159339	0.172362896	0.642344372
## 1423	345	D	-0.170031717	-0.045646171	-0.577472828	-0.369726380
## 1424	345	E	0.472255377	-0.246343660	-0.309300086	-0.433945178
## 1425	345	F	0.377265316	-0.238120467	-1.169576296	-4.206143782
## 1426	345	G	-0.763925100	-0.602104780	-0.006114920	0.037140340
## 1427	345	H	0.000000000	0.000000000	0.000000000	0.000000000
## 1428	345	I	-0.295796654	0.591036014	-0.888518143	-1.337023310
## 1429	345	K	0.552790349	0.289852521	0.247721098	-0.248620465
## 1430	345	L	-0.407924823	-0.367067877	-0.307112906	-0.661222763
## 1431	345	M	0.510869156	-0.127943280	-0.736198180	-0.608776205
## 1432	345	N	-0.191515414	-0.165287804	0.210958056	-0.591913698
## 1433	345	P	-1.300597640	-3.730041546	0.678972915	-0.799070735
## 1434	345	Q	0.240703051	0.045639190	0.354977227	-0.175629021
## 1435	345	R	0.220400584	-0.649945459	-0.350234175	-0.409775775
## 1436	345	S	0.010920058	-0.243870862	-0.285452123	-0.524237031
## 1437	345	T	0.112749322	0.321987956	-1.134700192	-1.102705639
## 1438	345	V	0.400332262	0.133948042	-0.789315107	-0.900855762
## 1439	345	W	0.176989293	-0.327734358	-0.671116351	-1.179802944
## 1440	345	Y	-0.480600045	-0.030362686	0.272791305	-0.528894756
## 1441	346	A	-0.082889298	0.283501601	-0.742052500	-0.679254718
## 1442	346	C	-1.062946641	-0.722025863	-0.407252094	-0.658670342
## 1443	346	D	-0.664406520	-0.660556323	-0.276476765	-0.094740105
## 1444	346	E	-0.584805388	-0.022701327	-0.010504724	-0.462051723
## 1445	346	F	-1.158605325	-1.300299041	0.581136524	0.373701740
## 1446	346	G	-0.408040801	-0.492503359	-0.095091739	-0.532668542
## 1447	346	H	-0.151667381	-0.248038673	0.226465353	-0.142794827
## 1448	346	I	-0.801344928	-1.967695834	0.083865589	0.012244374
## 1449	346	K	-0.909915649	-0.891050010	-0.335041979	0.538682133
## 1450	346	L	-1.537693277	-1.104311341	0.683247630	0.713260986
## 1451	346	M	-2.007641179	-1.274628076	0.521322378	0.742714199
## 1452	346	N	-0.721977827	-0.414080410	-0.128234236	-0.738801471
## 1453	346	P	0.000000000	0.000000000	0.000000000	0.000000000
## 1454	346	Q	-0.462394110	-0.027796142	-0.585468936	-0.354528539
## 1455	346	R	-1.759564991	-1.208043926	0.463325091	0.251006783
## 1456	346	S	0.286126613	-0.419939181	-0.008971064	-0.969953396
## 1457	346	T	-0.569104467	-1.284659438	0.236363338	-0.259636381
## 1458	346	V	-0.483873122	-0.791333556	0.088302674	-0.035585781
## 1459	346	W	-1.817007618	-2.335260791	0.451835693	0.760618289
## 1460	346	Y	-0.826400378	-1.234092816	0.289279675	0.062147739

## 1461	347	A	-0.220836159	0.183596680	-0.432912572	-0.748450789
## 1462	347	C	-0.402332318	-0.657085460	-0.314038133	-0.364723633
## 1463	347	D	0.151496993	-0.064666167	-0.572086714	-0.251290665
## 1464	347	E	-0.406752232	-0.830453595	0.002160695	0.040121402
## 1465	347	F	-0.299805642	-0.667047844	-0.481280450	-0.145960708
## 1466	347	G	0.008573478	0.053344765	-0.195215211	-0.705804169
## 1467	347	H	-1.807749873	-1.121644547	-0.114718952	-0.274481844
## 1468	347	I	-1.058839894	-0.464282822	0.295666197	-0.258150514
## 1469	347	K	0.766922409	0.287836688	0.317702407	-0.120118151
## 1470	347	L	-0.434232143	-0.524557187	-0.143397778	-0.224101302
## 1471	347	M	0.025463789	-0.050822204	-0.777633729	-1.203593365
## 1472	347	N	-0.235009299	0.154890068	0.221564509	-0.556158405
## 1473	347	P	-1.616112234	-1.003126787	1.033900092	1.074947557
## 1474	347	Q	-2.808845175	1.405253446	2.052524995	-2.349039308
## 1475	347	R	-0.431228535	-0.137940396	-0.083775198	-0.814077153
## 1476	347	S	-0.019849103	-0.094887283	-0.318109201	-0.522459414
## 1477	347	T	0.000000000	0.000000000	0.000000000	0.000000000
## 1478	347	V	-0.565856509	-0.447180474	0.063293110	0.044878247
## 1479	347	W	-0.485436665	-0.268517525	-0.355322370	-0.294256003
## 1480	347	Y	-0.829767862	-0.021632164	-0.390750378	-0.282368574
## 1481	349	A	-1.030821378	-1.213899909	0.930358560	0.917294410
## 1482	349	C	-0.838912623	-1.211443376	0.689188497	1.037791535
## 1483	349	D	-0.950684811	-2.552519233	1.097675574	1.531079340
## 1484	349	E	-1.125998805	-2.017862655	1.175095545	1.210477851
## 1485	349	F	-1.013156301	-1.275509799	0.216531628	0.107961693
## 1486	349	G	-1.250125926	-1.559107852	1.160088314	1.422297694
## 1487	349	H	-0.749133695	-1.325252174	0.949172801	0.649739526
## 1488	349	I	-2.081833338	-1.264609073	0.574220066	0.542470633
## 1489	349	K	-1.436208618	-0.834249221	0.140847749	0.783151451
## 1490	349	L	-1.332861300	-1.603227405	0.591687414	0.640261890
## 1491	349	M	-1.313834519	-1.038727863	0.463106870	0.984636431
## 1492	349	N	-2.715643698	-1.374242528	0.752702538	1.393741172
## 1493	349	P	-1.754634204	-2.708015425	0.606483105	1.305474185
## 1494	349	Q	-1.148414379	-1.199203266	1.005943419	0.912164504
## 1495	349	R	-0.988867997	-1.122356298	0.896613148	1.199203348
## 1496	349	S	-1.810916208	-1.659058636	0.951190809	1.096445296
## 1497	349	T	-0.936406907	-1.649525210	0.982950611	0.941981523
## 1498	349	V	-0.712827233	-0.773595071	0.177943826	0.101096585
## 1499	349	W	0.000000000	0.000000000	0.000000000	0.000000000
## 1500	349	Y	-0.825033199	-0.786259567	-0.242928509	-0.159812570
## 1501	350	A	-0.388135576	-0.595772657	-0.080188538	-0.293007870
## 1502	350	C	-0.639531355	-0.825180363	-0.140991624	0.094679257
## 1503	350	D	0.000000000	0.000000000	0.000000000	0.000000000
## 1504	350	E	0.323469138	-0.085655175	0.084239474	-0.461604543
## 1505	350	F	0.454797885	0.642784372	-0.613659352	-1.342439352
## 1506	350	G	-0.488717163	-0.471775465	-0.153544076	-0.263656872
## 1507	350	H	-0.588529990	-1.732215508	1.186205211	0.386509071
## 1508	350	I	-1.262721445	-1.497271676	0.659019761	1.069081964
## 1509	350	K	-1.407965739	1.150593936	0.980521224	0.323386034
## 1510	350	L	-1.324124053	-1.215926710	0.544317505	0.785391280
## 1511	350	M	-1.626641844	-1.797075326	0.500291558	0.236183796
## 1512	350	N	0.271899290	-0.146825235	-0.559095259	-0.681537193
## 1513	350	P	-0.179431221	-0.881264110	0.274030864	-0.146172022
## 1514	350	Q	-0.036484181	-3.981087601	0.312305186	0.444815503

## 1515	350	R	-0.899023816	-1.208589402	0.345482674	0.633832350
## 1516	350	S	-0.468116212	-0.569816983	-0.071790826	-0.281790203
## 1517	350	T	-1.436220941	-1.213731941	0.388349972	0.613524442
## 1518	350	V	-1.317833052	-1.718705427	0.829496525	1.219523669
## 1519	350	W	-1.701887454	-1.775302905	0.821067178	1.050831587
## 1520	350	Y	-0.638085621	-0.773994977	0.203180019	0.146187870
## 1521	351	A	-0.180468860	-0.449344275	0.364381515	0.207630240
## 1522	351	C	0.230264379	-0.377365197	-1.040273588	-1.204388463
## 1523	351	D	-2.273552817	-3.277847908	1.123613532	1.575342097
## 1524	351	E	-2.785625768	-2.064565743	0.830326167	1.174425377
## 1525	351	F	2.018025255	2.415568852	-2.320239547	-3.121574592
## 1526	351	G	-1.018681473	-1.062207397	0.637197377	0.764291071
## 1527	351	H	0.181486887	0.51885385	-1.150880042	-1.489279108
## 1528	351	I	-0.879700886	-0.991345840	0.933431763	0.863823074
## 1529	351	K	-2.854438570	-1.809051521	1.108319281	1.161361005
## 1530	351	L	0.000000000	0.000000000	0.000000000	0.000000000
## 1531	351	M	0.647068838	0.846160006	-0.705958645	-1.319370102
## 1532	351	N	-1.580975449	-1.006800583	0.779385244	0.840160618
## 1533	351	P	-0.590495069	-0.522709757	-0.069670000	-0.158672428
## 1534	351	Q	-0.119937409	-0.206571490	1.100571814	0.966359162
## 1535	351	R	-2.256797774	-2.283631657	1.087331413	1.478648460
## 1536	351	S	-1.246309785	-1.238134947	1.139990363	1.515634140
## 1537	351	T	-4.632329413	-1.776397182	1.077265667	1.411138644
## 1538	351	V	-0.697092506	-0.649650900	0.375861885	0.387474871
## 1539	351	W	-2.356728191	-1.680920054	0.826378466	0.782064793
## 1540	351	Y	-0.995287617	-1.261997943	0.200456462	0.625323348
## 1541	352	A	0.416108246	0.561546936	-1.488116895	-1.579703877
## 1542	352	C	0.638247266	0.455535041	-1.297616844	-1.556531824
## 1543	352	D	-0.265507497	-1.313588862	0.044334837	0.287116130
## 1544	352	E	-1.083504592	-1.499885564	0.218646606	0.778110442
## 1545	352	F	0.962221705	1.113935755	-1.558912357	-1.591881125
## 1546	352	G	0.000000000	0.000000000	0.000000000	0.000000000
## 1547	352	H	0.254652034	-0.439971434	-0.184610787	-0.849289236
## 1548	352	I	-1.639653561	-2.585239639	1.002672526	1.249977886
## 1549	352	K	1.594237072	0.900602821	-2.702831183	-1.986739927
## 1550	352	L	-0.684753654	-1.351672419	0.423504093	0.762470118
## 1551	352	M	1.162896116	1.081339284	-1.941693433	-3.117460346
## 1552	352	N	1.054026837	1.095134806	-1.170830748	-1.467217231
## 1553	352	P	-2.012703257	-2.287875191	1.124081701	1.807179223
## 1554	352	Q	0.032302088	-0.220527876	-0.694270823	-0.807207570
## 1555	352	R	1.320268435	1.106503949	-1.125880132	-1.782361847
## 1556	352	S	0.807284390	0.753751732	-1.108013459	-2.020246955
## 1557	352	T	0.821588710	0.974561331	-0.930117857	-2.835536237
## 1558	352	V	-0.922531347	-1.128107439	0.323400606	0.159640758
## 1559	352	W	-0.680275695	-1.980678593	1.641583908	1.749799472
## 1560	352	Y	0.851754901	0.765884867	-1.334977509	-1.566990516
## 1561	353	A	-2.330225383	-2.984718669	1.774405843	2.143849725
## 1562	353	C	-2.269211908	-2.028824488	1.782055047	1.778630931
## 1563	353	D	-2.385388116	-2.498482501	1.940580252	2.203714802
## 1564	353	E	-1.111243541	-1.467796619	1.512547670	1.713208271
## 1565	353	F	-1.893986878	-1.518428320	1.596085775	2.110484501
## 1566	353	G	-2.815622850	-2.219945551	1.701738279	1.956311897
## 1567	353	H	-2.743317928	-2.392354397	1.759743079	1.993947394
## 1568	353	I	-2.100727005	-2.301946653	1.778606880	2.097811160

## 1569	353	K	0.000000000	0.000000000	0.000000000	0.000000000
## 1570	353	L	-2.048741980	-1.920619697	1.722050898	2.028729152
## 1571	353	M	-1.846442275	-1.208749266	1.491265097	1.437318603
## 1572	353	N	-1.354306060	-1.794608959	1.333722963	1.904132241
## 1573	353	P	-1.692097952	-2.025491008	1.847925607	1.977592615
## 1574	353	Q	-1.449582607	-1.547176320	1.915662962	2.190133223
## 1575	353	R	-1.113213616	-1.770987655	1.101642061	1.440270266
## 1576	353	S	-2.234535387	-2.819192474	1.681519457	2.133685875
## 1577	353	T	-1.646265337	-1.749498373	1.441977185	2.017107551
## 1578	353	V	-1.939560508	-3.108890445	1.622396073	1.866610093
## 1579	353	W	-3.122846445	-2.313862689	1.913524585	1.974269557
## 1580	353	Y	-1.344136022	-1.984696626	1.603123025	1.712810604
## 1581	354	A	-1.780543494	-1.770191079	1.530565277	1.764891145
## 1582	354	C	-1.464832538	-2.032797437	1.498231305	1.700557573
## 1583	354	D	-1.247853550	-1.519632794	1.481300387	1.802478857
## 1584	354	E	-1.959518445	-1.848313554	1.493677124	1.489033894
## 1585	354	F	-1.673937804	-2.368400095	1.830001908	1.603245451
## 1586	354	G	0.000000000	0.000000000	0.000000000	0.000000000
## 1587	354	H	-0.628082378	-1.233970237	1.473461240	2.389461817
## 1588	354	I	-2.002592462	-2.993707294	1.406899273	1.753236107
## 1589	354	K	-1.740699117	-4.741704464	1.757072398	2.077983737
## 1590	354	L	-1.919469174	-1.942327489	1.630495025	1.952317654
## 1591	354	M	-1.195373944	-2.287041362	1.772601473	2.031886681
## 1592	354	N	-2.583231224	-1.677991497	1.922430195	2.045086471
## 1593	354	P	-1.482440337	-2.104529321	1.540989312	1.886542067
## 1594	354	Q	-3.811458651	-1.192191723	1.505002268	1.936702657
## 1595	354	R	-1.963484613	-2.518992813	1.845747060	2.191269315
## 1596	354	S	-1.402193310	-2.087657159	1.651664431	2.063043147
## 1597	354	T	-2.736219666	-1.416796841	1.927634616	2.208959187
## 1598	354	V	-1.694584292	-1.871020121	1.834932453	2.018394069
## 1599	354	W	-1.407714868	-2.034309841	1.769306738	1.986539468
## 1600	354	Y	-2.001978000	-1.488171253	1.443180192	2.022589453
## 1601	355	A	-1.669186217	-2.406062529	1.802620482	1.998740049
## 1602	355	C	-2.011072149	-2.305866529	1.577675044	1.735945607
## 1603	355	D	0.000000000	0.000000000	0.000000000	0.000000000
## 1604	355	E	-1.552543786	-1.773999682	1.448168903	1.581076567
## 1605	355	F	-1.464200379	-2.860830142	1.406410358	1.645098262
## 1606	355	G	-1.941064039	-2.405136024	1.381667504	1.704995055
## 1607	355	H	-2.388307878	-2.582138880	1.228443291	1.794410047
## 1608	355	I	-2.699186942	-2.409179325	1.509984645	2.141452498
## 1609	355	K	-2.952754586	-3.077124606	1.633573490	1.949119518
## 1610	355	L	-1.634265599	-2.567819099	1.561429089	1.891813487
## 1611	355	M	-2.016138994	-2.225355063	1.468498913	1.883622898
## 1612	355	N	-0.980623233	-0.841481539	1.501712078	1.856137036
## 1613	355	P	-3.112579993	-1.773843287	0.550268590	0.635424204
## 1614	355	Q	-1.934696920	-2.384985285	1.764951770	2.043786460
## 1615	355	R	-2.469846748	-2.072061096	1.732273055	1.973965813
## 1616	355	S	-2.186840691	-2.310320249	1.644564666	1.972333122
## 1617	355	T	-1.234636597	-1.983444091	1.424849563	2.117536578
## 1618	355	V	-1.642768824	-2.031536635	1.669739131	1.865315417
## 1619	355	W	-2.113849410	-2.362455262	1.094664846	1.380021569
## 1620	355	Y	-2.304433478	-1.977596646	1.466902167	1.575864319
## 1621	356	A	-1.789410282	-1.758507482	1.292409900	1.462583408
## 1622	356	C	-1.551516971	-0.928015443	1.330553200	1.740521525

## 1623	356	D	-1.303636651	-1.788376237	0.668571876	1.441778835
## 1624	356	E	-1.636785900	-3.275476851	1.333986506	1.222691045
## 1625	356	F	0.000000000	0.000000000	0.000000000	0.000000000
## 1626	356	G	-2.196841316	-2.399292843	1.228011747	1.641565453
## 1627	356	H	-1.154025160	-0.334854949	0.075227526	0.164310799
## 1628	356	I	-1.409806693	-2.142564670	0.716801800	0.990026117
## 1629	356	K	-1.504639536	-2.406755567	1.372054522	2.017937345
## 1630	356	L	-1.040907920	-1.092671193	0.693557193	0.744879034
## 1631	356	M	-1.681778923	-0.889918403	1.289987390	1.478141181
## 1632	356	N	-0.055625818	-1.380618560	0.411383371	0.111058065
## 1633	356	P	-3.765096825	-3.411292946	0.852694576	1.499728876
## 1634	356	Q	-1.012685968	-1.008757175	0.661265672	0.499108801
## 1635	356	R	-1.754583738	-1.621334951	1.134929481	1.248340715
## 1636	356	S	-1.080646293	-1.433090573	1.367419194	1.246946710
## 1637	356	T	-1.704789037	-1.856329979	0.816622228	1.182017078
## 1638	356	V	-0.701563350	-1.487859304	1.034672626	1.257618264
## 1639	356	W	-1.470436152	-0.897368472	0.518581224	0.655948183
## 1640	356	Y	-0.381076823	-0.502645243	0.324489723	0.279875296
## 1641	357	A	-2.215024596	-2.602656504	1.180126564	1.679139636
## 1642	357	C	-1.837331492	-2.510543831	0.125359340	0.661953568
## 1643	357	D	-3.222971923	-2.015194453	-1.168633599	-0.458643716
## 1644	357	E	-2.673238324	-2.167525537	-1.097930797	-0.816245588
## 1645	357	F	-2.653856059	-2.151379497	-0.117922770	0.755553007
## 1646	357	G	-1.728259388	-1.956819459	0.413763299	0.788725880
## 1647	357	H	-0.687632960	-2.800281978	-0.192088557	1.089078330
## 1648	357	I	-2.322261950	-2.628136490	-1.391445054	-1.181406478
## 1649	357	K	-1.344380818	-1.539403460	1.206243439	1.426313559
## 1650	357	L	-2.408205449	-2.270296585	0.364143473	1.002506630
## 1651	357	M	-0.922703268	-1.287873711	0.592284978	1.207902226
## 1652	357	N	-2.613663990	-2.615463440	0.420403849	1.185735688
## 1653	357	P	-1.647000517	-3.228999462	-0.842817890	-1.017226914
## 1654	357	Q	-1.787328304	-1.667663897	0.787245297	1.179326869
## 1655	357	R	0.000000000	0.000000000	0.000000000	0.000000000
## 1656	357	S	-1.949506076	-1.850324027	0.671817269	0.847504657
## 1657	357	T	-1.698288438	-1.030789276	0.430600752	1.142851826
## 1658	357	V	-2.183507054	-2.421575624	0.513825784	1.032695990
## 1659	357	W	-1.347846220	-1.673956699	1.262550038	1.453993898
## 1660	357	Y	-1.415878426	-3.247282008	0.669348931	1.151137385
## 1661	366	A	0.025569594	0.274219805	-0.141938826	-1.299052729
## 1662	366	C	0.492682701	-0.379960486	-0.334919056	-0.388282157
## 1663	366	D	0.672823454	0.036942437	-0.171520005	-0.965009914
## 1664	366	E	-0.877039332	-0.406857096	-0.859614365	-0.299473319
## 1665	366	F	-0.200670090	0.250024638	-0.641253315	-0.935434082
## 1666	366	G	-0.212200050	-0.038013967	-0.438943247	-0.254419702
## 1667	366	H	-0.352417174	0.065903490	-0.549753221	-2.158329580
## 1668	366	I	-0.188945988	0.305652377	0.501979219	0.012834745
## 1669	366	K	-0.161326854	0.441929291	0.900868322	-0.156248672
## 1670	366	L	-0.161550049	-0.009924316	-0.426000208	-0.671710328
## 1671	366	M	0.000000000	0.000000000	0.000000000	0.000000000
## 1672	366	N	-1.731653337	-1.260512295	-0.707619087	-2.691870704
## 1673	366	P	-0.170544011	-1.201552384	0.374440822	-0.110290289
## 1674	366	Q	-0.264750482	-0.185221309	-1.595003863	-1.858452442
## 1675	366	R	-0.001211088	-0.248643734	-0.382836136	-0.336052703
## 1676	366	S	-0.021689939	-0.632444153	-0.441971194	-1.230464401

## 1677	366	T	-0.002424631	0.070818327	0.062937138	-0.018749809
## 1678	366	V	-0.278393059	0.170673318	-0.505432104	-0.237472588
## 1679	366	W	-0.270734182	0.643085334	-0.113890404	-0.501579205
## 1680	366	Y	0.231921421	-0.037921238	-0.405833318	-0.751071373
## 1681	367	A	0.044821347	-0.010596239	-0.487422390	-1.024143988
## 1682	367	C	0.494184355	0.434548596	-0.531660069	-1.401716820
## 1683	367	D	0.000000000	0.000000000	0.000000000	0.000000000
## 1684	367	E	0.600301912	-0.298548642	-0.308922781	-0.340191535
## 1685	367	F	-0.107632416	0.641702992	-0.436624472	-1.979904550
## 1686	367	G	0.059647526	0.294506129	-0.539047724	-0.835762826
## 1687	367	H	-0.150795060	-1.096903202	-1.085607683	-1.387395240
## 1688	367	I	0.094330960	-0.342034267	-0.667158516	-1.861437290
## 1689	367	K	-0.180001141	-0.014879835	-0.158111654	-1.002850297
## 1690	367	L	0.186811379	-0.026901336	-0.729422802	-0.841303803
## 1691	367	M	-0.223241535	-0.385337841	-0.159606311	-0.521426408
## 1692	367	N	0.234689064	0.585427242	0.336937791	-0.240345428
## 1693	367	P	-0.386736548	0.044701192	-0.689135348	-0.872360322
## 1694	367	Q	0.903288870	-0.935684752	-0.172710333	-1.763187353
## 1695	367	R	-0.011291028	0.133792424	-0.516633688	-1.196219882
## 1696	367	S	0.215402321	0.260093852	-0.413586416	-1.393790901
## 1697	367	T	0.282948037	0.259488530	-1.144564342	-1.714488258
## 1698	367	V	0.199919839	0.375850255	-0.613870448	-1.250675530
## 1699	367	W	0.029221377	0.088142468	-1.163173887	-0.790771439
## 1700	367	Y	0.157404985	-0.334423657	-0.193599632	-0.722782870
## 1701	370	A	-0.857248186	-0.612870521	-0.478492379	-0.093778612
## 1702	370	C	-0.205480242	-0.304815262	0.104948291	-1.114908184
## 1703	370	D	-1.505785730	-0.789414843	-0.057444156	0.354551728
## 1704	370	E	-0.009475121	-0.509863050	-0.568730224	-0.526243215
## 1705	370	F	0.360719273	0.012821599	0.028665084	-1.103666749
## 1706	370	G	-0.582743847	-0.436148964	-0.119310512	-0.132779565
## 1707	370	H	-0.336735422	-0.737124884	-0.404966907	-0.717033059
## 1708	370	I	-0.291976059	-0.287075991	-0.174803449	-1.222098612
## 1709	370	K	-0.665771527	0.149005538	-0.712566202	-0.866844998
## 1710	370	L	0.000000000	0.000000000	0.000000000	0.000000000
## 1711	370	M	-0.000497534	0.035105004	-0.422274468	-1.063411419
## 1712	370	N	-0.228188345	-0.393298540	-0.970584843	-0.299651416
## 1713	370	P	-0.745332141	-0.631040711	0.015270705	0.412542321
## 1714	370	Q	0.226790810	0.527028394	0.383026513	0.015051499
## 1715	370	R	-0.181529116	-0.522720124	-0.112762188	-0.967618047
## 1716	370	S	-0.658594990	-0.741806931	-0.125896744	-0.191337597
## 1717	370	T	-0.838672656	-0.441364180	-0.255391970	-0.306909264
## 1718	370	V	-0.079888733	-0.455368757	-0.228903011	-0.180680885
## 1719	370	W	-0.310451994	0.012976994	-1.177897134	-0.917224086
## 1720	370	Y	0.329816016	-0.177616417	-1.250710361	-0.920205321
## 1721	371	A	-0.221574354	-0.176557865	-0.092136294	-0.475901719
## 1722	371	C	0.430865694	-0.154338119	-0.069711108	-1.171762214
## 1723	371	D	-0.389288915	-0.275615768	-0.862577324	-1.391112222
## 1724	371	E	-0.408931345	-0.406304715	-0.535777056	-0.438206185
## 1725	371	F	-0.307805397	0.261062859	-0.493312106	-0.360111465
## 1726	371	G	-0.494915101	-0.359467056	-0.394487186	-0.563245773
## 1727	371	H	0.030412529	0.156699666	-0.819889426	0.015040973
## 1728	371	I	0.145565512	0.753295658	-0.028518973	-0.626386282
## 1729	371	K	-0.363200614	-0.025530364	0.187031058	-0.214391310
## 1730	371	L	-0.196423072	-0.243957416	-0.257505909	-0.554324673

## 1731	371	M	-0.282969564	0.033882555	-0.156951159	-0.985046339
## 1732	371	N	-0.192173017	-0.589299737	-1.203315292	-0.490979230
## 1733	371	P	-2.280889131	-2.490944980	0.149278970	0.435592107
## 1734	371	Q	0.015984835	-0.121251283	-0.729937905	-0.521756284
## 1735	371	R	0.022131249	0.051924027	-0.155080976	-1.149662849
## 1736	371	S	-0.330632476	-0.133143539	-0.167346104	-0.437788226
## 1737	371	T	0.000000000	0.000000000	0.000000000	0.000000000
## 1738	371	V	0.068348439	0.067926216	-1.011716543	-1.044467664
## 1739	371	W	-0.356419883	-0.178617494	-0.848394258	-0.696482695
## 1740	371	Y	-0.182230926	-1.583158524	-0.184957347	-0.898107119
## 1741	374	A	0.243787433	-0.068334870	-0.611631619	-1.114908184
## 1742	374	C	-0.058867508	0.620823253	-1.116093873	-1.752510342
## 1743	374	D	0.376452225	0.019739940	-0.908094387	-1.168839720
## 1744	374	E	0.108223902	0.906406873	-0.817337632	-1.424725542
## 1745	374	F	-1.200038706	-0.189330476	-0.050289211	-0.527126802
## 1746	374	G	0.240516477	-0.036551909	-0.499893005	-0.948530452
## 1747	374	H	0.000000000	0.000000000	0.000000000	0.000000000
## 1748	374	I	0.357719647	-0.173160993	-0.277291958	-0.873102856
## 1749	374	K	0.696932878	0.212998023	-0.988483713	-0.603613277
## 1750	374	L	0.224434101	-0.215798013	-0.342079238	-0.841848493
## 1751	374	M	0.768380002	-0.216991144	-0.793287903	-0.692619770
## 1752	374	N	0.755444812	0.437888269	-0.173356413	-0.652527285
## 1753	374	P	-1.715451111	-1.490207106	0.251628500	0.038962245
## 1754	374	Q	0.593420538	0.115773938	0.138162566	-0.870615080
## 1755	374	R	0.136068257	0.085355064	-0.363019148	-0.629312733
## 1756	374	S	0.138040072	0.465683648	-0.395461784	-0.920178634
## 1757	374	T	0.309259839	0.052268247	-0.694882346	-0.367112826
## 1758	374	V	0.299756911	0.148630841	-0.355993471	-0.814952881
## 1759	374	W	-0.062585928	-0.362142357	-0.291761837	-0.593330059
## 1760	374	Y	0.106407804	-0.023780018	0.035944404	0.001708196
## 1761	378	A	0.575273272	0.393583113	-1.253384133	-1.517274411
## 1762	378	C	0.889019909	0.306380162	-1.118721156	-1.596947021
## 1763	378	D	0.611822238	0.099449868	0.479251175	-2.410290013
## 1764	378	E	0.963321338	0.582056789	-1.987203979	-1.039484659
## 1765	378	F	0.907738397	-0.098494498	-0.883376729	-1.208694157
## 1766	378	G	0.275724622	0.070280225	-0.867964413	-2.024401433
## 1767	378	H	0.000000000	0.000000000	0.000000000	0.000000000
## 1768	378	I	-0.532877508	0.003342084	-0.699601762	0.283180647
## 1769	378	K	1.081374882	0.426641089	-2.104284162	-1.995493868
## 1770	378	L	0.941405775	0.412475231	-0.556697794	-1.124052110
## 1771	378	M	0.156604353	-0.372247999	-0.895554133	-0.828463302
## 1772	378	N	0.251724533	0.366045940	-0.111474515	-0.778003250
## 1773	378	P	-2.280551698	-1.239975824	-0.013840528	1.120591117
## 1774	378	Q	0.571931937	0.218772220	-0.156093688	-0.680842293
## 1775	378	R	0.783157334	0.879932545	-0.513123460	-0.973077503
## 1776	378	S	0.208038142	0.389070714	-0.771534347	-1.438720703
## 1777	378	T	0.431497100	0.947912114	-1.182407547	-2.787775696
## 1778	378	V	0.315730315	0.476925233	-0.186967300	-0.867195522
## 1779	378	W	0.092891370	-0.500349184	-0.163391393	-0.435334439
## 1780	378	Y	-0.009023013	-0.404530035	0.175278256	-0.190814839
## 1781	382	A	0.358268835	0.294962268	-0.868392013	-1.329641356
## 1782	382	C	-0.137910066	0.035362660	-0.655994524	-0.996962129
## 1783	382	D	0.000000000	0.000000000	0.000000000	0.000000000
## 1784	382	E	0.204303180	0.267423482	0.256270931	-0.390581136

## 1785	382	F	0.362042843	0.646808062	-0.880882110	-0.707404358
## 1786	382	G	-0.342718328	-0.328425732	0.028520718	-0.150234225
## 1787	382	H	0.134120622	0.437987661	-0.034343567	-0.457779836
## 1788	382	I	1.219368187	1.442674521	-2.999551774	-2.125226734
## 1789	382	K	-1.217987882	-1.039203872	0.043953564	0.340145099
## 1790	382	L	-0.691736872	-0.856049672	0.436604035	0.506226886
## 1791	382	M	-0.509145459	0.454692749	0.054900471	-0.397490814
## 1792	382	N	-0.132011663	-0.462087174	0.598387140	0.224005373
## 1793	382	P	-1.602655752	-0.770472348	0.727477662	0.427492246
## 1794	382	Q	0.688449415	0.659996901	-0.522070001	-0.548415450
## 1795	382	R	-0.951303860	-0.855251225	0.588492684	0.548029759
## 1796	382	S	0.428769995	0.328598951	-0.665742434	-1.619847760
## 1797	382	T	0.352677487	0.119617466	-0.839790398	-1.189864502
## 1798	382	V	0.977355129	1.207171609	-1.673888707	-1.831406481
## 1799	382	W	-2.222328387	-1.226623477	0.783054468	0.969558970
## 1800	382	Y	-0.139937461	-0.463946073	-0.574139352	-0.525717896
## 1801	383	A	-0.840494969	-0.964394764	0.551260114	0.265302832
## 1802	383	C	-0.831742689	-0.468196070	-0.068224612	0.129006252
## 1803	383	D	-0.904489244	-1.673921043	0.203419781	0.724584477
## 1804	383	E	-0.039211087	0.331153120	-0.259981522	-0.004516766
## 1805	383	F	-1.025531611	-0.545626389	0.384312049	0.075975267
## 1806	383	G	-1.169863164	-1.155542881	0.817444357	0.815955404
## 1807	383	H	-0.475778261	-1.007238906	1.159289563	1.007256659
## 1808	383	I	-0.306987711	-0.162238438	0.406422145	-0.056983308
## 1809	383	K	-0.527039632	-0.969923960	1.271016933	1.107536942
## 1810	383	L	-0.592968052	-1.203097599	0.457686584	0.452195413
## 1811	383	M	0.000000000	0.000000000	0.000000000	0.000000000
## 1812	383	N	-1.356496596	-2.985716417	0.606568151	0.633927992
## 1813	383	P	-2.144487227	-2.434386420	-1.441528431	-1.474740166
## 1814	383	Q	-1.130366639	-0.680385787	0.745539171	0.040313319
## 1815	383	R	-0.503032762	-0.372259079	0.105748517	0.014450896
## 1816	383	S	-0.558171164	-0.464580621	0.394927180	0.412894511
## 1817	383	T	1.161487487	0.191012656	-0.234570286	-0.419296331
## 1818	383	V	0.419864820	0.037281212	-0.425736414	-0.874796554
## 1819	383	W	-2.387009518	-1.730257937	0.717103331	1.297069601
## 1820	383	Y	-1.650235487	-0.790217676	0.411927795	0.823842736
## 1821	386	A	0.000000000	0.000000000	0.000000000	0.000000000
## 1822	386	C	-0.456064659	-0.865597900	-0.117846064	-0.413918672
## 1823	386	D	-0.054398496	-0.416108969	0.490614446	-0.030702444
## 1824	386	E	-1.311592317	-0.409167555	0.261598549	0.591683244
## 1825	386	F	-1.977197203	-2.011906020	1.133548888	1.728547936
## 1826	386	G	-0.575622972	-0.624973333	-0.225882019	-0.369761156
## 1827	386	H	-1.185051538	-2.345728162	0.854763520	1.009052295
## 1828	386	I	1.770700674	1.532474760	-0.830182472	-2.672938029
## 1829	386	K	-3.177306508	-1.388386606	1.156769888	1.614281780
## 1830	386	L	2.749748378	2.606842556	-3.054778499	-4.556921477
## 1831	386	M	0.353933392	0.293880435	-1.737242482	-1.969166752
## 1832	386	N	-0.475217930	-1.175590106	0.121996265	-0.139423350
## 1833	386	P	-2.126552022	-1.133986820	1.071361084	0.803894045
## 1834	386	Q	-2.190100310	-0.981164703	0.978573962	0.958977578
## 1835	386	R	-1.547490438	-1.879133481	1.528575045	1.779904186
## 1836	386	S	-0.380010669	-0.487079957	-0.325618681	-0.776288823
## 1837	386	T	-0.225796191	-0.496142878	0.846340799	0.461944235
## 1838	386	V	-0.775756209	-0.695183568	0.431178086	-0.028345064

## 1839	386	W	-1.363598255	-2.134346408	1.512182262	1.895937825
## 1840	386	Y	-2.015116683	-0.764424540	1.436096536	1.299404496
## 1841	387	A	0.000000000	0.000000000	0.000000000	0.000000000
## 1842	387	C	0.348444481	1.095798901	-0.906835677	-2.820730815
## 1843	387	D	0.046317138	-0.323331073	-0.591778973	-1.520349206
## 1844	387	E	-0.006820586	0.493373217	-0.020745996	-0.702155903
## 1845	387	F	-0.314868028	0.088554397	-0.308496976	-1.045263108
## 1846	387	G	0.228758109	0.193815526	-0.329102683	-1.062492729
## 1847	387	H	1.483872538	-0.177701582	-1.083588515	-0.775411034
## 1848	387	I	0.822042449	0.406388641	-1.805118153	-1.385006768
## 1849	387	K	-0.947459746	-1.155001360	0.458838263	0.598265147
## 1850	387	L	-0.151213392	-0.435787458	-0.526062848	-0.607629744
## 1851	387	M	-0.599616952	0.435904961	-0.651443792	-0.966374669
## 1852	387	N	-0.145351623	1.014750133	-0.512203558	-0.902879544
## 1853	387	P	0.389407489	0.062766578	-0.453996963	-0.929185326
## 1854	387	Q	1.143206717	-0.602250837	-1.153812251	-1.603525591
## 1855	387	R	-0.010986372	-0.261515036	-0.421020386	-1.097207758
## 1856	387	S	0.384554041	0.179690760	-0.301071137	-1.106096642
## 1857	387	T	-0.294713718	0.208772415	-0.102153567	0.016011591
## 1858	387	V	0.024299969	0.471394874	-0.664621952	-1.182377122
## 1859	387	W	0.295693586	0.998412101	-1.229416896	-2.160088653
## 1860	387	Y	0.916451841	0.625601471	-1.194941078	-1.578827898
## 1861	388	A	-0.516276040	-0.596162632	0.124806755	-0.656288464
## 1862	388	C	0.536623273	-0.127188791	-0.272948291	-1.407671109
## 1863	388	D	-3.121360442	-1.664356318	0.315096765	0.788791031
## 1864	388	E	-0.979869836	-1.658329734	0.009364942	0.347043927
## 1865	388	F	-2.354195280	-1.275198032	0.972217490	1.474364538
## 1866	388	G	-0.643431823	-1.312202695	0.149724914	0.048634919
## 1867	388	H	0.203605222	0.049542042	1.056782196	0.318940425
## 1868	388	I	-1.723487189	-1.057736374	0.745736180	0.376692875
## 1869	388	K	-1.508758128	-0.563809656	0.388250767	0.685387863
## 1870	388	L	-1.311767386	-0.857167078	0.559327595	0.975737510
## 1871	388	M	-0.419067972	-1.194631436	0.222626606	0.170185156
## 1872	388	N	-0.755519207	0.112404711	0.444949956	-0.277823181
## 1873	388	P	-2.350228408	-4.339760146	-0.651425847	1.019379650
## 1874	388	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 1875	388	R	-0.763576287	-1.024433158	0.148347203	0.140775091
## 1876	388	S	-1.030803701	-1.062491897	0.444037198	-0.050242706
## 1877	388	T	-0.493939681	-0.243295080	-0.027128765	0.352064995
## 1878	388	V	-0.810488102	-0.428366371	-0.163196796	-0.286024885
## 1879	388	W	-1.995090108	-0.771507238	1.051971473	1.339218846
## 1880	388	Y	-1.067448051	-3.674206139	0.619129310	1.139033535
## 1881	389	A	0.178419065	-0.025759918	0.005905079	-0.534533233
## 1882	389	C	-0.353823799	-0.456407933	-0.253763481	-0.414125122
## 1883	389	D	1.492188809	1.632436912	-1.786264392	-2.715545138
## 1884	389	E	0.591472507	1.266320360	-1.616762006	-1.703477698
## 1885	389	F	-0.037493114	-0.997527955	-0.152277715	0.171434045
## 1886	389	G	-0.926936695	-0.160855776	-0.056841621	-0.842713080
## 1887	389	H	-0.294640940	-0.506819575	-0.378265620	-0.512558603
## 1888	389	I	-2.391775897	-2.453338005	0.802804786	-0.002312010
## 1889	389	K	-0.496552755	-1.323700397	0.317891531	0.845623373
## 1890	389	L	-1.189424664	-1.567152289	0.566070863	0.952961534
## 1891	389	M	-0.824788498	-1.187170135	0.247912052	0.141140714
## 1892	389	N	0.546564675	0.090543178	-0.654534976	-1.387608015

## 1893	389	P	0.000000000	0.000000000	0.000000000	0.000000000
## 1894	389	Q	-0.659065510	-0.429877533	-0.342173072	0.384189196
## 1895	389	R	-2.087800184	-1.311558830	1.003838213	1.105871170
## 1896	389	S	0.208796143	-0.115138062	-0.541780629	-0.713477390
## 1897	389	T	-0.147102166	-0.483342257	-0.089608167	-0.586092297
## 1898	389	V	-1.225821033	-1.190706616	-0.088186853	-0.081646617
## 1899	389	W	-0.568555981	-0.999895199	-0.072971508	0.140044153
## 1900	389	Y	-1.075181086	-1.373203577	0.351960235	-0.258427829
## 1901	390	A	-1.410492731	-0.865664520	0.939597467	1.377443660
## 1902	390	C	-0.989280808	-1.720902069	0.697235261	1.231037075
## 1903	390	D	-2.083594448	-2.143816661	0.878141702	1.223946517
## 1904	390	E	-2.118595783	-2.110501648	1.042504023	1.453608630
## 1905	390	F	0.000000000	0.000000000	0.000000000	0.000000000
## 1906	390	G	-1.777845492	-1.847974938	0.878454170	1.061325243
## 1907	390	H	-2.222070243	-1.421302223	0.740821571	0.777747303
## 1908	390	I	-1.120913806	-1.126056232	1.211702241	1.435231577
## 1909	390	K	-0.591342905	-1.386134196	0.177022249	0.629788127
## 1910	390	L	-0.727242079	-0.832340445	1.267588743	1.583858714
## 1911	390	M	-0.585110621	-0.551857948	0.406717686	0.155827375
## 1912	390	N	-0.427700346	-1.867121729	0.481648656	0.164916629
## 1913	390	P	-1.509991226	-0.923611278	0.312714579	0.412364219
## 1914	390	Q	-1.369858059	-1.322314218	1.473569037	0.730442785
## 1915	390	R	-1.385264941	-1.529311150	0.739637692	0.492218756
## 1916	390	S	-0.958186937	-0.871794638	0.373272560	0.635588412
## 1917	390	T	-1.237788276	-1.332688778	0.508278223	0.808478218
## 1918	390	V	-1.059985599	-1.262718981	1.351760090	1.425192881
## 1919	390	W	-1.462992168	-1.485374104	0.799940664	0.945129544
## 1920	390	Y	-1.337762651	-0.566634711	1.109718454	0.940207586
## 1921	393	A	1.061815033	0.844856591	-1.336887740	-1.945234551
## 1922	393	C	-0.264247050	0.160313555	-0.866957160	-1.384250265
## 1923	393	D	-2.489294837	-2.090741541	-0.110437135	0.167173924
## 1924	393	E	-0.562275492	-0.539267508	-0.539882666	-0.228544470
## 1925	393	F	-2.352861544	-1.622816510	-1.251569399	-0.349789588
## 1926	393	G	-0.299452265	-0.232237960	-0.420034508	-0.333090916
## 1927	393	H	0.033974595	0.449630379	0.282288150	0.258299420
## 1928	393	I	-1.183638126	-1.819568641	-0.870186572	-0.314297906
## 1929	393	K	1.792881669	2.166167490	-0.464534039	-1.120649010
## 1930	393	L	-0.282721629	-0.263609832	-0.391588853	-0.312006891
## 1931	393	M	0.964018048	1.003650286	-1.226462854	-1.874178340
## 1932	393	N	-0.968951773	-0.599080711	-0.921855939	-0.812635329
## 1933	393	P	-2.200621295	-1.357427559	-0.803825283	-0.719423667
## 1934	393	Q	-0.088348965	0.244185976	-0.779374111	-1.267616394
## 1935	393	R	0.000000000	0.000000000	0.000000000	0.000000000
## 1936	393	S	-0.394262162	-0.028781487	-0.297763583	-0.394809469
## 1937	393	T	-0.435557851	0.133956105	-0.297292668	-0.825242367
## 1938	393	V	-1.767359756	-1.594389974	-0.479931876	0.120077503
## 1939	393	W	-1.910495651	-2.714891137	0.747801241	0.969515584
## 1940	393	Y	-2.189870822	-1.809809862	-0.846942834	-0.256202979
## 1941	394	A	-0.163313822	0.037062193	-0.422814429	-1.583341743
## 1942	394	C	0.104794920	0.310341081	-1.265740406	-1.669825305
## 1943	394	D	0.583880888	0.002483211	0.114023674	-0.221540804
## 1944	394	E	0.604019416	0.371052884	-1.258271359	-0.783876925
## 1945	394	F	-0.057354817	0.283627589	-0.745564586	-0.706745656
## 1946	394	G	-0.235961229	0.155917993	-0.370846254	-0.438910071

## 1947	394	H	0.698837815	0.137389062	-0.767197979	-1.549602522
## 1948	394	I	0.414433948	0.283603718	-0.551302670	-0.698302007
## 1949	394	K	0.271679854	0.570569791	-0.235405081	-0.948388072
## 1950	394	L	-0.065239595	0.131450494	-0.422477933	-1.271036796
## 1951	394	M	0.001285375	0.314824586	-0.958384752	-0.416213641
## 1952	394	N	0.000000000	0.000000000	0.000000000	0.000000000
## 1953	394	P	-2.697799011	-0.783211208	0.975713544	1.260904626
## 1954	394	Q	0.031187952	-0.201488346	-0.819487625	-0.662334672
## 1955	394	R	0.474120141	0.687820154	-1.147927035	-1.139401269
## 1956	394	S	0.349980596	0.179798162	-0.227977484	-0.847482426
## 1957	394	T	-0.614234553	0.019621591	-0.351712925	-0.570108326
## 1958	394	V	-0.041217392	0.033475680	-0.395994679	-1.041753189
## 1959	394	W	0.303785722	0.496481695	-0.346346959	-0.695552382
## 1960	394	Y	0.569847589	0.617564050	-1.182454082	-1.292648345
## 1961	398	A	-0.405492828	-0.665605734	-0.343768737	-0.833563389
## 1962	398	C	0.222987782	-0.025378635	0.034945723	-1.500418694
## 1963	398	D	0.053318483	0.340807864	-0.210315653	-0.867105438
## 1964	398	E	0.000000000	0.000000000	0.000000000	0.000000000
## 1965	398	F	-0.213050621	0.062257541	-0.599740755	-1.570228377
## 1966	398	G	-0.049871573	0.123729712	-0.438274736	-0.688249694
## 1967	398	H	-0.775795154	-0.834723232	-1.046073929	-0.358587893
## 1968	398	I	-0.627098465	-0.294017230	0.054300119	-0.126950494
## 1969	398	K	0.252122431	0.159472481	0.038603809	0.191955138
## 1970	398	L	-0.186511446	-0.256388823	-0.384026659	-0.554434215
## 1971	398	M	-0.131192924	-0.065782915	-0.836262081	-2.153571327
## 1972	398	N	0.381515894	-0.092663552	-0.585841660	-0.810203678
## 1973	398	P	-0.219592177	-0.078346032	-0.067461887	-0.828691638
## 1974	398	Q	0.332674302	0.246920955	-0.712201689	-1.228830337
## 1975	398	R	0.047744789	0.000215305	-0.529339545	-0.972556016
## 1976	398	S	0.028902518	-0.229160096	-0.536729019	-0.501567919
## 1977	398	T	-0.182118955	-0.351009581	-0.128404511	-0.907669654
## 1978	398	V	-0.562964555	-0.579651113	0.127525405	-0.127723436
## 1979	398	W	-0.458173585	0.102433358	-0.193983610	-0.439420807
## 1980	398	Y	-0.453617604	0.025389658	-0.551907227	-0.464639928
## 1981	401	A	-0.149047441	-0.348810835	-0.242470772	-0.921908736
## 1982	401	C	-0.781436856	-0.198459382	-0.289137212	-0.577015722
## 1983	401	D	-0.188101891	-0.205247757	-0.348383379	-0.849558907
## 1984	401	E	0.051615779	0.420264156	-0.568013684	-0.588572782
## 1985	401	F	-1.271408533	-1.193477043	-0.708439574	-0.322613072
## 1986	401	G	0.299101027	0.174447559	-0.393817903	-1.047818401
## 1987	401	H	0.000000000	0.000000000	0.000000000	0.000000000
## 1988	401	I	0.209922171	-0.295684193	0.165403130	-0.145086275
## 1989	401	K	-0.051292960	-1.285046229	0.010330060	-0.131673724
## 1990	401	L	-0.558170328	-0.836394904	-0.058581075	-0.173548478
## 1991	401	M	-0.761072308	-0.513906881	-0.562123865	-0.090214695
## 1992	401	N	0.480703828	0.167719709	0.147741115	-0.674081543
## 1993	401	P	0.023694560	-0.131807705	-0.792024102	-0.481151683
## 1994	401	Q	-0.789034073	-0.061054915	0.040460322	-0.889394248
## 1995	401	R	-0.060994716	-0.128225380	-0.453666168	-0.333572064
## 1996	401	S	0.940130149	0.263152865	-1.108886203	-1.319826046
## 1997	401	T	-0.087400247	0.115925948	-0.736844414	-0.420375939
## 1998	401	V	-0.516841956	-0.277357097	0.026725872	-0.229349857
## 1999	401	W	-0.205819416	-0.418342584	0.397161302	-0.311959500
## 2000	401	Y	-0.047217526	0.457752505	0.483593231	-0.310599212

##	2001	402	A	0.504179571	-0.056332769	-0.531880526	-0.779055391
##	2002	402	C	-0.279521657	-0.413453999	-0.763914192	-0.626756396
##	2003	402	D	-0.285428762	-0.445411993	-0.199940485	-0.442383478
##	2004	402	E	0.000000000	0.000000000	0.000000000	0.000000000
##	2005	402	F	0.420204490	0.054543780	-0.838575366	-0.710195436
##	2006	402	G	0.085630108	0.016765397	-0.264132669	-0.551156384
##	2007	402	H	-0.015236420	0.049584433	-0.407975281	-1.181022577
##	2008	402	I	-0.475480361	-0.735251199	-0.109856586	-0.636636244
##	2009	402	K	0.369175431	0.216182076	0.361924832	-0.320844152
##	2010	402	L	-0.405474956	0.109288448	-0.479154813	-0.644090438
##	2011	402	M	0.252193997	-0.231599294	-0.575652094	-0.307990098
##	2012	402	N	-0.763052625	0.197245442	-0.320602591	-0.800025429
##	2013	402	P	-0.240271548	0.126058442	-0.341299637	-0.875976593
##	2014	402	Q	0.073797875	0.000539728	-0.684952808	-1.082203723
##	2015	402	R	-0.667664727	-0.393513714	-0.527892633	-0.586771465
##	2016	402	S	-0.029495971	0.182850439	-0.926411055	-1.086356188
##	2017	402	T	-0.582612992	-0.082847806	-0.695564190	-0.956444118
##	2018	402	V	0.023274426	0.154888770	0.047648487	-0.703047803
##	2019	402	W	0.072553636	-0.316965563	-0.130724785	-0.510479486
##	2020	402	Y	-0.315925861	-0.607395505	-0.930772923	-1.199423380
##	2021	406	A	0.672231015	0.493724990	-0.626100798	-1.682531271
##	2022	406	C	-0.157864947	-0.163584208	-0.598377160	-0.638673608
##	2023	406	D	-0.145342617	0.266091044	0.196333905	-0.137101206
##	2024	406	E	0.000000000	0.000000000	0.000000000	0.000000000
##	2025	406	F	-0.572236111	0.029479181	-0.178976542	-0.429842858
##	2026	406	G	0.397816646	0.440952591	-0.791163374	-1.478576911
##	2027	406	H	-0.573975799	0.124969153	-0.853314139	-0.772166600
##	2028	406	I	-0.515590075	0.024420155	-0.387574245	-0.200619531
##	2029	406	K	0.303568237	-0.002359422	0.054514417	0.119771412
##	2030	406	L	0.309503919	-0.067134831	-0.448466220	-0.389321826
##	2031	406	M	-0.317166373	0.161633845	-0.748485167	-0.483232132
##	2032	406	N	0.251117047	-0.360911376	-1.071166530	-0.506134786
##	2033	406	P	0.612196729	-0.279626286	-0.203045158	-1.305196208
##	2034	406	Q	0.467480753	0.736230261	-0.585183073	-0.521026838
##	2035	406	R	-0.205284282	-0.230163850	-0.521345459	-0.488140309
##	2036	406	S	0.492883583	0.752945304	-0.842575502	-1.360212994
##	2037	406	T	-0.052532253	0.290193749	-0.463228745	-1.040328840
##	2038	406	V	-0.182135475	-0.192108612	-0.267496364	-0.876329577
##	2039	406	W	-0.507726526	-0.275079823	0.002821033	-0.583501616
##	2040	406	Y	0.269761129	-0.411087740	-0.137685160	-1.028077935
##	2041	409	A	0.570761196	0.654293678	-0.330977411	-0.656230567
##	2042	409	C	0.083448045	0.170633255	-1.046501162	-0.764504410
##	2043	409	D	-0.622711279	0.187217613	-0.463490905	-1.156593479
##	2044	409	E	0.049858311	-0.325785817	-0.402862729	-0.929937286
##	2045	409	F	-0.349990490	-0.357992831	-0.329191072	-0.917918345
##	2046	409	G	0.423647908	0.247040818	-0.474119061	-0.816045916
##	2047	409	H	-0.669395535	0.058085387	-1.050681441	-0.660643938
##	2048	409	I	-0.224438305	0.104722866	-0.645281314	-0.066946831
##	2049	409	K	-0.406618769	0.023248759	-0.206453154	-0.856047438
##	2050	409	L	-0.174599241	0.236883846	-0.160844023	-0.669277035
##	2051	409	M	-0.289853078	0.137978415	0.124269957	-1.174937637
##	2052	409	N	0.526939979	0.092209697	-0.395841211	-1.646890501
##	2053	409	P	-0.385338322	-0.437375413	-0.139627450	-0.376459741
##	2054	409	Q	0.144095722	-0.022577315	-0.462842808	-0.907692537

##	2055	409	R	0.036323169	0.224497513	-0.257904335	-0.387050551
##	2056	409	S	0.000000000	0.000000000	0.000000000	0.000000000
##	2057	409	T	0.402118678	0.200997751	0.249215371	-0.274531451
##	2058	409	V	0.030866638	0.032037631	-0.602698734	-0.749558210
##	2059	409	W	-0.149120662	-0.031353551	0.473379412	-0.595647396
##	2060	409	Y	-0.084062948	-0.768878733	-0.561795043	-1.142539483
##	2061	438	A	-0.331382296	-0.010117200	-0.500853246	-0.956492055
##	2062	438	C	0.029099251	-0.160615488	-0.229336309	-0.885692757
##	2063	438	D	-1.270225441	-0.509164337	-0.241723995	-1.162440986
##	2064	438	E	0.579923960	-0.319009245	-0.929214107	-0.802519644
##	2065	438	F	0.000000000	0.000000000	0.000000000	0.000000000
##	2066	438	G	-0.080211779	-0.012576795	-0.220532753	-0.783540390
##	2067	438	H	-0.063342394	-0.076278869	-1.121300309	-0.624754754
##	2068	438	I	-0.234305125	0.308483430	-0.233158813	-0.295825479
##	2069	438	K	-0.060902759	-0.142614198	-0.500239929	-1.678535205
##	2070	438	L	-0.008160030	0.109956750	-0.045469060	-0.221115833
##	2071	438	M	-0.342471830	-0.070809000	-0.746131282	-0.426151066
##	2072	438	N	0.192555831	0.533143154	-1.518079779	-1.209587242
##	2073	438	P	-1.834796365	-2.751555627	-1.106624027	-1.524814542
##	2074	438	Q	-0.265068955	-0.128787355	0.269660863	-0.754580431
##	2075	438	R	-0.055962449	-0.092943021	-0.458506377	-0.923253051
##	2076	438	S	-0.276817441	0.232802761	-0.342567938	-0.482807263
##	2077	438	T	-0.259868868	-0.544711259	-0.566841678	-1.050456420
##	2078	438	V	-0.175844525	-0.053754851	-0.608561491	-1.152328168
##	2079	438	W	0.596257094	-0.110727319	-0.236250444	-1.594191942
##	2080	438	Y	0.114226638	0.304863934	0.362488210	0.039182476
##	2081	441	A	0.213248549	0.419761184	-0.445138509	-1.805566887
##	2082	441	C	-0.316772443	0.285085857	-0.799180402	-1.265201229
##	2083	441	D	0.038754899	-0.331086918	0.200533716	-0.523956825
##	2084	441	E	-0.202768335	-0.005828091	0.212048670	-0.094316023
##	2085	441	F	0.216616056	0.371659308	-0.557472022	-1.151480578
##	2086	441	G	0.152759695	-0.048832732	-0.424434256	-0.465585502
##	2087	441	H	-0.263397617	0.497967025	-0.047140775	-0.560120802
##	2088	441	I	-0.509545905	-0.306678255	-0.857587658	-0.637979858
##	2089	441	K	0.000000000	0.000000000	0.000000000	0.000000000
##	2090	441	L	-0.194843767	-0.067592587	-0.221293170	-1.112844239
##	2091	441	M	0.146259222	0.448090376	-0.331985647	-1.537216771
##	2092	441	N	0.139902681	0.098415512	-0.444604890	-0.414865162
##	2093	441	P	-1.052937336	-2.181630386	-0.997897469	-1.313118889
##	2094	441	Q	0.196439827	0.497351194	-0.344581734	-1.751029322
##	2095	441	R	0.319369647	0.305709721	-0.517699864	-0.665956104
##	2096	441	S	0.339826587	0.055555846	-0.729848072	-0.899427277
##	2097	441	T	-0.240121173	0.561029397	-0.369610755	-0.482097370
##	2098	441	V	0.240922114	-0.393803705	-0.458084530	-1.224966433
##	2099	441	W	-0.080120232	-0.008881251	-0.082010753	-0.859955725
##	2100	441	Y	-0.048029339	0.121910552	-0.856932875	-0.726081911
##	2101	442	A	-0.061275002	-0.518326481	-0.491217874	-1.085982404
##	2102	442	C	-0.300284047	-0.467175861	-0.460988272	-1.476733687
##	2103	442	D	0.005683328	-0.036325448	-0.699292015	-0.627717101
##	2104	442	E	0.480498301	-0.163039828	-0.656407178	-0.946289460
##	2105	442	F	-1.490465367	-0.317448731	-0.821959341	-1.376364181
##	2106	442	G	-0.267290654	0.111096774	-0.890741693	-1.209813045
##	2107	442	H	-0.190803303	-0.055444704	-0.058804472	-0.755928114
##	2108	442	I	-2.549218169	-0.817164367	-1.209813096	-1.975136405

## 2109	442	K	0.094885016	0.009687919	-0.074805438	-0.565553615
## 2110	442	L	-1.479899548	-0.549277458	-1.637994135	-1.262758447
## 2111	442	M	-0.661470665	-0.660968899	-0.724493117	-2.029807531
## 2112	442	N	-1.320042866	-0.413372444	-0.073609312	-1.084917787
## 2113	442	P	-1.715307844	-1.212721104	-0.968337992	-1.173538278
## 2114	442	Q	0.000000000	0.000000000	0.000000000	0.000000000
## 2115	442	R	-0.180002647	-0.035767165	-0.303162984	-0.553760309
## 2116	442	S	-0.647312086	-0.569216105	-0.075338217	-0.882183302
## 2117	442	T	-0.281950963	0.202441228	-0.627691583	-1.421638992
## 2118	442	V	-1.419440369	-0.844187650	-0.726424646	-1.563338513
## 2119	442	W	-1.410832195	-0.889613769	-1.024580260	-1.361883688
## 2120	442	Y	-1.293100645	-0.649571376	-1.146474923	-1.487850232
## 2121	445	A	-0.175381670	0.158643226	-0.162276389	-0.599674341
## 2122	445	C	-0.782386080	-0.001097978	-0.791455273	-1.214672604
## 2123	445	D	0.043582466	0.056556814	-0.259127998	-0.674705854
## 2124	445	E	-0.175659669	-0.061775602	-1.634582229	-1.207573955
## 2125	445	F	-0.024072276	0.300474533	-0.666075862	-1.238401587
## 2126	445	G	0.288297535	0.152812220	-0.640117165	-1.051242786
## 2127	445	H	0.193071832	0.533495151	-1.246308864	-1.267744793
## 2128	445	I	-0.367620762	-0.380695419	-0.721007145	-0.337003131
## 2129	445	K	0.028647532	0.291037241	-0.665224511	-0.682160962
## 2130	445	L	-0.055478342	-0.427432230	-0.645101249	-1.145825402
## 2131	445	M	0.374509255	0.470723559	-0.451539310	-0.982483651
## 2132	445	N	-0.249740097	-0.516824868	-0.525890445	-1.503334240
## 2133	445	P	-0.199171388	0.116437829	-1.015056652	-1.056950905
## 2134	445	Q	0.678068177	0.343042079	-1.256106703	-2.159658719
## 2135	445	R	0.371953227	0.212187757	-0.848060333	-1.230775893
## 2136	445	S	0.148694199	-0.062347644	-0.751462427	-1.038618209
## 2137	445	T	0.000000000	0.000000000	0.000000000	0.000000000
## 2138	445	V	-0.115124936	-0.304990803	-0.572748882	-1.000082322
## 2139	445	W	-0.086936037	-0.420590171	-0.752754267	-1.114198376
## 2140	445	Y	0.017631685	-0.107536967	-0.891051780	-1.152263050
## 2141	446	A	0.301339462	0.635186815	-0.817979450	-1.021271593
## 2142	446	C	0.252205695	0.261822848	-0.661713513	-1.790993493
## 2143	446	D	-0.827195677	0.148877357	-1.360876612	-1.984570037
## 2144	446	E	-1.498583464	-0.376835832	-0.981383230	-1.085454907
## 2145	446	F	0.185857345	0.215730687	-0.181271280	-0.920532871
## 2146	446	G	-1.537127331	-1.369049927	-2.171958838	-1.693200833
## 2147	446	H	0.036538932	0.077150749	-0.854494746	-0.973223464
## 2148	446	I	0.000000000	0.000000000	0.000000000	0.000000000
## 2149	446	K	0.013358926	-0.414203615	-0.435014523	-1.590270014
## 2150	446	L	-0.263236191	0.168322776	-0.320958193	-0.764490894
## 2151	446	M	-0.038026773	0.156370437	-0.337409427	-0.742775980
## 2152	446	N	-0.322065323	-0.037907870	-0.387477907	-0.786673317
## 2153	446	P	-2.720750607	-1.378185299	-1.150642799	-1.889901786
## 2154	446	Q	0.345899718	0.621632086	-0.364149457	-1.219334312
## 2155	446	R	-0.583749448	-0.290241199	-1.157869214	-1.537707891
## 2156	446	S	-0.218933877	0.337293222	-0.490889801	-0.675676958
## 2157	446	T	0.201816386	0.653137815	-0.327886817	-0.659778418
## 2158	446	V	-0.362250626	-0.041927391	-0.685584133	-0.600057370
## 2159	446	W	0.212819550	-0.433163752	-0.593690409	-1.402751328
## 2160	446	Y	0.170980715	0.042272588	-0.767312963	-1.630510130
## 2161	504	A	-0.021144849	-0.058436488	-0.086072260	-0.257091511
## 2162	504	C	-0.664306194	-0.193779127	-0.243763486	-0.561778842

## 2163	504	D	-0.331731214	-0.064666681	-0.221841741	-0.520916828
## 2164	504	E	0.031910544	-0.198287605	0.013521685	-0.707757730
## 2165	504	F	0.000000000	0.000000000	0.000000000	0.000000000
## 2166	504	G	0.082788396	0.092888248	-0.474462220	-0.722761276
## 2167	504	H	0.372588215	0.190283665	-1.047311371	-1.213276352
## 2168	504	I	-0.844320433	0.180713514	0.484421649	-0.432594209
## 2169	504	K	0.200058380	0.296183408	-0.122600658	-0.928405505
## 2170	504	L	0.061001549	-0.132123174	-0.117165897	-0.272907209
## 2171	504	M	-0.266234732	-0.122829565	-0.694948946	-1.519453192
## 2172	504	N	0.561338234	-0.299485363	-1.096135758	-0.952859395
## 2173	504	P	-0.027628715	0.380792668	-0.238963613	-0.667703267
## 2174	504	Q	0.398725243	0.171592618	-0.697825958	-0.697334691
## 2175	504	R	-0.028362428	-0.506654166	-0.194998120	-0.750999350
## 2176	504	S	0.116503924	-0.166903733	-0.197135650	-0.472282062
## 2177	504	T	0.470119927	-0.374997693	-0.160722582	-0.830991928
## 2178	504	V	-0.321758592	-0.220425716	-0.383539698	-0.466577564
## 2179	504	W	0.490545246	0.104381338	-0.584723440	-0.588396294
## 2180	504	Y	0.205842875	0.016394456	-0.235575135	0.001092215
## 2181	505	A	-0.089385792	0.490791299	-0.758320582	-0.407885024
## 2182	505	C	-0.366137226	-0.073861112	-0.472207650	-1.494423291
## 2183	505	D	-0.084082941	-0.067632126	-0.329192049	-0.622808508
## 2184	505	E	0.408028711	-0.013660515	-0.227081435	-0.542439824
## 2185	505	F	-0.350683663	-0.141527986	-0.509915211	-0.991419866
## 2186	505	G	0.149644238	-0.102833936	-0.546750796	-0.917817486
## 2187	505	H	0.000000000	0.000000000	0.000000000	0.000000000
## 2188	505	I	-0.024050754	-0.381865643	-1.411898092	-0.937283096
## 2189	505	K	-0.252890608	0.237073652	-1.093058653	-0.961770964
## 2190	505	L	-0.226479050	-0.176898193	-0.512963453	-0.454258691
## 2191	505	M	-0.741716065	0.460805402	-0.745761182	-1.111184073
## 2192	505	N	-0.370848990	0.034693640	-0.308429849	-0.321050680
## 2193	505	P	0.495647507	-0.249352006	-0.364443436	-0.621240507
## 2194	505	Q	0.163436856	0.320561858	-0.280617289	-0.432490722
## 2195	505	R	-0.247227542	-0.443248961	-0.765539067	-0.756698093
## 2196	505	S	0.091703543	0.455118577	-0.480441097	-0.961594017
## 2197	505	T	-0.869526872	0.050863787	-0.340013327	-0.897007036
## 2198	505	V	-0.341597404	0.155290497	-0.480985709	-0.747098207
## 2199	505	W	-0.659352954	-0.475667494	-0.043374864	-0.607852937
## 2200	505	Y	0.376317685	-0.357405314	-0.711963182	-0.532226105
## 2201	509	A	-0.573134707	-0.380584006	-1.504698930	-1.182446799
## 2202	509	C	-1.490805053	-1.119339074	-1.360272251	-2.032212502
## 2203	509	D	0.000000000	0.000000000	0.000000000	0.000000000
## 2204	509	E	-0.017395584	-0.066498362	-0.169066126	-0.122339971
## 2205	509	F	-1.252760314	-2.338056835	-1.533371917	-1.468775242
## 2206	509	G	0.336770514	0.114744049	-0.602609745	-1.052533694
## 2207	509	H	-0.532576380	0.584006527	-1.637375242	-1.128644434
## 2208	509	I	-0.540913959	-2.067657637	-2.359629848	-0.987230637
## 2209	509	K	-0.247530508	-0.449890258	-1.836180117	-2.326457079
## 2210	509	L	-1.458250945	-2.094508158	-1.782179402	-1.677701452
## 2211	509	M	-2.146984818	-1.335775861	-0.857103715	-1.643017769
## 2212	509	N	-0.594710947	-0.232844783	0.315656416	0.006245787
## 2213	509	P	-2.532109334	-0.841324299	-1.599151438	-0.636330589
## 2214	509	Q	-1.003292952	-1.510122372	-0.781129436	-1.542385795
## 2215	509	R	-1.401598386	-0.572257745	-0.954592238	-1.435611167
## 2216	509	S	-0.445395058	-0.310804756	-0.542406106	-1.505213301

## 2217	509	T	-0.626261825	-0.307478297	-1.220275866	-0.879102265
## 2218	509	V	-1.464375576	-1.441103704	-1.679879700	-1.513511693
## 2219	509	W	-1.180034424	-2.376890696	-1.852709356	-2.323494082
## 2220	509	Y	-1.065168726	-0.820675065	-0.495211299	-0.624347077
## 2221	510	A	0.130846951	0.288864169	-0.554919521	-0.598274950
## 2222	510	C	0.292408008	-0.377120922	-0.314179204	-0.271527573
## 2223	510	D	0.065251960	-0.076232125	-0.143389142	-0.155167590
## 2224	510	E	0.519220807	-0.622661378	-0.382804235	-1.034408276
## 2225	510	F	0.143387537	0.155335981	-0.406681997	-0.490921091
## 2226	510	G	0.018323336	-0.034911247	-0.112132693	-1.125900670
## 2227	510	H	0.365569063	0.126465689	-0.113404544	-0.113192420
## 2228	510	I	-0.117230382	0.291996335	-0.412981546	-1.050368311
## 2229	510	K	-0.219527195	0.513565297	-0.662200110	-2.472321263
## 2230	510	L	0.479733912	0.383324516	-0.704865185	-1.154267295
## 2231	510	M	0.667136880	-0.061705874	-0.153812205	-0.482312357
## 2232	510	N	-0.066443190	0.374007161	0.714739674	0.409849827
## 2233	510	P	-1.729760031	-0.062293888	-0.948560423	-0.894589593
## 2234	510	Q	-1.157320772	0.878927558	-0.584013182	-0.504796344
## 2235	510	R	-0.080774631	0.393521772	-1.074497739	-1.058068559
## 2236	510	S	-0.090497272	-0.367348876	-0.132172520	-0.057672045
## 2237	510	T	-0.739232630	-0.346315814	-0.258826144	0.030301802
## 2238	510	V	0.441880815	-0.064944325	-0.418810846	-1.023619718
## 2239	510	W	-0.038841265	-0.006430241	-0.383500771	-1.371777392
## 2240	510	Y	0.000000000	0.000000000	0.000000000	0.000000000
## 2241	511	A	0.117444390	-0.023444412	-0.206626517	-0.884360912
## 2242	511	C	0.210123330	-0.509502787	-0.971795477	-1.082968215
## 2243	511	D	1.310022806	0.840721924	-0.714778139	-1.714120404
## 2244	511	E	0.491477249	0.515423231	-0.845009045	-0.944205085
## 2245	511	F	-0.193368448	0.301028004	-0.749861642	-0.810753213
## 2246	511	G	-0.065131872	0.278078379	-0.587802273	-0.849511845
## 2247	511	H	-0.210675666	-0.277600984	-1.200163649	-1.657147947
## 2248	511	I	-0.460014192	0.286831848	-0.815296964	-0.355433185
## 2249	511	K	-0.059233562	-0.240523864	-0.678542702	-1.162890672
## 2250	511	L	-1.293614405	-0.419823593	-0.082541933	-0.164157123
## 2251	511	M	-0.013574195	-0.218411169	-0.897568085	-1.078970160
## 2252	511	N	0.687723193	0.119099528	-0.508565943	-1.132383675
## 2253	511	P	-0.152482612	-0.040564058	-0.135484170	-0.242065191
## 2254	511	Q	0.248297431	0.763935191	-0.943981325	-2.085002005
## 2255	511	R	0.028213849	-0.223634188	-0.609059544	-0.874400274
## 2256	511	S	0.000000000	0.000000000	0.000000000	0.000000000
## 2257	511	T	-0.063842465	0.360123095	0.006840926	-0.272159097
## 2258	511	V	0.103895545	0.115030988	-0.720788767	-0.511568806
## 2259	511	W	-0.532578238	-1.003220096	-0.529836989	-1.011605270
## 2260	511	Y	-0.363194728	-0.057752258	-0.870062993	-1.233240834
## 2261	512	A	-0.002823776	0.374587250	-0.700868618	-0.616242101
## 2262	512	C	-0.253492990	-0.512360919	-0.623691330	-0.809523230
## 2263	512	D	0.355985982	-0.391164022	-1.225625814	-1.171692078
## 2264	512	E	-0.094425729	0.046175247	-0.408282889	-0.465590213
## 2265	512	F	0.000000000	0.000000000	0.000000000	0.000000000
## 2266	512	G	-0.001251955	0.113075395	-0.215101986	-0.900425756
## 2267	512	H	-1.068060552	-0.372295667	-0.217741006	-0.854121988
## 2268	512	I	-0.163739373	0.178847640	-0.343027880	-1.070984829
## 2269	512	K	-1.562546477	-0.640706816	-1.151992055	-0.412086498
## 2270	512	L	-0.132874700	-0.330425501	-0.200176054	-0.572079265

## 2271	512	M	0.308480619	0.159440249	-0.363391282	-0.630253622
## 2272	512	N	-0.052704352	0.071512509	-0.841337854	-0.847116779
## 2273	512	P	-1.097737899	-0.655314247	-0.246022133	-0.806658391
## 2274	512	Q	-0.039596515	-0.540963245	-0.881629712	-0.904311558
## 2275	512	R	-0.631803555	-0.268582154	-0.845034420	-1.000701235
## 2276	512	S	-0.302794973	-0.153971313	-0.209639127	-0.805676761
## 2277	512	T	-0.064347772	0.345561891	-0.768688762	-1.060782232
## 2278	512	V	-0.246148575	-0.061845964	-0.332198352	-0.488568141
## 2279	512	W	0.493000580	0.015429826	-0.403584156	-0.601158379
## 2280	512	Y	0.214313076	0.177005186	0.163082330	-0.272735901
## 2281	514	A	0.151885905	-0.035847846	-0.700921472	-1.060094057
## 2282	514	C	-0.324655325	0.059286537	-0.883320481	-1.285730129
## 2283	514	D	0.374129714	0.020171556	-1.200447697	-1.957714273
## 2284	514	E	0.755672605	0.064513103	-0.251113527	-1.283000142
## 2285	514	F	-0.050939622	-0.609417684	-0.657718825	-0.720684263
## 2286	514	G	-0.314297140	-0.169644983	-0.505648892	-0.751548541
## 2287	514	H	-0.156968139	0.248437110	-0.756467382	-1.289205216
## 2288	514	I	-0.518471913	-0.397637963	-1.546521056	-1.213137587
## 2289	514	K	0.762627088	0.365083613	-0.643317720	-1.549068438
## 2290	514	L	0.081168303	-0.149644340	-0.365130989	-0.508714594
## 2291	514	M	-0.245367027	-0.270421294	0.050267212	-1.187223136
## 2292	514	N	0.207821503	-0.487684236	-0.319813850	-0.729722207
## 2293	514	P	0.165916071	0.327146019	-0.409935253	-1.728461614
## 2294	514	Q	0.215775845	0.555015256	0.477383195	-0.278518291
## 2295	514	R	0.000000000	0.000000000	0.000000000	0.000000000
## 2296	514	S	-0.270110414	-0.231476011	-0.717212212	-0.887441316
## 2297	514	T	0.293792566	-0.287437397	-0.037648121	-0.841133925
## 2298	514	V	0.350678001	-0.424764153	-0.666628830	-1.244260740
## 2299	514	W	-0.259986008	-0.120811792	-0.371254041	-0.480214925
## 2300	514	Y	-1.179118768	0.087509945	-0.107842105	-0.472796113
## 2301	515	A	-0.426327758	0.113732545	-0.125944892	-0.852900225
## 2302	515	C	-0.606422005	-0.627822182	-0.774532391	-1.450227537
## 2303	515	D	0.136604334	0.274199150	-0.036096914	-0.345048599
## 2304	515	E	-0.643054690	0.246061862	-0.300918397	-0.429389973
## 2305	515	F	0.148684026	0.427571946	-0.348643672	-0.500798697
## 2306	515	G	-0.350328036	-0.531901466	-0.404945056	-0.616548835
## 2307	515	H	0.180586351	-0.085892622	0.141687266	-0.392378598
## 2308	515	I	-0.302175201	0.643247017	-0.981929188	-1.625843877
## 2309	515	K	-0.838505532	0.190283665	-0.715073460	-1.042000485
## 2310	515	L	0.255071515	-0.176996189	-0.328545389	-1.037242013
## 2311	515	M	0.269834794	0.434916766	-0.248814033	-0.217122456
## 2312	515	N	-0.665607029	-0.600973133	-0.623205041	-1.329027078
## 2313	515	P	0.116483272	0.028327098	-0.769499300	-1.598780776
## 2314	515	Q	-0.037052727	-0.738446105	0.120078527	-0.394909249
## 2315	515	R	-0.145462324	-0.029431907	-0.375011957	-1.062965019
## 2316	515	S	-0.076640238	0.083624842	-0.229918577	-0.703103925
## 2317	515	T	0.381778969	0.031526445	-1.040001115	-0.379792764
## 2318	515	V	0.217848204	0.170565862	-0.447967240	-1.069940044
## 2319	515	W	-0.103472019	0.404944653	-0.216785635	-0.784911632
## 2320	515	Y	0.000000000	0.000000000	0.000000000	0.000000000
## 2321	518	A	0.740335448	0.324792807	-0.963317625	-1.255137155
## 2322	518	C	-0.917205773	-0.105188032	-1.122475473	-1.640895350
## 2323	518	D	-1.555749314	-1.514765306	-0.158369693	-0.302577490
## 2324	518	E	-0.354269579	-0.308850492	-0.604889141	-0.906766031

## 2325	518	F	-0.278805173	-1.002091280	-1.098916906	-0.931447922
## 2326	518	G	1.629787014	1.608502927	-1.894548697	-2.227482771
## 2327	518	H	0.061494316	-0.105566186	-0.724395803	-0.590903106
## 2328	518	I	-1.376572792	-0.796774121	-1.062966782	-0.460114417
## 2329	518	K	-0.072006762	0.026995118	0.102604515	-0.003862271
## 2330	518	L	-0.847210460	-0.373902895	-0.414935492	-1.024499705
## 2331	518	M	0.294424752	0.115694349	-0.851754795	-0.357302171
## 2332	518	N	-0.719318942	0.328579065	-1.095052096	-0.562507142
## 2333	518	P	-1.763627169	-0.800503647	-1.480376200	-2.085390087
## 2334	518	Q	-0.406907178	-0.043953777	-1.084836652	-1.210660615
## 2335	518	R	0.000000000	0.000000000	0.000000000	0.000000000
## 2336	518	S	0.112097161	0.027848379	-0.324139899	-0.947440231
## 2337	518	T	0.096761462	-0.778403242	-0.642183775	-0.539853951
## 2338	518	V	-0.480077929	-0.350468160	-0.548082526	-0.410595875
## 2339	518	W	-0.143151943	-0.686746072	-0.405874329	-0.320086171
## 2340	518	Y	-1.916225388	-0.053496184	-0.353217101	-0.976123702